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Full Length Research Paper

School environments inventory in primary education in Thailand

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Abstract

Focusing on this research investigated students' perceptions of their school learning climates of the educational basic school compared to their perceptions of their actual school (My School) and preferred school (My Dream School) learning climates in Udon Thani educational basic areas. Associations between these perceptions and students' attitudes toward their school learning climates were also determined. The school climates relationships with their students enhancing the school learning climates' attitudes in the schools were assessed. Using the standard learning environment instruments and adapted version of the 25-item *My School Inventory* (MSI), adapted from the original *My Class Inventory* (MCI) (Fisher and Fraser, 1998) was administrated. Students' attitudes were assessed with the Test of School-Related Attitudes (TOSRA). This questionnaire was translated into the Thai language and the school climates measured that can be used at the educational basic school was validated on a sample of 825 pupils in 40 primary schools at the grade 6 level in the office of the basic educational service Udon Thani through out in 4 areas. Statistically significant differences were found between the students' perceptions of their schools and their dream school climates. Outcomes of this study indicate that the school climates were high on MCI factors such as *Cohesiveness, Attentiveness, Expansion, Application,* and *Satisfaction.* Associations between students' perceptions of their school climates with their attitudes to their schools also were found. The multiple correlations were significant for the Actual or My School Form of the MCI and shows that for the TOSRA, 42% of the variance in student's attitude to their schools was attributable to their perceptions. To be provided in suggestions for comparing the dream and the actual schools with students' perceptions are the based on this finding.

Keywords: School, Environment, Education, Learning, Climates, MCI

INTRODUCTION

School and classroom climates

There is a multiplicity of definitions of classroom climate and school climate (e.g., Baker, Dilly, Aupperlee, and Patil, 2003; Hernandez and Seem, 2004; Kaplan and Geofffoy, 1990). In general, the latter concept reflects how children feel about and experience the essential characteristics of the school environment (i.e., entire physical and psychological milieu) as well as the school's faculty, staff, and administrators. Moreover, climate (a) focuses on the "quality of life phenomenon in school and classrooms" (Dunn and Harris, 1998, p. 100), (b) relates to the organizational milieu for teaching and learning, and (c) is linked to the aggregation of particular classroom

climates (Johnson and Johnson, 1999).

Although the effects of classroom and school environments are interdependent and cumulative, Fraser (1991) has differentiated these settings in terms of their climates. Classroom climate obviously concerns the dynamics of classrooms or smaller learning environments, including how children feel and experience the characteristics of this milieu. Judgments as to the nature of the classroom climate are based on a student perceptual consensus about the educational, psychological, social, and physical aspects of the environment (Dunn and Harris, 1998).

General school climate literature

It is beyond the scope of this article to summarize the decades of research on this topic; however, a perusal of the school and classroom climate literature indicates that the stability and efficacy of elementary schoolchildren's social interactions influence their academic and social development (e.g., Baker et al., 2003; Dunn and Harris, 1998; Freiburg, 1999; Haynes, Emmons, and Ben-Avic, 1997; Left, Power, Costigan, and Manz, 2003; Lehr and Christenson, 2002; Moos, 1996; Morrison, 1985).

Focusing on the early 2001, the Ministry of Education began developing new national curricula in an endeavor to model the system of education on child, or student-centered learning methods. The years from 2001 to 2009 showed some of the greatest improvements in education, experiments had also been tried with restructuring the administrative regions for education or partly decentralizing the responsibility of education to real change and many attempts to establish a clear form inappropriate or mismatched syllabus in the schools that it should be followed as the Thai policy government: *"Teachers must radically change their way of thinking – I'm not sure they can do this."* (Shinawatra, 2002).

School educational system in Thailand

Formal education has its early origins in the temple schools, when it was available to boys only until the mid-seventieth century when it was heavily curtailed, and the country returned to a strengthening of its own cultural ideology. Education in Thailand is provided mainly by the Thai government through the Ministry of Education from pre-school to senior high school. Formal education consists of at least twelve years of basic education, and higher education.

The school structure is divided into four key stages: the first three years in elementary school, Prathom 1 – 3, are for age groups 6 to 8, the second level, Prathom 4 through 6 are for age groups 9 to 11, the third level, Matthayom 1 - 3, is for age groups 12 to 14. The upper secondary level of schooling consists of Matthayom 4 - 6, for age groups 15 to 17 and is divided into academic and vocational streams. At primary levels, students follow eight core subjects each semester: Thai language, mathematics, science, social Science, health and physical education, arts and music, technology, and foreign languages are also offered.

The basic educational school climate in Thailand

Education in Thailand has improved remarkably after the current government issued and amended several laws, rules and regulations to push forward educational reform. The typical school year runs from May through March. The long summer break coincides with the hottest part of the year and Songkran, the traditional Thai New Year celebrations. Almost all villages have a primary school most sub-districts Tambon have a school providing education from grade 1-6 and all districts Amphoe have secondary schools of grade 7-9 or 7-12. The government plans to strengthen access to education for all, to establish an efficient system of quality education, and to raise educational standards and enhance Thailand's competitiveness at an international level. As a result, many initiatives have been taken, such as expanding free schooling to 15 years and developing teachers.

Thai people, especially those who live in big cities, are more eager to pursue higher education than in the past. However, many uneducated people have focused more on short-term solutions than the long-term ones. Therefore, many children have missed a chance to continue their education for supporting incomes of their family.

Uniforms are compulsory for all students with very few variations from the standard model throughout the public and private school systems, including colleges and universities. The dress code in primary and secondary grades for boys comprises knee-length dark blue, khaki, or black shorts with a pale white open collar short-sleeved shirt, long socks and brown or black trainers. Female students, wear a knee-length dark blue or black skirt, and a pale white blouse with a loosely hanging bow tie. The bow tie is dropped in favor of an open-necked pale blue shirt from Matthayom 4. As in all branches of the civil service at lower grades, teachers and staff in government schools wear a military style uniform. The female teachers and administrators of independent schools may be required to wear discrete, attractive uniforms, while staffs in universities generally wear standard business attire.

Primary school teachers

The mainstay of the teacher output is provided by the

government Rajabhat Universities, the traditional teacher training colleges in most provinces. Programmes include courses in teaching methodology, school administration, special education, optional specializations, supervised practical teaching experience, and the general education subjects of language and communication, humanities, social science, mathematics, and technology.

Primary teachers do not enjoy the same long breaks as the students and are required to work on administrative duties. Many of these tasks concern their familiarization with the frequent improvements to the National Curriculum; indeed, changes often occur faster than authors and publishers can update the textbooks and the teachers must improvise without support material, and have to design their own tests and exams - neither of which is conducive to an improvement in quality. The frequent changes in policy can cause confusion. Often one department of the Ministry of Education is not aware of the work of another and the principals and the teachers in the schools are always at the end of the information chain.

Students are not encouraged to develop analytical and critical thinking skills, which are clearly demonstrated by their inability to complete a cloze test, or to grasp a notion through context. The teachers will avoid introducing dialogue into the classroom or eliciting response from the students - to give a wrong answer would be to lose face in the presence of one's peers, a situation that in Thai culture must always be avoided.

Several thousand native-Thai Esaan speakers are employed in public and private schools throughout the Northeastern. This is being encouraged by the need to develop students' oral expression and knowledge of central Thai culture; much of their time however, is taken up with remedial teaching: putting right any grammar, orthography, pronunciation and cultural background that has been wrongly taught and which leads to great misunderstanding - they see this as a greater priority.

The third world's education

In comparison with the public expenditure of other countries, (especially developing countries): China 13%, Indonesia 8.1%, Malaysia 20%, Mexico, 24.3%, Philippines 17%, United Kingdom and France 11%, the Thai GDP and national budget allocate considerable funds to education. By 2006 it represented 27% of the national budget. Although education is mainly financed by the national budget, important local funds, particularly in urban areas, are being released to support education. Thai children with free textbooks and learning materials throughout the 15 years of government-sponsored free education and implemented this policy.

Research institute for primary education

Systematic educational research began in 1955 when the International Institute for Child Study was established in Bangkok. The Institute has now become the Behavioral Science Research Institute and has conducted both basic and applied research. In the 1960s, the Ministry of Education began programmes of Educational research. In-depth research particularly that of the ONEC, contributed to the education reform initiative of 1999-2002 and extensive research is provided by the country's universities, especially in faculties of education.

Directions for education reform and development

Thailand's Education has stressed the need to overhaul Thailand's education system that education reform had been conducted to a certain extent and it would continue. The reform might take several years before changes would be clearly seen in the country's education system. As the Government attaches great importance to national education, invite education administrators, teachers, parents, and schoolchildren to discuss directions for educational development. Schoolchildren spoke about teachers, their schools, and the curriculum, while teachers discussed mainly educational management for administrators who are able to develop humans into citizens of good quality and powerful forces of society, physical health, seeks to provide wide educational opportunities for all people, so that they have alternatives in leading their life.

One district: One dream school project

After a couple of years since the project was launched, a model 'dream school' had been established, the 'One District, One Dream School' project introduced by the Thai government and supported by the CP Group aims to provide educational institutions with the necessary resources needed to provide quality education to grass roots level students. Students and teachers alike must be weaned away from the traditional emphasis on rote learning. The new priority must be learning to think more critically, analytically, and creatively. The goal of education must be to equip our future generations for the constant and quickening change that is now a permanent feature of the world economy. Giving children the tools to be competitive internationally is essential because that is the direction in which national development strategies will change.

Potential school or classroom climate scales

Because numerous measures of school and classroom

climates have been developed over the past few decades, the My Class Inventory (MCI-SF) was narrowed to only those self-report surveys. Although various instruments fit several of the criteria--for example, the Children's Classroom Environment Scale (Humphrey, 1984), Classroom Environment Scale (Moos and Trickett, 1986), Inventory of School Climate-Student (Brand et al., 2003), Learning Environment Inventory (Fraser, Anderson, and Wahlberg, 1982, 1991), School Climate Survey (van Horn, 2003), only the My Class Inventory (e.g., Fraser et al., 1991; Fraser and Fisher, 1986; Moos, 1994) and its corresponding abbreviated version (MCI-SF; Fraser, 1982; Fraser and Fisher. 1989) appear to meet each of them. Scores on the MCI were analyzed by class to provide a measure (mean score) on each scale of each classroom of the classroom learning environment as perceived by the pupils to provide a measure of these pupils' perceptions of their classroom environments.

This instrument's developers and associates have examined the MCI's psychometric properties, including its reliability and, to a lesser extent, its validity. However, although the MCI-SF has been used in research, only a few investigations have reported on its psychometric properties. Fraser (1982) and Fraser and Fisher (1983) reported, using a very large sample (N = 2,305) of seventh-grade Australian students, the following internal consistency reliability coefficients (Cronbach alphas) for the MCI versions, respectively: Satisfaction, .88; Friction, .75; Competitiveness, .81; Difficulty, 73; and, Cohesiveness, .80. These researchers attempted to demonstrate the MCI-SF's discriminant validity by correlating MCI-SF subscales scores with other school climate subscales.

Overview of my class inventory-short form

In short, the construct and the factorial validity of the MCI-SF are equivocal with American school-age samples. The instrument is a promising measure, but the initial psychometric data need to be replicated with U.S. schoolchildren and its validity requires further documentation (Barclay, 1985; Reed, 1985). This self-report measure is a 25-item derivative of the original 38-item MCI (Fraser, 1982, 1989).

At the bottom of the MCI are five abbreviations corresponding to the subscales (S = **S**atisfaction, F = **F**riction, Cm = **Com**petitiveness, D = **D**ifficulty, and Ch = **Coh**esiveness). To determine the Satisfaction subscale score, simply add the scores for the first statement in each block (i.e., Statements 1, 6, 11, 16, and 21), using the same process for determining scores on all five subscales. At this point, teacher has the scores for each student. The final level of sophistication is to administer the MCI twice: once with students indicating how the classroom actually is, and then filling in a second sheet indicating how they prefer the classroom to be. The subscale where the gap between the actual and the preferred is the area that is in most need of teacher attention.

Research focus

Given the paucity of strong empirical research conducted with Thai primary school children at the Prathom (Grade Level) 6 in the Basic Educational Office of Udon Thani Area for demonstrating the reliability and validity of the *My School Inventory* (MSI) instrument (applied from the original MCI), before it could be recommended to school administration as a viable measure of school climate within the *Test Of School Related Attitude* (TOSRA), the instruments need to be thoroughly analyzed psychometrically.

Aims of this research

1. To examine comparisons between the students' perceptions of their school and dream school for in environmental climates in the basic education of school's climate environments in Thailand.
2. To investigate associations between students' perceptions of their school environmental climates and their school climate's attitudes in the basic education of school's climate environments in Thailand.

Design and procedure

Participants and sampling

Data were purposely and voluntarily drawn from the Prathom (grade level) 6 of the 825 primary schools' students with special needs were included in the sample selected from 40 schools throughout of the office of the basic educational service Udon Thani in 4 areas, therefore precise numbers were unattainable due to the constraints of confidentiality. Finally, on average the proportion of participants from each of the 40 schools making up the entire sample was largely comparable.

Instrumentations

To recap, it has been suggested that the *My School Inventory* that adapted version from the *My Class Inventory-Short* Form (Fraser, 1982, 1989; Fraser and Fisher, 1986) is well suited for use in primary schools. The measure and its items are (a) written at a low reading level, (b) brief, (c) easily administered and hand

scored, and (d) simple for children to answer. For the Thai respondents, the term students used in many items was changed to students. In addition, rather than using the MSI scale, the shorter format requires children to merely circle "yes" or "no" representing either "agreement" or "disagreement" with each item's content. The condensed format with 25 items, asks respondents about their perceptions of five different dimensions of their school (actual) and their dream school (preferred) environmental climates: Satisfaction (items 1, 6, 11, 16, 21), Friction (items 2, 7, 12, 17, 22), Competitiveness (items 3, 8, 13, 18, 23), Difficulty (items 4, 9, 14, 19, 24), and Cohesiveness (items 5, 10, 15, 20, 25). The underlying scale meanings might be best described as follows: Cohesiveness-the degree to which students understand, collaborate, and are friendly with one another; Friction--the extent of tension and conflict among students; Difficulty--the level of difficulty students have with the classroom work; Satisfaction--the extent to which students feel satisfied with or like their class; and Competition--the perceived amount of classroom competition.

Moreover, each scale score is a sum of the five items composing the scale. Twenty of 25 items are scored in this manner: "Yes" = 3 points, "No" = 1, and omitted or invalidly answered (e.g., student circles both "yes" and "no") items = 2. A score of "2" is figured into the total score for each scale and interpreted as if the student was "uncertain" about whether the statement was an accurate or inaccurate reflection of the actual school environment. In a sense, then, a "2" score can be viewed as if the student was conflicted about the specific question. The remaining five items are reverse-coded: 6, 9, 10, 16, and 24 (i.e., "No" = 3 and "Yes" = 1). Each scale has a total possible score of 15 points. There is no overall score for the whole test.

In addition to the Test of School-Related Attitudes (TOSRA), this adapted version from the Test of Science-Related Attitudes (TOSRA) (Fraser, 1981a). The TOSRA questionnaire was selected to use with the aim of investigating any possible relationships with students' perceptions about their school climates in the basic education of school's environmental climates. The TORRA consists of eight scales.

Procedures

The Thai primary school climates, with some assistance from relevant teachers, group-administered the Actual (My School) Form of MSI early on in November to December 2009 and the Preferred (My Dream School) Form of MSI and the TOSRA on in January to February 2010 to participants in grade 6. Students who needed help were allowed to ask questions, in some cases, the items were read to the students. Students were reviewed all the respondents' inventories for accuracy, calculated subscale scores for each valid test, as well as assisted with data entry. Nearly all of the children required no more than 15 minutes to complete the inventory.

Data analyses

Assuming that the scaling of the items approximated a 3-point Likert scale, internal consistency reliabilities (alpha coefficients) were computed for each of the derived factors of the actual and preferred MSI forms and the TOSRA attitude as specified in Fraser (1989). Factorial validity and adequacy of fit for the dimensionality of the MSI were assessed through principal component analyses. The multiple correlations were significant of students' perceptions of their school climate for the Actual Form of the MSI with students' attitudes to associate were analyzed.

RESULTS

Validation and reliability of the MSI and the TOSRA

The results given in Table 1 shows that on average item means for each of the five MSI scales, that they contain five items, so that the minimum and maximum score possible on each of these scales is 5 and 15, respectively. Because of this difference in the number of items in the five scales, the average item mean for each scale was calculated so that there is a fair basis for comparison between different scales. These means were used as a basis for constructing the simplified plots of significant differences between forms of the MSI. For the remaining five scales, *Satisfaction, Friction, Competitiveness, Difficulty,* and *Cohesiveness* scales. There were significant differences between students' perceptions of their school climates and their dream school climates, indicated to moderate internal consistency, respectively.

The internal consistency reliability of the version MSI used in this study was determined by calculating Cronbach alpha coefficient for the 25 items of the MSI using both my school and my dream school environmental climates' perceptions scores. Table 2 reports the internal consistency of the MSI, which ranged from 0.72 to 0.88 when using the students' school climate scores and from 0.75 to 0.85 when using the students' students' dream school climate scores.

This characteristic was explored using a series of one-way analyses of variance on the scales of the MSI, which suggests that each scale of the MSI was able to differentiate significantly (p <0.001) between students' perceptions in my school and my dream school environmental climates in the same school. The eta^2

Table 1. Scale Means, Standard Deviations and Mean Differences for My School and My Dream School Forms of the MSI

Scales	Mean Average		Standard Deviation		Mean	t-test
	My school	My dream school	Actual	Preferred	Difference	
Satisfaction	12.76	14.57	3.29	3.17	1.81**	31.75**
Friction	11.89	13.85	3.36	3.28	1.96**	25.80**
Competitiveness	12.31	14.19	3.28	3.25	1.88**	29.32**
Difficulty	12.23	14.07	3.31	3.24	1.84**	26.89**
Cohesiveness	11.93	14.02	3.38	3.24	2.09**	26.43**

**Correlation is significant at the level 0.05 (2-tailed)*
***Correlation is significant at the level 0.01 (2-tailed)*
****Correlation is significant at the level 0.001 (2-tailed)*

Table 2. Scale Internal Consistency (Cronbach alpha reliability), Discriminant Validity (Mean Correlation of a Scale with Other Scales) and Ability to Differentiate between Schools (ANOVA) for the MSI

Scale	Forms	Alpha Reliability	Discriminant Validity	ANOVA (*Eta*^{2})
Satisfaction	My school	0.78	0.51***	0.15**
	My dream school	0.75	0.71***	
Friction	My school	0.85	0.68***	0.11**
	My dream school	0.85	0.70***	
Competitiveness	My school	0.72	0.61***	0.17**
	My dream school	0.81	0.65***	
Difficulty	My school	0.84	0.68***	0.18**
	My dream school	0.75	0.72***	
Cohesiveness	My school	0.88	0.72***	0.24***
	My dream school	0.76	0.73***	

**Correlation is significant at the level 0.05 (2-tailed)*
***Correlation is significant at the level 0.01 (2-tailed)*
****Correlation is significant at the level 0.001 (2-tailed)*

statistic which is the ratio of “between” to “total” sums of squares and represents the proportion of variance in scale scores accounted for class by membership, ranged from 0.15 to 0.24 for different scales.

In term of the TOSRA, internal consistency (Cronbach alpha coefficient) was obtained for the sample in this present study as indices of scale reliability is 0.85.

Comparison of students' perceptions of their school and dream school climates in primary school environments in Thailand

On comparing differences between the students' perceptions of their school and their dream school climates in the primary school in Figure 1, it was found that students' dream school climates perceptions an environment with upper levels of *Satisfaction, Friction, Competitiveness, Difficulty,* and *Cohesiveness* scales than students’ school climate perceptions.

It is clear from a comparison of the dream school climates for Thai schools with their school climates, would also preferred dream school climate more than student to be more *Satisfaction, Friction, Competitiveness, Difficulty,* and *Cohesiveness* school climates.

Associations between students' perceptions of their school climates and their attitudes toward their school climates

The simple correlation values (*r*) are reported in Table 3 which show significant correlations ($p<0.01$) between students’ attitudinal outcomes and my school climate all of five scales. These associations are positive for the scales of *Satisfaction, Friction, Competitiveness, Difficulty,* and *Cohesiveness*, there was a more favourable attitude towards their school environment climates.

The second type of analysis consisted of the more conservative standardized regression coefficient (β) which measures the association between students’ perc-

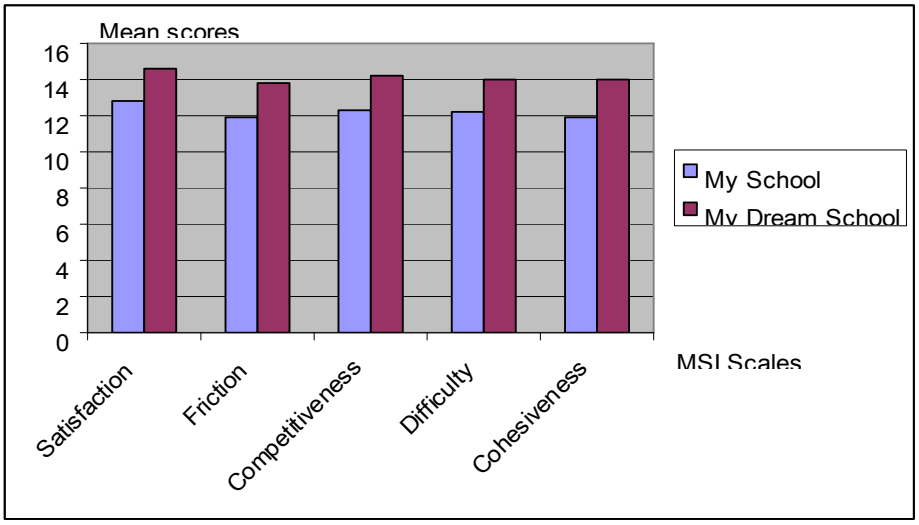

Figure 1. Simplified plot of significant differences between students' perceptions of their school and dream school scores of the MSI.

Table 3. Associations between the MSI Scales and the TOSRA to My School Climate Scales in Terms of Simple and Multiple Correlations (R) and Standardized Regression Coefficient (β)

Scale	Simple Correlation Attitude *(r)*	Standardized Regression Weight Attitude *(β)*
Satisfaction	0.27**	0.25**
Friction	0.23**	0.23**
Competitiveness	0.26**	0.26**
Difficulty	0.24**	0.23**
Cohesiveness	0.21**	0.21**
Multiple Correlation *(R)*		0.65**
R^2		0.42

n = 825, **p*<0.05, ***p*<0.01, ****p*<0.01

eptions on each scale of the MSI and their attitudes towards their school climate when the effect of relationships between the scales is controlled.

The multiple correlation *R* is significant for My School Climate Form of the MSI and shows that when the scales are considered together there is a significant (p<0.001) association with the TOSRA. The R^2 value indicates that 42% of the variance in student's attitudes to their school environmental climate was attributable to their perceptions of their school climates. The beta weights (β) shows that in my dream school climates perceived greater *Satisfaction, Friction, Competitiveness, Difficulty,* and *Cohesiveness* in their school climates, there was a more favorable attitude towards their school environments.

CONCLUSIONS

The purposes of this study were to examine the impact of assessing primary school climates in obtaining information about student's perception of their school environmental climate. The instruments used to assess the differences in student perception of actual (My School) and preferred (My Dream School) climates were the short form of the My School Inventory (MSI) (adapted from the original the My Class Inventory (MCI). The study sampled 825 primary students, grades 6, from 40 schools in the Office of the Udon Thani Educational Service Area, Thailand. Although this study resulted, appropriate statistical procedures were used in order to follow the two research aims, regarding the validation of the questionnaires. The procedures included Cronbach alpha

coefficient, discriminate validity; compare means (*t*-test) and one-way ANOVA. The two instruments, namely, the MSI, and the TOSRA, are valid and reliable to provide meaningful information ranged from 0.72 to 0.88 for the My School and 0.75 to 0.85 for the My Dream School versions of MSI, the gaps that exist in the school climate could be addressed. School climate has investigated the association between students' attitude of their perceptions on their school climates were assessed. Further study is necessary to determine how effective improvement strategies are in reducing discrepancies between my schools' (actual) and my dream schools' (preferred) environment climates and the impact of these reductions on achievement of school goals.

By using the perceptual information provided by students, the gaps were indicated by the significant student perceptual differences in Satisfaction, Friction, Competitiveness, Difficulty, and Cohesiveness scales. In order to enhance the cohesiveness and satisfaction of the collaborative this will also help to reduce the competitiveness and friction in the school climate, school's staff should hold regular school climate conferencing to better understand the school climate's needs of the students. In terms of difficulty level, the school's staff did select an appropriate to meet the climate needs of the students, would need to emphasis this aspect in the climate that it is a new initiative, need to play a more effective facilitative role in helping the students to pick up skills as their school climates. The strongest tradition in this research on school climate has involved investigation of the predictive validity of student perceptions, i.e., the ability to predict student cognitive, affective, and behavioral learning outcomes with their dream school climate.

DISCUSSION

Using the MSI instrument in Thailand

In an attempt to recommend to primary school climates a reliable and valid instrument to measure classroom climate within the context of MSI, followed as the authors psychometrically reexamined Fraser's (1982, 1989), 25-item MCI-SF using a sample of nearly 3,000 elementary students from a large and ethnically diverse urban school district in Washington state. The five-dimension model suggested by Fraser yielded an inadequate representation of the data to moderate coefficient alphas for each of the five scales were found as well. The researchers based on the previously discussed statistical analyses, modified Fraser's original inventory in an attempt to produce a more viable measure as the same as Thailand's school climate for this study. As a result, reliability coefficients for each scale, with the same scoring and administration procedures as the original MCI-SF, the Satisfaction, Friction, Competitiveness, Difficulty and Cohesiveness scales from the revised MSI are useful as an accountability tool for school climate in Thailand. Although cultural differences among the Australian and American students exist, the stronger coefficient alphas for primary students could be due to cognitive developmental differences among samples in Thailand.

Implications for primary school climate in Thailand

Allowing for about 15 minutes completing the students' responses, the MSI can be administered and scored as specified in the manual (Fraser, 1989). Primary school teachers can use the resulting this instrument to assess how they are potentially influencing students' perceptions of their environmental climate. Specifically, by reviewing over time trends in student responses to the questions posed on these scales, teachers or researchers should be able to judge, in part, how students report their level of suggestion the need for further collaborative school climate interventions. Oftentimes a graphic presentation of the scale mean scores is a good way to display the results.

Limitations of the study and suggestions for future research

Several research limitations and recommendations for future study warrant some attention. First, because the MSI has been largely psychometrically tested within Australian school systems, direct comparisons with American samples can be problematic only and have never used in Thailand. Second, scale scores were assumed to reflect continuous data, but this supposition is tenuous especially when conducting item-level factor analyses. Third, using self-report data from primary students is generally seen as less than reliable. Fourth, this sampling procedure inherently diminishes the generalizability of the findings. Finally, research should be conducted with primary-age of Thai students to establish the construct validity, scale stability, and factor invariance of the MSI.

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