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Abstract

Research studies in education that focus on classrooms and school-level learning environments have escalated and produced promising findings that lead to enhancement of the teaching and learning process. The present study reports on the research findings on associations between students' perceptions of their teacher interaction, classroom learning environment and students' outcomes. A sample of 946 students from 43 classes in Indonesia schools completed a survey including the *Questionnaire on Teacher Interaction* (QTI), *What is Happening in This Class* (WIHIC) and a scale relating to their attitude towards mathematics classes. Statistical analysis shows that the reliability and validity of the WIHIC and the QTI were confirmed. Cronbach alpha coefficients ranged from 0.62 to 0.92 for the actual and preferred versions of the Indonesian version QTI, respectively. For the Indonesian version of WIHIC, Cronbach alpha coefficients of seven scales ranged from 0.80 to 0.91 for actual version, and from 0.78 to 0.92 preferred versions. The relationships of classroom environment and interpersonal teacher behaviour with students' attitudinal outcome were identified. Finally, suggestions on the use of the two instruments for teacher professional development were offered.

Keywords: Learning environment, Students-teacher interaction, Professional Development, Student Attitude

Most teachers have little control over school policy or curriculum or choice of texts or special placement of students, but most have a great deal of autonomy inside the classroom. ~Tracy Kidder

Introduction

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 learning environment that is created (Fraser, 1989). It is believed that a positive teacher-student relationship stoutly contributes to student learning. Educators, parents and students understand that problematic relationships can be detrimental to student outcomes and development. Productive learning environments are characterised by supportive and warm interactions throughout the class: teacher-student and student-student. Similarly, teacher learning thrives when principals facilitate accommodating and safe school

cultures. Researchers confirmed that teacher-student interaction is a powerful force that can play a major role in influencing cognitive and affective development of students (Getzel & Thelen, 1960; Wubbles, Breklmans, & Hermans, 1987). Furthermore Wubbels and Levy (1993) reaffirmed the role and significance of teacher behaviour in classroom environment and in particular how this can influence students' motivation leading to achievement.

Some reviews show that science and mathematics education researchers have led the world in the field of classroom environment since early 1980s, and that this field has contributed much to understanding and improving science and mathematics education (Fraser 1998; Fraser & Walberg, 1991). For example, classroom environment assessments provide a means of monitoring, evaluating and improving science and mathematics teaching and curriculum. It is highlighted that a key to improving student achievement and attitudes is to create learning environments that emphasise those characteristics that have been found to be linked empirically with student outcomes (Waldrip & Fisher, 2002).

International studies in the last four decades have firmly established classroom environment research as a thriving field of study (Fraser, 1998). Past recent classroom environment research has focused on cross-national studies of science classroom environments (Fisher, Rickards, Goh, & Wong, 1997), constructivist classroom environments (Taylor, Fraser, & Fisher, 1997), science laboratory classroom environments (McRobbie & Fraser, 1993) and computer-assisted instruction classrooms (Fisher & Stolarchuk, 1997; Teh & Fraser, 1995). Most of researchers reveal promising results of the important role of classroom learning environment on students learning in science classroom. While the area of classroom learning environment research has been internationally established, however, we notice that only very few studies have been done in SEAMEO member countries. Therefore, it is timely to initiate such a study on this area of research in the region.

Review of literatures

Research studies in education that focus on classrooms and school-level learning environments have escalated and produced promising findings that lead to enhancement of the teaching and learning process. A great deal of progress has involved conceptualisation, assessment and use of learning environments (Fraser, 1989). This research area has captured all school levels from primary to university, urban and rural, cross-national studies beyond non-Western countries, actual and preferred forms, and comparisons between teachers' and students' perceptions of their classroom learning environments, and has employed a number of salient and robust instruments that have been validated and revalidated (Fraser, 1998). Furthermore, this research area has also attracted researchers to conduct their research in non-Western countries, for example, Malaysia, Brunei, Korea, Taiwan, Nigeria, Japan and Papua New Guinea. Thus, there has been an acceptance of the learning environment as a significant variable in predicting the success of educational practice. It seems that the evaluation of the learning environment is as important as evaluating other student performances and outcomes. Reviews of learning environment studies have been provided conveniently and comprehensively, for example, in Fraser's (Fraser, 1994, 1998) studies. Those reviews dissect the development of learning environment research from the beginning to the recent trend of learning environment research. The following paragraphs provide review on the development and use of two instruments employed in this study, namely, *What is Happening in this Class* (WIHIC) questionnaire and the *Questionnaire on Teacher Interaction* (QTI).

Overview of and Development and Validation of Questionnaire on Teacher Interaction (QTI)

By adapting Watzlawick, Beavin, and Jackson's (1967) theory on communication processes, Wubbels, Creton, and Holvast (1988) investigated teacher behaviour in classrooms from a systems perspective in The Netherlands. According to the systems perspective on communication, it is assumed that participants' behaviours influence each other mutually. In classroom, the behaviour of the teacher is influenced by the behaviour of the students and in turn influences student behaviour. Circular communication processes build up which not only consist of behaviour, but also determine behavior as well.

Previously, Wubbels, Creton, 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 interpersonal teacher behaviour (Wubbels, Brekelmans, & Hooymayers, 1991; Wubbels & Levy, 1993). This model maps interpersonal behaviour with the aid of an *influence* dimension (Dominance, D - Submission, S) and a *proximity* dimension (Cooperation, C - Opposition, O). In their application of the model to the classroom situation, Wubbels, Creton, and Hooymayers (1985) further divided each quadrant of the original model into two sectorsgiving eight sectors in all, each describing different aspects of interpersonal behaviour.

The sectors are labelled DC, CD and so on according to their position in the coordinate system, the letters coding the relative influence of the axes. For example, sectors

DC and CD are both characterised by Dominance and Cooperation, but in DC Dominance predominates over Cooperation, whereas in CD Cooperation is more evident. The closer two sectors are to each other, the more similar are the teacher behaviours they represent. The Dutch researchers labelled these sectors Leadership, Helping/Friendly, Understanding, Student Responsibility/Freedom, Uncertain, Dissatisfied, Admonishing and Strict behaviour. Figure 1 describes the typical teacher interpersonal behaviours associated with each sector.

The original version of the QTI in Dutch language consisted of 77 items and it was designed to measure secondary students' and teachers' perceptions of teacher-student interactions. After extensive analysis, the 77-item Dutch version was reduced to a 64-item version. This version was translated and administered in the USA (Wubbles & Levy, 1991; Wubbles & Levy, 1993). Later an Australian version of the QTI containing 48 items was developed (Fisher, Henderson, & Fraser, 1995). Scale description and a sample item for each of the eight scales of the QTI are shown in Table 1. The questionnaire is available in Appendix A.

Scale Name	Scale Description	Example of the item
Leadership	Extent to which the teacher provides	This teacher explains things
	leadership to class and hold students	
	attention.	
Helping/Friendly	Extent to which the teacher is friendly	This teacher helps us with
	and helpful towards students.	our work.
Understanding	Extent to which the teacher shows	If we don't agree with this
	understanding/concern/care to students.	teacher, we can talk about it.
Students	Extent to which students are given	We can influence this
Responsibility/	opportunities to assume responsibilities	teacher.
Freedom	for their own activities.	
Uncertain	Extent to which the teacher exhibits	It is easy to make a fool out
	his/her uncertainty.	of this teacher.
Dissatisfaction	Extent to which the teacher shows	This teacher thinks that we
	unhappiness/dissatisfaction with	do not know anything.
	students.	
Admonishing	Extent to which the teacher shows	The teacher is impatient.
	anger/temper/impatient in class.	
Strict	Extent to which the teacher strict with	We are afraid of this
	and demanding of students.	teacher.

Table 1. Description of Scales in the QTI and Representative Items



Figure 1. The Wubbels model for teacher interpersonal behaviour (Fisher & Richard, 1998)

Previous study using the QTI

The QTI has been shown to be a valid and reliable instrument when used in The Netherlands (Wubbels & Levy, 1993). When the 64-item USA version of the QTI was used with 1,606 students and 66 teachers in the USA, the cross-cultural validity and usefulness of the QTI were confirmed. Using the Cronbach alpha coefficient, Wubbels and Levy (1993) reported acceptable internal consistency reliabilities for the QTI scales ranging from 0.76 to 0.84 for student responses and from 0.74 to 0.84 for teacher responses.

An initial use of the QTI in The Netherlands involved an investigation of relationships between perceptions on the QTI scales and student learning outcomes (Wubbels, Brekelmans & Hooymayers, 1991). Regarding students' cognitive outcomes, the more the teachers demonstrated strict, leadership and helping/friendly behaviour, the higher were cognitive

outcomes scores. Conversely, student responsibility and freedom, uncertain and dissatisfied behaviours were related negatively to achievement. Wubbels and Brekelmans (1998) stated that student outcomes are related to student perceptions of teacher behaviours with affective outcomes displaying a greater association than cognitive outcomes. In fact, studies into student teacher interactions suggest that teachers 'using open teaching styles are able to control student input and procedures in class in order to avoid disorder (Wubbels & Brekelmans 1998). Wubbels and Levy (1993) claimed that student perceptions of interpersonal teacher behaviour appear to account for 70 percent of the variability in student achievement and 55 percent for attitude outcomes.

Levy, Creton, and Wubbels (1993) analysed data from studies in The Netherlands, the USA and Australia involving students being asked to use the QTI to rate their best and worst teachers. Students rated their best teachers as being strong leaders and as friendly and understanding. The characteristics of the worst teachers were that they were more admonishing and dissatisfied.

The Australian version of the QTI containing 48 items was used in a pilot study involving upper secondary science classes in Western Australia and Tasmania (Fisher, Fraser, & Wubbels, 1993; Fisher, Fraser, Wubbels, & Brekelmans, 1993; Fisher, Fraser, & Henderson, 1995). This pilot study strongly supported the validity and potential usefulness of the QTI within the Australian context, and suggested the desirability of conducting further and more comprehensive research involving the QTI.

Wubbels (1993) used the QTI with a sample of 792 students and 46 teachers in Western Australia and Tasmania. The results of this study were similar to previous Dutch and American research in that, generally, teachers did not reach their ideal and differed from the best teachers as perceived by students. It is noteworthy that the best teachers, according to students, are stronger leaders, more friendly and understanding, and less uncertain, dissatisfied and admonishing than teachers on average. When teachers described their perceptions of their own behaviours, they tended to see it a little more favourably than did their students. On average, the teachers' perceptions were between the students' perceptions of actual behaviour and the teachers' ideal behaviour. An interpretation of this is that teachers think that they behave closer to their ideal than their students think that they do.

Fisher, Rickards, and Fraser (1996) found that after having completed the QTI and having had time to consider the results supplied to them, science teachers reported that they had been stimulated to reflect on their own teaching and verbal communication in the classroom. For example, one teacher concluded that she had become more aware of her

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students' need for clear communication and that this had become a focus for her in improving her classroom teaching (Fisher, Rickards, & Fraser, 1996).

Fisher and Rickards (1998) analysed a large database of 2,960 student responses to the QTI and found associations between students' perceptions of teacher-student interactions and students' attitudinal and cognitive achievement outcomes. Seven out of eight scales of the QTI were significantly correlated to attitudes to the class and achievement scores when using simple and multiple correlation. It was found that the scales Leadership, Helping/ Friendly, and Understanding were positively and significantly correlated with the attitude to class and the achievement scores. The other QTI scales Uncertain, Dissatisfied, Admonishing and Strict were negatively correlated to the attitude to class and the achievement scores. For cultural differences it was reported that students from 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 the same except that Student Responsibility/ Freedom was also positively associated with students' attitudes towards their science classes in both countries.

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 et al., 1997; Kim, Fisher, & Fraser, 2000; Wubbles & Levy, 1993) All the studies confirm that data obtained from the questionnaire provide valid, reliable and useful information for the teacher regarding their learning environment in general and more specifically about their teacher-student interactions.

Khine and Fisher (2001) administered the QTI to 1,188 students from 54 science classes in Brunei. This study provided further validation data on QTI and indicated that this tool is a valid and reliable instrument to be used in this context. This study showed that students enjoyed the science lessons more when their teachers displayed greater leadership, understanding and are helping and friendly. On the other hand, teachers' uncertain, admonishing and dissatisfied behaviours were negatively associated with the enjoyment of science lessons.

Waldrip and Fisher (2002) employed the QTI to investigate the behavior of good or exemplary teachers. They found that the better or exemplary teachers could be identified as those whose students' perceptions were more than one standard deviation above the mean on

the scales of Leadership, Helping/Friendly, and Understanding and more than one standard deviation below the mean on the Uncertainty, Dissatisfied and Admonishing scales.

Santiboon (2007) have conducted study in Thailand with a sample of 4,576 students in 245 physics classes at the grade 12 level. The study documented that the associations between students' perceptions of their learning environments and teachers' interpersonal behaviour with their attitudes to their physics classes. This study asserted that in Thailand school context students have a more favourable attitude towards their physics classes if their teachers display good leadership, helping/friendly, understanding, and students responsibility/freedom behaviours and less uncertain, admonishing, dissatisfied and strict behaviours.

Overview of and Development and Validation of the Questionnaire 'What Is Happening In This Class?' (WIHIC)

The *What is Happening In This Class?* (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 scales 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 7 scales and 56 items. The seven scales are Student Cohesiveness, Teacher Support, Involvement, Investigation, Task Orientation, Cooperation and Equity. Table 2 shows the scales in the WIHIC, along with a brief description and a sample item from each scale in the questionnaire. The WIHIC Questionnaire is provided in Appendix B.

Scale Name	Scale Description	Example of the item
Student	Extent to which students know, help,	I help other class members
Cohesiveness	and are supportive of one another	who are having trouble
		with their work.
Teacher Support	Extent to which the teacher helps,	The teacher considers my
	befriend, trust, and shows interest in	feelings
	students	

Scale Name	Scale Description	Example of the item
Involvement	Extent to which students have	I give my opinion during
	attentive interest, participate in	the class discussions
	discussion, perform additional work,	
	and enjoy the class	
Investigation	Emphasis on the skill and processes	I explain the meaning of
	of inquiry and their use in problem	statements, diagrams, and
	solving and investigation	graphs.
Task Orientation	Extent to which it is important to	I am ready to start this class
	complete activities planned and to	on time
	stay on the subject matter	
Cooperation	Extent to which students cooperate	I cooperate with other
	rather than compete with one another	students when doing
	on learning tasks	assignment work
Equity	Extent to which students are treated	I receive the same
	equally by the teacher	encouragement from the
		teacher as other students do

Previous study using the WIHIC

The WIHIC questionnaire has been used to measure the psychosocial aspects of the classroom learning environment in various contexts since its development. In certain cases, the questionnaire has been adapted without any modifications, while as in other cases modifications were made to suit the specific context. Currently, the original questionnaire in English has been translated into Chinese for use in Taiwan (Aldridge & Fraser, 1997) and Singapore (Chionh & Fraser, 1998), Korean for use in Korea (Kim et al., 2000) and Bahasa Indonesia for use in Indonesia (Wahyudi, 2004).

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

Hunus and Fraser (1997) used a modified version of the WIHIC in Brunei, and reported on the 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 the students' attitudes.

Khoo and Fraser (1998) used a modified version of the WIHIC to measure classroom environment when evaluating adult computer courses. 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 the males perceived greater Involvement, while females perceived more Equity. The other striking result of the study was that older females had a more positive perception of Trainer Support than the younger ones.

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. Results of the study indicated that students in Australia consistently perceived their classroom environment more positively than students in Taiwan. Significant differences were detected on the WIHIC scales of Involvement, Investigation, Task Orientation, Cooperation and Equity. This indicated that students in Australia perceived they are given more opportunity to get involved in the 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. In Taiwan, having good content knowledge of the subject was the yardstick for being a good teacher, while as in Australia having good interpersonal relationships between students and teachers is considered the most important factor in education process. Taiwan classrooms are teacher centred giving very little opportunity to students to discuss issues.

Khine and Fisher (2001) used the WIHIC in Brunei to study the classroom 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 cultural background differences and can be used as a basis for identification and development of desirable teacher behaviours that will lead to a favourable learning environment.

Wahyudi (2004) study in Indonesian lower secondary school using the Indonesian version of WIHIC also documented the association between students' perception on their classroom learning environment and their attitudinal and cognitive outcome. Students' enjoyment during science lessons and their attitude toward inquiry in science was greater in

classrooms that have less cooperation and less student cohesiveness. Students' achievement in school science was negatively influenced by investigation activities during science lessons.

Methodology

The goals of this study were to provide further cross cultural validation information for the QTI and WIHIC questionnaires when used with a large Indonesian sample; to investigate differences in students' actual and ideal or preferred perceptions of their teacher interpersonal behavior and their classroom learning environment; and to investigate the associations between students' perceptions of teacher interaction and their learning environment with their attitudes toward mathematics.

In more detail, the aims are formulated in the following three research questions:

- 1. Are the questionnaires used in this study valid and reliable?
- 2. What are students' perception towards their teacher interpersonal behavior and their classroom learning environment?
- 3. Are there any associations between teacher interpersonal behavior and classroom learning environment with students' attitude toward mathematics classes?

In so doing, the instruments namely, the Indonesian version of *Questionnaire on Teacher Interaction* (QTI) and the *What is Happening in this Class* (WIHIC) questionnaire were developed (See Appendix C and D, respectively). As sugested by Brislin (1970), translataions of the questionnaires into Bahasa Indonesia and then back transalation of both questionnaires into English were carried out. This procedure was done to ensure that the instruments used in the study still carry the original meaning.

The sample was composed of 43 mathematics classes at the lower secondary levels in Indonesia. The total sample involved 946 students spread approximately equally between grades 7, 8, and 9 in 26 different schools. Each student in the sample responded to both actual and preferred versions of the QTI and the WIHIC. Attitude to class was assessed using a seven-item scale based on the Test of Mathematics Related Attitudes (TOMRA) (Fraser, 1981; Fisher, Henderson & Fraser, 1995), namely Enjoyment toward Mathematics as school subject.

Findings and Discussions

Cross Validation of the questionnaires

Cronbach's alpha coefficient was calculated using individual scores as the units of analysis. As expected, reliability scores for preferred were higher than actual version for most of scales in both the QTI and WIHIC. Cronbach alpha reliability coefficients for both actual and preferred perceptions of QTI and WIHIC and analysis of variance (ANOVA) eta^2 results are shown in Tables 3 and 4.

On the whole, the statistics obtained were acceptable. Cronbach alpha coefficients ranged from 0.66 to 0.85 and from 0.62 to 0.92 for the actual and preferred versions of the Indonesian version QTI, respectively. For the Indonesian version of WIHIC, Cronbach alpha coefficients of seven scales ranged from 0.80 to 0.91 for actual version, and from 0.78 to 0.92 preferred versions. These results suggest that the internal consistency for the Indonesian version of QTI and WIHIC are acceptable.

Another desirable characteristic of any instrument like the QTI and WIHIC is that they are capable of differentiating between the perceptions of students in different classrooms. That is, students within the same class should perceive it relatively similarly, while mean within-class perceptions should vary from class to class. This characteristic was explored for each scale of the QTI and WIHIC using one-way ANOVA, with class membership as the main effect. It was found that each QTI and WIHIC scale differentiated significantly (p<.01) between classes and that the eta² statistic, representing the proportion of variance explained by class membership, ranged from 0.13 to 0.38 for different scales of QTI and from 0.13 to 0.27 for different scales of WIHIC.

Seele Name	Cronbach Al	ANOVA results (eta ²)	
Scale Maille	Actual	Preferred	(Actual)
Leadership	0.72	0.79	0.35*
Helping/Friendly	0.76	0.62	0.38*
Understanding	0.76	0.82	0.32*
Students Responsibility	0.69	0.75	0.28*
Uncertain	0.78	0.87	0.13*
Dissatisfaction	0.84	0.92	0.22*
Admonishing	0.85	0.87	0.37*
Strict	0.66	0.69	0.28*
*p<0.01			

 Table 3. Internal Consistency Reliability (Cronbach Alpha Coefficient) and ANOVA Results

 for the Indonesian Version of QTI (n=946)

Scala Nama	Cronbach Al	pha Reliability	$\Lambda NOV \Lambda$ results (et e^{2})
Scale Maine	Actual	Preferred	ANOVA results (cta)
Student Cohesiveness	0.80	0.78	0.24*
Teacher Support	0.84	0.79	0.27*
Involvement	0.84	0.87	0.17*
Investigation	0.89	0.90	0.13*
Task Orientation	0.85	0.91	0.21*
Cooperation	0.83	0.82	0.14*
Equity	0.91	0.92	0.22*
*p<0.01			

Table 4.	Internal (Consistency	Reliability	(Cronbach	Alpha	<i>Coefficient)</i>	and ANOVA	Results
	for the Ind	lonesian Ver	sion of WIH	HIC (n=946	()			

Differences between male and female students' perception of the actual mathematics classroom learning environment and interpersonal behaviour of their teacher

Gender differences in teacher-student interpersonal behaviour and in their classroom learning environment were examined using Independent-Sample T-test with the eight QTI scales and seven scales of WIHIC as variables. Table 5 presents the scale means and standard deviations for male and female students' scores on the eight scales of the QTI. Statistically significant gender differences were apparent in students' responses to five of the eight scales of the QTI, with females perceiving greater understanding behaviours in their teachers and males perceiving their teachers as being more uncertain, dissatisfied, admonishing and experience more freedom. The magnitude of these differences is not large but the differences consistently show that females perceive their teachers in a more positive way than do males.

Table 5. Average Item Mean, Average Standard Deviation (SD), and t Value from t-tests withIndependent-Samples T-tests for Differences between Male (n=387) and Female(n=559) Perceptions of QTI

Scale	Average Item Mean		Ave	rage SD	t value
	Male	Female	Male	Female	-
Leadership	3.82	3.88	0.57	0.54	-1.74
Helping/Friendly	3.39	3.48	0.73	0.66	-1.86
Understanding	3.81	3.98	0.67	0.56	-4.05**
Students Responsibility	2.59	2.48	0.69	0.63	2.54*
Uncertain	1.66	1.54	0.68	0.55	3.08*
Dissatisfaction	1.63	1.49	0.68	0.58	3.35**
Admonishing	1.81	1.71	0.77	0.69	2.05*
Strict	2.82	2.75	0.59	0.67	1.85

**p<0.01; *p<0.05

Regarding students' perception of their learning environment as assessed using the Indonesian version of WIHIC, the results of this study maintain the assertions yielded from the previous studies (Goh & Fraser, 1995; Goh, Young, & Fraser, 1995; Riah, 1998; Riah & Fraser, 1998; Wong, 1994), in which females hold better perceptions of the classroom-learning environment than do males. Table 6 suggests that generally females have perceptions slightly more favourable than the males on the actual mathematics classroom-learning environment. While the magnitudes of the differences between male and female students' views of the classroom learning environment are relatively small, statistically significant differences occur on all scales, except on *Involvement* and *Investigation*.

Scale	Average	Average Item Mean Average Standard		t value	
	Male	Female	Male	Female	
Student Cohesiveness	3.98	4.08	0.53	0.48	-3.01**
Teacher Support	3.19	3.34	0.69	0.62	-3.57**
Involvement	3.07	3.14	0.64	0.59	-1.67
Investigation	3.03	2.96	0.76	0.70	1.46
Task Orientation	3.77	3.90	0.58	0.52	-3.44**
Cooperation	3.56	3.64	0.58	0.61	-2.12*
Equity	3.72	3.92	0.70	0.72	-4.39**

Table 6. Average Item Mean, Average Standard Deviation, and t Value from t-tests with Paired Samples for Differences Between (n=387) and Female (n=559) Perceptions of WIHIC

***p*<0.01; **p*<0.05

Association between Students' Outcomes and Classroom Learning Environments

Correlations between students' perceptions of the mathematics classroom learning environment, their teacher interpersonal behavior and students' outcomes were investigated. Simple and multiple correlations between each scale of the Indonesian WIHIC and QTI and attitudinal outcomes using individual scores as the unit of analysis (n=946) were conducted. Simple correlations indicated the bivariate association between students' outcomes and each of the scales of the Indonesian WIHIC and QTI. On the other hand, multiple correlations or multiple regression analysis offer the joint and unique influence of each scale in the Indonesian WIHIC and QTI on students' outcomes. A significant beta weight confirms if a scale of the Indonesian WIHIC or QTI is related to students' outcomes when the six scales of WIHIC or seven scale of QTI are mutually controlled. A summary of simple correlation (r), multiple correlations (R) and standardised regression coefficient (β) for the association between the QTI and WIHIC and students' outcomes are presented in Tables 9 and 10, respectively.

Simple correlation figures (r) in Table 7 shows all scales of the Indonesian QTI except *Students Responsibility* are statistically significantly (p<0.05) correlated with students enjoyment in mathematics subjects. The multiple regression analysis produced a significant

multiple correlation (R) of 0.37 (p<0.01) for students' enjoyment in mathematics classes. Furthermore, investigations of the value of reveal that *Admonishing* scale is strong predictor of students' enjoyment during mathematics lessons. Students become less enjoy mathematics lesson when the teachers display more admonishing attitude in the classroom.

Table 7. Simple Correlation (r), Multiple Correlation (R) and Standardised Regression Coefficient (β) for Association between Teacher Interpersonal Behaviour as measured by the Indonesian version of QTI and Student Attitudes towards Mathematics as School Subjects

Strength of Students Outcomes-Environment Association						
(Enjoyment)						
r	β					
.20**	0.06					
.22**	0.03					
.28**	0.11					
0.07	0.03					
).12**	-0.08					
).19**	-0.07					
).32**	-0.28*					
).14**	-0.01					
0.37**						
	(Enjoyment) r .20** .22** .28** 0.07 .12** 0.19** 0.19** 0.14** 0.37**					

*p<0.05; **p<0.01

Table 8. Simple Correlation (r), Multiple Correlation (R) and Standardised Regression Coefficient (β) for Association between Classroom Learning Environments as measured by the Indonesian version of WIHIC and Student Attitudes towards the Subjects

<u>c</u>	Strength of Students Outcomes-Environme	nt Association
WIHIC Scales	Attitudinal Outcomes (Enjoymen	t)
	r	β
Student Cohesiveness	0.25**	0.04
Teacher Support	0.36**	0.21**
Involvement	0.25**	-0.01
Investigation	0.17**	-0.09
Task Orientation	0.39**	0.40**
Cooperation	0.15**	-0.15*
Equity	0.24**	-0.01
Multiple Correlations (R)	0.4.	3**

*p<0.05; **p<0.01; ***p<0.001

Table 8 shows that all scales of the Indonesian WIHIC are statistically significantly (p<0.05) associated with students attitude toward mathematics subjects. The multiple regression analysis produced a significant multiple correlation (R) of 0.43 (p<0.01) for students' enjoyment mathematics classes. Furthermore, investigations of the value of β reveal that the value of *Teacher Support* (β =0.21, p<0.01), *Task Orientation* (β =0.40, p<0.01) and *Cooperation* (β =0.-15, p<0.05), scales of the Indonesian WIHIC are strong predictors of students' enjoyment in mathematics classrooms. Inspection of the β sign indicates some negative relationships exits between some scales of the Indonesian WIHIC and students' enjoyment in mathematics classrooms. Table 8 indicates that students' enjoyment during mathematics are greater in classrooms that have less cooperation but have a good teacher support and clear task direction.

Conclusions and Recommendations

This study has explored associations between students' perceptions of their teacher interpersonal behavior, classroom learning environment and their attitude toward mathematics classes.

This study confirmed the reliability and validity of the QTI and WIHIC when used in lower secondary mathematics classes in Indonesian school context. It is found in this study that there are differences on students' perceptions toward their teacher interpersonal behavior and their classroom learning environment based on actual and preferred version as well as based on students' gender. As expected, even though to such extend students are contented with their actual perceptions on both the QTI and WIHIC scales, however, they would like to have more positive experience of teacher interaction and to have more conducive classroom learning environment. This study also found gender differences that consistently showed that females perceive their teachers in a more positive way than do males. Female students also consistently perceive their mathematics classroom environment more favorable than their male counterparts do.

Regarding the association between students' perception of learning environment and their attitude toward science and mathematics, generally the dimensions or scales of the QTI and WIHIC were found to be significantly associated with student attitudes. In particular, the study showed that there was a positive correlation between student attitude toward mathematics classes and the teachers' leadership, helping/friendly and understanding behaviours. Students had a more positive attitude to their mathematics classes when their teacher exhibited more of these behaviours and less admonishing, dissatisfied, uncertain and strict behaviours. If mathematics teachers want to promote favourable student attitudes to their class, they should ensure the presence of these interpersonal behaviours.

This research is of practical significance in that it has drawn a link between student attitudes and the nature of the teacher-student behaviour in the classroom. The study could be of significance for teacher educators and policy makers in that it provides a way of improving student outcomes by changing the nature of classroom learning environment and the existence of interpersonal relationships between students and teachers in mathematics classrooms.

Future research should be planned to help teachers in using these two instruments for improving their teaching performance. A study on better or exemplary teachers as suggested by Waldrip and Fisher (2002) would be advised to be done in Indoensia and SEAMEO

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member countries so that the teachers from this region may share and learn from each other through the best practices found from the research.

It is also advisable for teacher training centre or the university to take into consideration the important of knowledge of teacher interpersonal behaviour and learning environment. To provide student teachers with adequate knowledge, therefore, learning environments can be included as mandatory unit course in the university or teacher training centre.

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Appendix A

The Questionnaire on Teacher Interaction (QTI)

The Questionnaire on Teacher Interaction (QTI) consists of 48 item asks you to describe the behaviour of your teacher. For each statement, draw a circle around the specific numeric value corresponding to how you feel about each statement. **Please circle only ONE value per statement in both the Actual and Ideal/Preferred sections.**

- 5 = Almost Always
- 4= Often
- 3 =Sometimes
- 2 = Seldom
- 1 = Almost Never

For example:

No	Statement		Actual				Ideal/Preferred				
1	This teacher talks enthusiastically about her/his	\bigcirc	2	3	4	5	1	2	3	4 (5
	subject.										

If you think your teacher almost never talks enthusiastically about her/his subject, circle the 1 at the actual column. If you preferred that teacher should always talks enthusiastically about her/his subject, circle the 5 at Ideal/Preferred column. You also can choose the number 2, 3 and 4 which are in between.

No	Statement		A	Actu	al		Ideal/Preferred					
1	This teacher talks enthusiastically about her/his	1	2	3	4	5	1	2	3	4	5	
	subject.											
2	This teacher explains things clearly.	1	2	3	4	5	1	2	3	4	5	
3	This teacher holds our attention.	1	2	3	4	5	1	2	3	4	5	
4	This teacher knows everything that goes on in the	1	2	3	4	5	1	2	3	4	5	
	classroom.											
5	This teacher is a good leader.	1	2	3	4	5	1	2	3	4	5	
6	This teacher acts confidently.	1	2	3	4	5	1	2	3	4	5	
7	This teacher helps us with our work.	1	2	3	4	5	1	2	3	4	5	
8	This teacher is friendly.	1	2	3	4	5	1	2	3	4	5	

No	Statement	Actual 1 2 3 4 5						deal/	/Prei	ferre	ed
9	This teacher is someone we can depend on.	1	2	3	4	5	1	2	3	4	5
10	This teacher has a sense of humor.	1	2	3	4	5	1	2	3	4	5
11	This teacher can take a joke.	1	2	3	4	5	1	2	3	4	5
12	This teacher's class is pleasant.	1	2	3	4	5	1	2	3	4	5
		1	1								
13	This teacher truts us.	1	2	3	4	5	1	2	3	4	5
14	If we don't agree with this teacher, we can talk	1	2	3	4	5	1	2	3	4	5
	about it.										
15	This teacher is willing to explain things again.	1	2	3	4	5	1	2	3	4	5
16	If we have something to say, this teacher will	1	2	3	4	5	1	2	3	4	5
	listen.										
17	This teacher realizes we do not understand.	1	2	3	4	5	1	2	3	4	5
18	This teacher is patient.	1	2	3	4	5	1	2	3	4	5
					<u> </u>						
19	We can decide some things in this teacher's class.	1	2	3	4	5	1	2	3	4	5
20	We can influence this teacher.	1	2	3	4	5	1	2	3	4	5
21	This teacher lets us fool around in class.	1	2	3	4	5	1	2	3	4	5
22	This teacher lets us get away with a lot in class.	1	2	3	4	5	1	2	3	4	5
23	This teacher gives us a lot of free time in this class.	1	2	3	4	5	1	2	3	4	5
24	This teacher is lenient.	1	2	3	4	5	1	2	3	4	5
					<u> </u>						
25	This teacher seems uncertain.	1	2	3	4	5	1	2	3	4	5
26	This teacher is hesistant.	1	2	3	4	5	1	2	3	4	5
27	This teacher acts as if she/he does not know what	1	2	3	4	5	1	2	3	4	5
	to do.										
28	This teacher let us boss him/her around.	1	2	3	4	5	1	2	3	4	5
29	This teacher is not sure what to do when we fool	1	2	3	4	5	1	2	3	4	5
	around.										
30	It is easy to make a fool out of this teacher.	1	2	3	4	5	1	2	3	4	5
31	This teacher thinks that we cheat.	1	2	3	4	5	1	2	3	4	5
32	This teacher thinks that we don't know anything.	1	2	3	4	5	1	2	3	4	5
33	This teacher puts us down.	1	2	3	4	5	1	2	3	4	5
34	This teacher thinks that we cannot do things well.	1	2	3	4	5	1	2	3	4	5

No	Statement		A	Actu	al		I	deal/	Prei	referred		
35	This teacher seems dissatisfied.	1	2	3	4	5	1	2	3	4	5	
36	This teacher is suspicious.	1	2	3	4	5	1	2	3	4	5	
		•	•		•							
37	This teacher gets angry unexpectedly.	1	2	3	4	5	1	2	3	4	5	
38	This teacher gets angry quickly.	1	2	3	4	5	1	2	3	4	5	
39	This teacher is too quick to correct us when we	1	2	3	4	5	1	2	3	4	5	
	break a rule.											
40	This teacher is impatient.	1	2	3	4	5	1	2	3	4	5	
41	It is easy to pick a fight whit this teacher.	1	2	3	4	5	1	2	3	4	5	
42	This teacher is sarcastic.	1	2	3	4	5	1	2	3	4	5	
-												
43	This teacher is strict.	1	2	3	4	5	1	2	3	4	5	
44	We have to be silent in this teacher's class.	1	2	3	4	5	1	2	3	4	5	
45	This teacher's tests are hard.	1	2	3	4	5	1	2	3	4	5	
46	This teacher's standards are very high.	1	2	3	4	5	1	2	3	4	5	
47	This teacher is severe when marking papers.	1	2	3	4	5	1	2	3	4	5	
48	We are afraid of this teacher.	1	2	3	4	5	1	2	3	4	5	

Appendix B

What Is Happening In this Classroom (WIHIC) Questionnaire

Directions

This questionnaire has 42 sentences and asks you to describe your classroom learning environment. This is NOT a test. Your opinion is what is wanted.

For each statement, draw a circle around the specific numeric value corresponding to how you feel about each statement. Please circle only ONE value per statement in both the Actual and Ideal/Preferred sections.

4 = Almost Always 3 = Often 2 = Sometimes 1 = Seldom 0 = Almost Never

For example:

No	Statement		Actual					leal/	/Preferred			
12	The teacher moves about the class to talk with	\bigcirc	1	2	3	4	0	1	2	3	(4)	
	me											

If you think that your teacher never moves about the class to talk with you, circle the 0 at the actual column. If you preferred that teacher should always help you when you have trouble with the work, circle the 4 at Ideal/Preferred column. You also can choose the number 1, 2, and 3 which are in between.

No	Statement	Actual					Ideal/Preferred						
1	I make friendships among students in this class	0	1	2	3	4	0	1	2	3	4		
2	I know other students in this class	0	1	2	3	4	0	1	2	3	4		
3	I am friendly to members of this class	0	1	2	3	4	0	1	2	3	4		
4	Members of the class are my friends	0	1	2	3	4	0	1	2	3	4		
5	I work well with other class members	0	1	2	3	4	0	1	2	3	4		
6	Students in this class like me	0	1	2	3	4	0	1	2	3	4		

No	Statement	Actual Ideal/Pre							/Preferred			
7	The teacher takes a personal interest in me	0	1	2	3	4	0	1	2	3	4	
8	The teacher goes out of his / her way to help me	0	1	2	3	4	0	1	2	3	4	
9	The teacher considers my feelings	0	1	2	3	4	0	1	2	3	4	
10	The teacher helps me when I have trouble with	0	1	2	3	4	0	1	2	3	4	
	the work											
11	The teacher is interested in my problems	0	1	2	3	4	0	1	2	3	4	
12	The teacher moves about the class to talk with	0	1	2	3	4	0	1	2	3	4	
	me											
13	I discuss ideas in class	0	1	2	3	4	0	1	2	3	4	
14	I give my opinion during the class discussions	0	1	2	3	4	0	1	2	3	4	
15	The teacher asks me questions	0	1	2	3	4	0	1	2	3	4	
16	I ask the teacher questions	0	1	2	3	4	0	1	2	3	4	
17	I explain my ideas to other students	0	1	2	3	4	0	1	2	3	4	
18	I am asked to explain how I solve problems	0	1	2	3	4	0	1	2	3	4	
19	I carry out investigations to test my ideas	0	1	2	3	4	0	1	2	3	4	
20	I am asked to think about the evidence for my	0	1	2	3	4	0	1	2	3	4	
	statements											
21	I explain the meaning of statement, diagram,	0	1	2	3	4	0	1	2	3	4	
	and graphs											
22	I carry out investigation to answer question that	0	1	2	3	4	0	1	2	3	4	
	puzzle me											
23	I carry out investigations to answer the teachers'	0	1	2	3	4	0	1	2	3	4	
	questions											
24	I find out the answers to questions by doing	0	1	2	3	4	0	1	2	3	4	
	investigations											
	<u>.</u>				-	-						
25	I do as much as I set out to do	0	1	2	3	4	0	1	2	3	4	
26	I know the goals for this class	0	1	2	3	4	0	1	2	3	4	

No	Statement		A	ctu	al		Id	leal/	Pre	ferr	ed
27	I am ready to start this class on time	0	1	2	3	4	0	1	2	3	4
28	I pay attention during this class	0	1	2	3	4	0	1	2	3	4
29	I try to understand the work in this class	0	1	2	3	4	0	1	2	3	4
30	I know how much work I have to do	0	1	2	3	4	0	1	2	3	4
31	I cooperate with other students when doing	0	1	2	3	4	0	1	2	3	4
	assignment work										
32	When I work in a group in the class, there is	0	1	2	3	4	0	1	2	3	4
	teamwork										
33	I work with other students on projects in this	0	1	2	3	4	0	1	2	3	4
	class										
34	I learn from other students in this class	0	1	2	3	4	0	1	2	3	4
35	I work with other students in this class	0	1	2	3	4	0	1	2	3	4
36	I cooperate with other students on class	0	1	2	3	4	0	1	2	3	4
	activities										
37	The teacher gives us much attention to my	0	1	2	3	4	0	1	2	3	4
	questions as to other students' questions										
38	I have the same amount of say in this class as	0	1	2	3	4	0	1	2	3	4
	other students										
39	I am treated the same as other students in this	0	1	2	3	4	0	1	2	3	4
	class										
40	I get the same opportunity to contribute to class	0	1	2	3	4	0	1	2	3	4
	discussions as the other students										
41	My work receives as much praise as other	0	1	2	3	4	0	1	2	3	4
	students' work										
42	I get the same opportunity to answer questions	0	1	2	3	4	0	1	2	3	4
	as other students										

Thank you for your cooperation

Appendix C

The Indonesian version The Questionnaire on Teacher Interaction (QTI)

Kuisioner Interaksi Guru dengan Siswa

Petunjuk Umum

Kuisioner ini berisi pernyataan-pernyataan tentang kegiatan atau kejadian yang muncul di dalam kelas. Anda diminta untuk memikirkan dan menjawab pertanyaan sejauh mana kegiatan atau kejadian tersebut berlangsung selama proses kegiatan belajar dan mengajar (KBM) untuk bidang studi **Matematika**. Di sini tidak ada jawaban benar atau salah. Pendapat andalah yang diinginkan.

Informasi diri dan sekolah

Nama Sekolah			Nama Siswa		
Nilai Rerata Ulanga	an		Kelas		
Matematika					
Nama Guru			Jenis	Laki-laki	Perempuan
Pengajar			Kelamin		

Kuisioner Interaksi Guru dengan Siswa, terdiri dari 48 pernyataan tentang sikap, tindakan and interaksi guru dengan siswa di kelas, dan lembar jawaban di samping pernyataan. Pada kolom jawaban ada 2 macam, yaitu untuk jawaban *keadaan yang sebenarnya* dan jawaban untuk *keadaan yang diinginkan*. Untuk mengisi bagian kedua ini, lingkarilah angka pada kolom-kolom jawaban sebagai berikut:

1	jika kegiatan/kejadian/praktek	hampir tidak pernah,
2	jika kegiatan/kejadian/praktek	jarang-jarang,
3	jika kegiatan/kejadian/praktek	kadang-kadang,
4	jika kegiatan/kejadian/praktek	<i>sering kali</i> , atau
5	iika kegiatan/keiadian/praktek	hampir selalu berlangsung

Jika anda berubah pikiran dan ingin mengganti jawaban, silanglah jawaban tersebut dan lingkari untuk jawaban yang baru.

Contoh:

Misalnya, untuk pernyataan no 1, anda diminta memberikan pendapat tentang pernyataan 'Guru menjelaskan materi pelajaran dengan antusias'. Jika anda merasa hal tersebut pada kenyataannya 'jarang-jarang' terjadi, maka lingkarilah angka 2 pada kolom jawaban 'keadaan sebenarnya/aktual'. Dan jika anda menginginkan hal tersebut akan sering berlangsung, maka lingkarilah angka 4 pada kolom jawaban 'Keadaan yang diinginkan'.

No	Pernyataan		Sebenarnya					Ideal/Diinginka						
1	Guru menjelaskan materi pelajaran dengan	1	2	3	4	5	1	2	3	(4)	5			
	antusias													

No	Pernyataan	Sebenarnya Ideal/Diing									an
1	Guru ini menjelaskan materi pelajaran dengan	1	2	3	4	5	1	2	3	4	5
	antusias										
2	Guru ini menjelaskan materi pelajaran dengan jelas	1	2	3	4	5	1	2	3	4	5
3	Guru ini dapat menarik perhatian siswa	1	2	3	4	5	1	2	3	4	5
4	Guru ini memahami apa yang berlaku di dalam	1	2	3	4	5	1	2	3	4	5
	kelas ini										
5	Guru ini adalah pemimpin yang baik	1	2	3	4	5	1	2	3	4	5
6	Guru ini sangat percaya diri dalam mengajar	1	2	3	4	5	1	2	3	4	5
7	Guru ini mau membantu siswa dalam mebuat	1	2	3	4	5	1	2	3	4	5
	tugas-tugas.										
8	Guru ini ramah dan bersahabat	1	2	3	4	5	1	2	3	4	5
9	Guru ini dapat menjadi tempat curahan hati	1	2	3	4	5	1	2	3	4	5
	(curhat)										
10	Guru ini punya selera humor	1	2	3	4	5	1	2	3	4	5
11	Guru ini dapat diajak bercanda	1	2	3	4	5	1	2	3	4	5
12	Kelas yang diampu guru ini sangat menyenangkan	1	2	3	4	5	1	2	3	4	5
			<u> </u>		<u> </u>	<u> </u>					
13	Guru ini yakin dan percaya terhadap siswa	1	2	3	4	5	1	2	3	4	5
14	Jika kami tidak setuju, kami dapat berunding	1	2	3	4	5	1	2	3	4	5
	dengan guru ini										
15	Guru ini mau menjelaskan ulang jika diminta siswa	1	2	3	4	5	1	2	3	4	5

Kuisioner Interaksi Guru dengan Siswa

No	Pernyataan	Sebenarnya Ideal/Diing 1 2 3 4 5 1 2 3								gink	an
16	Guru ini mau mendengar jika siswa mengajukan	1	2	3	4	5	1	2	3	4	5
	pendapat										
17	Guru ini mengetahui ketika kita tidak memahami	1	2	3	4	5	1	2	3	4	5
	pelajaran										
18	Guru ini penyabar	1	2	3	4	5	1	2	3	4	5
				•		•					
19	Siswa dapat membuat keputusan di dalam kelas	1	2	3	4	5	1	2	3	4	5
	guru ini										
20	Siswa dapat mempengaruhi guru ini	1	2	3	4	5	1	2	3	4	5
21	Guru ini membiarkan siswa main-main di dalam	1	2	3	4	5	1	2	3	4	5
	kelas										
22	Guru ini sangat longgar terhadap sikap siswa di	1	2	3	4	5	1	2	3	4	5
	kelas										
23	Guru ini memberi banyak waktu luang kepada	1	2	3	4	5	1	2	3	4	5
	siswa di kelas								-		
24	Guru ini sangat rileks	1	2	3	4	5	1	2	3	4	5
25	Guru ini kelihatan tidak percaya diri di depan kelas	1	2	3	4	5	1	2	3	4	5
26	Guru ini kelihatan ragu-ragu	1	2	3	4	5	1	2	3	4	5
27	Guru ini seolah-olah tidak tahu apa yang harus	1	2	3	4	5	1	2	3	4	5
	dilakukan										
28	Guru ini membiarkan siswa menentukan kegiatan	1	2	3	4	5	1	2	3	4	5
	kelas										
29	Guru tidak tahu apa yang dibuat jika siswa	1	2	3	4	5	1	2	3	4	5
	bergurau										
30	Mudah bagi siswa untuk membuat kacau di kelas	1	2	3	4	5	1	2	3	4	5
	guru ini										
					<u> </u>						
31	Guru ini berprasangka bahwa siswa-siswanya	1	2	3	4	5	1	2	3	4	5
	curang										
32	Guru ini menganggap siswanya tidak tahu apa-apa	1	2	3	4	5	1	2	3	4	5
33	Guru ini meremehkan dan mengecewakan siswa	1	2	3	4	5	1	2	3	4	5
34	Guru ini menganggap siswa tidak dapat berbuat	1	2	3	4	5	1	2	3	4	5
	dengan baik										

No	Pernyataan		Seb	ena	rnya		Ideal/Diinginkan						
35	Guru ini kelihatan frustasi/kecewa	1	2	3	4	5	1	2	3	4	5		
36	Guru ini kelihatan curiga/tidak mempercayai siswa	1	2	3	4	5	1	2	3	4	5		
37	Guru ini bias marah dengan tiba-tiba	1	2	3	4	5	1	2	3	4	5		
38	Guru ini mudah sekali marah	1	2	3	4	5	1	2	3	4	5		
39	Guru ini segera saja ngomel jika siswa melanggar	1	2	3	4	5	1	2	3	4	5		
	tatib kelas												
40	Guru ini tidak penyabar	1	2	3	4	5	1	2	3	4	5		
41	Sangat mudah untuk bersitegang dengan guru ini	1	2	3	4	5	1	2	3	4	5		
42	Guru ini sinis terhadap siswa	1	2	3	4	5	1	2	3	4	5		
43	Guru ini tegas	1	2	3	4	5	1	2	3	4	5		
44	Siswa harus diam dan senyap di kelas guru ini	1	2	3	4	5	1	2	3	4	5		
45	Ulangan/tes yang diberikan guru ini sangat sulit	1	2	3	4	5	1	2	3	4	5		
46	Standar nilai di kelas guru ini sangat tinggi	1	2	3	4	5	1	2	3	4	5		
47	Guru ini killer dalam memberi nilai	1	2	3	4	5	1	2	3	4	5		
48	Siswa takut terhadap guru ini	1	2	3	4	5	1	2	3	4	5		

Terima Kasih

Appendix D

The Indonesian version of What Is Happening In this Classroom (WIHIC) Questionnaire (Full version)

Kuisioner Suasana Belajar di Kelasku

Petunjuk Umum

Kuisioner ini berisi pernyataan-pernyataan tentang kegiatan atau kejadian yang muncul di dalam kelas. Anda diminta untuk memikirkan dan menjawab pertanyaan sejauh mana kegiatan atau kejadian tersebut berlangsung selama proses kegiatan belajar dan mengajar (KBM) untuk bidang studi **Matematika**. Di sini tidak ada jawaban benar atau salah. Pendapat andalah yang diinginkan.

Informasi diri dan sekolah

Nama Sekolah		Nama Siswa				
Nilai Rerata Ulangan			Kelas			
Matematika						
Nama Guru			Jenis		Laki-laki	Perempuan
Pengajar			Kelamin	_		

Kuisioner ini, *Suasana Belajar di Kelasku*, berisi 56 pernyataan tentang kegiatan atau praktek yang muncul di dalam kelas dan lembar jawaban di samping pernyataan. Pada kolom jawaban ada 2 macam, yaitu untuk jawaban *keadaan yang sebenarnya* dan jawaban untuk *keadaan yang diinginkan*. Untuk mengisi bagian kedua ini, lingkarilah angka pada kolom-kolom jawaban sebagai berikut:

1	jika kegiatan/kejadian/praktek	hampir tidak pernah,
2	jika kegiatan/kejadian/praktek	jarang-jarang,
3	jika kegiatan/kejadian/praktek	kadang-kadang,
4	jika kegiatan/kejadian/praktek	sering kali, atau
5	jika kegiatan/kejadian/praktek	hampir selalu berlangsung.

Jika anda berubah pikiran dan ingin mengganti jawaban, silanglah jawaban tersebut dan lingkari untuk jawaban yang baru.

Contoh:

Misalnya, untuk no 1, anda diminta memberikan pendapat tentang pernyataan 'Saya berkawan dengan semua siswa di kelas ini'. Jika anda *merasa* hal tersebut pada kenyataannya '*kadang-kadang*' terjadi, maka anda melingkari angka 3 pada kolom jawaban '*keadaan sebenarnya/aktual*'. Dan jika anda *menginginkan* hal tersebut *hampir selalu berlangsung*, maka lingkarilah angka 5 pada kolom jawaban '*Keadaan yang diinginkan*'.

No	Pernyataan	Sebenarnya					Ideal/Diinginkan					
1	Saya berkawan dengan semua siswa di kelas ini	1	2	3)	4	5	1	2	3	4	5	

No	Pernyataan	Sebenarnya					Ideal/Diinginkan					
1	Saya berkawan dengan semua siswa di kelas ini.	1	2	3	4	5	1	2	3	4	5	
2	Saya kenal semua siswa di kelas ini.	1	2	3	4	5	1	2	3	4	5	
3	Saya ramah terhadap anggota kelas ini.	1	2	3	4	5	1	2	3	4	5	
4	Siswa-siswa anggota kelas ini adalah teman saya.	1	2	3	4	5	1	2	3	4	5	
5	Saya bekerjasama dengan baik dengan anggota	1	2	3	4	5	1	2	3	4	5	
	kelas ini.											
6	Saya menolong teman yang mempunyai kesulitan	1	2	3	4	5	1	2	3	4	5	
	dengan tugas mereka.											
7	Siswa-siswa di kelas ini menyukai saya.	1	2	3	4	5	1	2	3	4	5	
8	Di kelas ini saya mendapat pertolongan dari siswa	1	2	3	4	5	1	2	3	4	5	
	lainnya.											
9	Bapak/ibu guru dapat menarik perhatian saya	1	2	3	4	5	1	2	3	4	5	
	secara khusus.											
10	Bapak/ibu guru menolong saya secara khusus.	1	2	3	4	5	1	2	3	4	5	
11	Bapak/ibu guru menghargai perasaan saya.	1	2	3	4	5	1	2	3	4	5	
12	Bapak/ibu guru menolong saya ketika saya	1	2	3	4	5	1	2	3	4	5	
	mendapat kesulitan dalam menyelesaikan											
	pekerjaan saya.											
13	Bapak/ibu guru berbicara kepada saya.	1	2	3	4	5	1	2	3	4	5	

Kuisioner Suasana Belajar di Kelasku

No	Pernyataan	Sebenarnya Ideal						eal/I	/Diinginkan				
14	Bapak/ibu guru tertarik dengan masalah/kesulitan	1	2	3	4	5	1	2	3	4	5		
	saya.												
15	Bapak/ibu guru berkeliling di kelas dan dapat	1	2	3	4	5	1	2	3	4	5		
	berbicara kepada saya.								_				
16	Pertanyaan Bpk/Ibu guru membantu saya untuk	1	2	3	4	5	1	2	3	4	5		
	memahami pelajaran												
17	Saya mendiskusikan ide-ide atau gagasan-gagasan.	1	2	3	4	5	1	2	3	4	5		
18	Saya memberikan pendapat saya selama diskusi	1	2	3	4	5	1	2	3	4	5		
	kelas berlangsung.												
19	Bapak/ibu guru mengajukan pertanyaan kepada	1	2	3	4	5	1	2	3	4	5		
	saya.												
20	Ide-ide dan saran-saran saya dipakai selama	1	2	3	4	5	1	2	3	4	5		
	diskusi berlangsung.												
21	Saya mengajukan pertanyaan kepada bapak/ibu	1	2	3	4	5	1	2	3	4	5		
	guru.												
22	Saya menerangkan ide saya kepada siswa lainnya.	1	2	3	4	5	1	2	3	4	5		
23	Teman-teman mau berdiskusi dengan saya tentang	1	2	3	4	5	1	2	3	4	5		
	pelajaran												
24	Saya diminta untuk menerangkan cara	1	2	3	4	5	1	2	3	4	5		
	menyelesaikan suatu masalah.												
				•		•							
25	Saya melakukan penyelidikan untuk menguji/men-	1	2	3	4	5	1	2	3	4	5		
	<i>test</i> ide-ide saya.												
26	Saya diminta memikirkan fakta-fakta pendukung	1	2	3	4	5	1	2	3	4	5		
	suatu pernyataan.												
27	Saya melakukan penyelidikan untuk menjawab	1	2	3	4	5	1	2	3	4	5		
	pertanyaan yang muncul dari diskusi-diskusi kelas.												
28	Saya menjelaskan arti dari suatu pernyataan,	1	2	3	4	5	1	2	3	4	5		
	diagram dan grafik.												
29	Saya melakukan penyelidikan untuk menjawab	1	2	3	4	5	1	2	3	4	5		
	pertanyaan yang menjadi teka-teki atau masalah												
	bagi saya.												

No	Pernyataan		Seb	ena	rnya		Ideal/Diinginkan					
30	Saya melakukan penyelidikan untuk menjawab	1	2	3	4	5	1	2	3	4	5	
	pertanyaan guru.											
31	Saya menemukan jawaban suatu masalah melalui	1	2	3	4	5	1	2	3	4	5	
	penyelidikan.										_	
32	Saya menyelesaikan masalah dengan	1	2	3	4	5	1	2	3	4	5	
	menggunakan informasi yang saya dapat dari											
	penyelidikan yang saya lakukan.											
33	Berhasil dalam menyelesaikan tugas adalah	1	2	3	4	5	1	2	3	4	5	
	penting bagi saya											
34	Saya bekerja sesuai dengan tugas yang diberikan	1	2	3	4	5	1	2	3	4	5	
	kepada saya											
35	Saya tahu tujuan dari setiap topik pelajaran di	1	2	3	4	5	1	2	3	4	5	
	kelas ini.						·					
36	Saya siap untuk mengikuti pelajaran tepat pada	1	2	3	4	5	1	2	3	4	5	
	waktunya.											
37	Saya tahu apa yang harus saya capai dalam setiap	1	2	3	4	5	1	2	3	4	5	
	pelajaran.											
38	Saya mengikuti pelajaran dengan penuh perhatian.	1	2	3	4	5	1	2	3	4	5	
39	Saya berusaha untuk mengerti tugas saya di kelas	1	2	3	4	5	1	2	3	4	5	
	ini.											
40	Saya tahu seberapa banyak tugas yang harus saya	1	2	3	4	5	1	2	3	4	5	
	lakukan.											
41	Saya bekerjasama dengan siswa lain ketika	1	2	3	4	5	1	2	3	4	5	
	mengerjakan tugas.											
42	Saya memakai bersama-sama buku dan fasilitas	1	2	3	4	5	1	2	3	4	5	
	lain dengan siswa-siswa lainnya ketika											
	mengerjakan tugas.											
43	Ketika bekerja didalam grup, saya menemui	1	2	3	4	5	1	2	3	4	5	
	kerjasama tim yang baik.											
44	Saya bekerja dengan siswa lain untuk tugas	1	2	3	4	5	1	2	3	4	5	
	kelompok di kelas.											
45	Saya belajar dari siswa lainnya di kelas ini.	1	2	3	4	5	1	2	3	4	5	

No	Pernyataan	Sebenarnya Ide							deal/Diinginkan				
46	Saya bekerja dengan siswa lainnya di kelas ini.	1	2	3	4	5	1	2	3	4	5		
47	Saya bekerjasama dengan siswa lain dalam	1	2	3	4	5	1	2	3	4	5		
	kegiatan kelas.							-			_		
48	Saya bekerja dengan siswa lain untuk mencapai	1	2	3	4	5	1	2	3	4	5		
	tujuan dari kelas ini.												
49	Bapak/ibu guru memberi perhatian yang sama	1	2	3	4	5	1	2	3	4	5		
	terhadap pertanyaan saya seperti kepada												
	pertanyaan siswa lainnya.												
50	Saya mendapat bantuan bapak/ibu guru sama	1	2	3	4	5	1	2	3	4	5		
	seperti siswa lainnya.												
51	Saya mendapat kesempatan bicara yang sama	1	2	3	4	5	1	2	3	4	5		
	seperti siswa lainnya												
52	Saya mendapat perlakuan yang sama seperti siswa	1	2	3	4	5	1	2	3	4	5		
	lainnya.												
53	Saya mendapat dorongan yang sama seperti siswa	1	2	3	4	5	1	2	3	4	5		
	lainnya.												
54	Saya mendapat kesempatan untuk berpartisipasi	1	2	3	4	5	1	2	3	4	5		
	dalam diskusi kelas seperti siswa lainnya.												
55	Pekerjaan saya mendapat penghargaan seperti	1	2	3	4	5	1	2	3	4	5		
	siswa lainnya.												
56	Saya mendapat kesempatan yang sama untuk	1	2	3	4	5	1	2	3	4	5		
	menjawab pertanyaan seperti siswa lainnya.												