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## A cross-cultural study of motivational climate in physical education lessons in the UK and Singapore

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*The primary purpose of this study was to compare the teacher behaviours that influence motivational climate and pupils' perceptions of the motivational climate in physical education lessons in Singapore and the UK. The participants were eight student teachers from the UK, ten student teachers from Singapore and their respective pupils. Each student teacher was filmed teaching one PE lesson and based on the teaching structures that influence motivational climate, their teacher behaviours were coded as 'mastery', 'performance', or 'neither', using the Behavioural Evaluation Strategies and Taxonomies software. Additionally, the pupils completed a questionnaire to assess their perceptions of the motivational climate. As hypothesized, the behavioural measure revealed higher levels of performance involving teaching behaviours in Singapore compared with the UK. Furthermore, pupils' perceptions of the motivational climate revealed higher levels of a perceived performance climate in Singapore compared to the UK. These findings are discussed in relation to cultural differences between Singapore and the UK.*

KEY WORDS: Cross-cultural comparisons, Motivational climate, Teaching behaviours.

### Introduction

Recent social cognitive approaches to the study of achievement motivation in physical education (PE) have focused on manipulating the teaching behaviours to influence pupils' perceptions of the motivational climate and enhance cognitive and affective responses (e.g. Morgan & Carpenter, 2002;

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Papaioannou, 2003; Solmon, 1996; Treasure, 1993). Two types of motivational climate have been found to predominate in achievement settings: a mastery and a performance involving climate (Ames, 1992a). A mastery involving climate is one in which self-referenced improvement and effort are made salient by the teacher and success is defined as improving one's personal best achievements. In contrast, when a performance climate prevails the teacher encourages normative comparisons and pupils' success is judged in relation to the performance of others. Correlational studies (e.g. Carpenter & Morgan, 1999; Goudas & Biddle, 1994; Papaioannou, 1995) have consistently shown that perceptions of a mastery climate are related to adaptive motivational responses, such as beliefs that success is due to effort, high satisfaction, low boredom, high intrinsic motivation, the choice of challenging tasks and a positive attitude towards the activity. A perceived performance climate, on the other hand, has been linked to maladaptive motivational responses such as beliefs that success is the result of ability and deception, choice of non-challenging tasks, low perceived ability and a negative attitude.

In order to enhance motivation in classroom settings, Ames (1992a; 1992b) identified the teaching behaviours that promote a mastery climate. These teaching behaviours structures were originally identified by Epstein (1989) who used the acronym TARGET to represent the task, authority, recognition, grouping, evaluation and time dimensions of classroom based lessons. According to Ames (1992b), a mastery climate becomes salient when tasks have self-referenced goals, are multi-dimensional (different tasks taking place simultaneously), designed for variety and enjoyment, and where the task difficulty is differentiated to meet the needs of all pupils. Additionally, in order to promote a mastery climate, pupils should be encouraged to make decisions, thus sharing authority with the teacher and recognition / evaluation should be given privately and focused on effort and improvement. Furthermore, participation should be in heterogeneous, co-operative groups and time on task should be flexible and maximize opportunities to progress. The results from the limited number of TARGET intervention studies in PE to date (e.g. Morgan & Carpenter, 2002; Papaioannou, 2003; Solmon, 1996; Treasure, 1993) have shown that those subjects who participated in a mastery condition perceived the climate to be more mastery involved and recorded more adaptive cognitive and affective responses than did those who participated in a performance condition.

Duda (2001) suggested that an important future direction for research on motivational climate, which would be both theoretically and methodologically relevant and significant from an intervention point, would be to determine the degree of congruence between 'objective' and 'subjective' environ-

ments. Moreover, Duda contended that Ames' (1992b) TARGET structures would provide an excellent starting point for this line of research. In order to foster a mastery climate, and enhance pupils' motivation, teachers need to be able to 'objectively' evaluate and modify their behaviours, and to measure the degree of congruence with pupils' perceptions of the climate and their motivational responses. With this knowledge, teachers can identify whether their structuring and manipulation of the TARGET behaviours is producing the desired perceived climate and motivational responses, and can identify aspects of best practice when their strategies are effective, or alter their strategies when not producing the desired outcomes.

Curtner-Smith and Todorovich (2002) were the first to develop an 'objective' measure of the TARGET behaviours. Their Physical Education Climate Assessment Instrument was designed for systematic, task-by-task observational analysis and 'hand notation' of ego involving, task involving or neutral TARGET behaviours from videotaped PE lessons. More recently, Morgan *et al.* (2005a) developed a more sophisticated, computer-based behavioural measure of the TARGET structures for use in a PE setting using the Behavioural Evaluation Strategies and Taxonomies (BEST; Sharpe & Koperwas, 1999) software. This CD-ROM software permits the collection and immediate analysis of data gathered from observations of PE teaching, either live with a lap top computer, or from video and audio recording of lessons. Based on Ames' (1992b) description of TARGET, mastery, performance, and neither categories were identified and assigned a computer keyboard number or letter for coding of behaviours (see Table I). For the task structure, a mastery coding was given if pupils worked on a variety of activities, at their own level of ability, and were encouraged and / or helped to set realistic, short-term, self-referenced goals. Conversely, tasks that were common for all participants, and usually with a competitive goal were coded as performance. Additionally, tasks with no clear purpose or goal were coded as neither. The authority structure refers to pupil involvement in leadership roles and decision making. Pupils in a mastery coded authority structure were allowed to make some of the decisions about their lessons and take on leadership roles. On the other hand, when the teacher made all the decisions the authority structure was coded as performance, since differential levels of ability have been found to be more salient when the locus of responsibility lies totally with the teacher (Ames, 1992a). In relation to recognition and evaluation structures, in order to be given a mastery coding the focus had to be self-referenced and based on individual effort, improvement, and skill development. In addition, feedback should have been distributed privately. However, if recognition and evaluation was based on individual ability/knowl-

TABLE I  
Computer keyboard configuration for the observed TARGET behaviours

TARGET Structures	Mastery	Neither	Performance
<b>Task</b> (frequency)	<ul style="list-style-type: none"> <li>Differentiated (ability matched)</li> <li>Self-referenced goal</li> <li>multi/dimensional</li> </ul> <p style="text-align: right;">1</p>	<ul style="list-style-type: none"> <li>No clear purpose</li> <li>No clear goals</li> </ul> <p style="text-align: right;">3</p>	<ul style="list-style-type: none"> <li>Common purposeful task (undifferentiated)</li> <li>Other-referenced goal (ability)</li> </ul> <p style="text-align: right;">2</p>
<b>Authority</b> (duration)	<ul style="list-style-type: none"> <li>Pupils make decisions</li> <li>home leaderships votes</li> </ul> <p style="text-align: right;">4</p>		<ul style="list-style-type: none"> <li>Teacher makes all decisions</li> </ul> <p style="text-align: right;">5</p>
<b>Recognition &amp; Evaluation</b> (frequency)	<ul style="list-style-type: none"> <li>Recognition / evaluation focused on self referenced effort improvement, in private</li> </ul> <p style="text-align: right;">6</p>	<ul style="list-style-type: none"> <li>General recognition not focused on individual ability, effort, &amp; skill development</li> </ul> <p style="text-align: right;">9</p>	<ul style="list-style-type: none"> <li>Recognition / evaluation focused on normative ability, knowledge comparisons</li> </ul> <p style="text-align: right;">8</p>
	<ul style="list-style-type: none"> <li>Recognition / Evaluation focused on self referenced effort, improvement, attainment, knowledge in public</li> </ul> <p style="text-align: right;">7</p>	<ul style="list-style-type: none"> <li>Focus on Luck</li> </ul> <p style="text-align: right;">0</p>	
<b>Grouping</b> (duration)	<ul style="list-style-type: none"> <li>Mixed ability groups</li> <li>Working alone</li> </ul> <p style="text-align: right;">Q</p>	<ul style="list-style-type: none"> <li>No groups</li> </ul> <p style="text-align: right;">E</p>	<ul style="list-style-type: none"> <li>Whole class</li> <li>Ability groups</li> </ul> <p style="text-align: right;">w</p>
<b>Timing</b> (duration)	<ul style="list-style-type: none"> <li>Time to practice</li> </ul> <p style="text-align: right;">A</p>	<ul style="list-style-type: none"> <li>Time not practicing</li> </ul> <p style="text-align: right;">B</p>	

edge, comparing individuals against others or comparing one group against another, then a performance climate was coded. General praise, encouragement or feedback to the whole class, or reference to luck was coded as neither. Small groups or working alone, and the use of flexible and mixed ability grouping arrangements, which limited ability comparisons, were coded as mastery. In contrast, when the teacher organised the pupils into large groups, or smaller groups based upon ability, where social comparison was more obvious, a performance coding was entered. Finally, a mastery climate was coded when opportunities and time for practice and improvement were provided during the lessons and time not practicing was coded as neither. In order to evaluate the percentage frequency of mastery, performance and neither behaviours per lesson, the frequency of the task, recognition and evaluation behaviours was coded. For the authority, grouping and time structures, the duration of the teaching behaviours was coded because the amount of

time that pupils were allowed to make decisions and take on leadership roles, participate in mastery or performance groups and practice to improve performance were of primary interest to the researchers in evaluating their mastery and performance experiences.

Objective assessment of the TARGET behaviours of Secondary PE teachers (11-16 age group) in the UK, using Morgan *et al.*'s (2005a) measure revealed a mastery focus for the recognition, evaluation and time structures, whereas the task, authority and grouping structures were more performance focused. Moreover, there was congruency between the combined TARGET behaviours as measured by the BEST (Sharpe & Koperwas, 1999) behavioural measure and pupils' perceptions of the climate, as measured by the LAPOPECQ (Papaioannou, 1994), with both measures revealing a higher mastery than performance climate. Furthermore, the results suggested an additive relationship between the TARGET structures (where certain structures can outweigh others), since perceptions of the climate were mastery focused, whereas the behaviourally measured task, authority and grouping structures were more performance orientated, thus suggesting that the recognition, evaluation and time structures of TARGET had the greatest impact upon perceptions of the climate. Morgan *et al.*'s (2005a) measure was also used for an investigation into the effects of different teaching styles from Mosston and Ashworth's (2002) Spectrum, on the TARGET behaviours and pupils' cognitive and affective responses in PE (Morgan *et al.*, 2005b). Results revealed that more 'pupil centred' teaching styles resulted in more mastery and less performance focused TARGET behaviours, and more adaptive motivational responses than a more 'teacher centred' style.

To date, Morgan *et al.*'s (2005) measure has only been used with UK participants. According to Duda and Hayashi (1998), in applied work, we are bound by ethical and social responsibility to ensure that our instruments are sensitive to cultural differences. Furthermore, Duda and Allison (1990) suggested that cross-cultural comparative investigations allow investigators to further validate motivational responses by considering culture and ethnicity as explanatory variables in sport and exercise settings. Moreover, with specific reference to motivational climate, Coakley (1994) suggested that social and cultural factors can affect the psychological environments where physical activity takes place and that these factors should be taken into account when measuring the motivational climate. Ntoumanis and Biddle (1999) have also suggested integrating social and cultural factors for a better understanding of motivational climate in physical activity, in proposing future directions for research on motivational climate. They argued that it is possi-

ble that motivational climates are conceptually distinct in different cultures because of the different meanings attached to the social environment and to achievement, success and failure. This is consistent with Chelladurai *et al.*'s (1988) 'cultural influence' viewpoint, which suggests that culture influences behaviour in sport settings. The alternative viewpoint is the 'athletic imperatives' perspective, which suggests no differences in coaches' and athletes' behaviours between cultures, given the similar performance requirements (Chelladurai *et al.*, 1988).

Kim *et al.* (2003) examined these two perspectives in the USA and Korea that represent North American and Asian perspectives respectively, with middle school aged athletes (11-14 years old). The results revealed that USA athletes were higher in task (mastery) orientation and lower in ego (performance) orientation than Korean athletes. One explanation offered by Kim *et al.* (2003) for these findings was socio-cultural factors. More specifically, they suggested that the nature of the school sport system may have an impact on goal orientations. For Korean athletes, there are a limited number of high school places and sport provides an alternative way to enter high school. Kim *et al.* (2003) concluded that this type of system where athletes compete for the honour of getting into high school may foster a stronger ego orientation than the US system where education is considered a right for all. Cultural differences in achievement orientations have also been found with USA and Japanese marathon runners (Hayashi & Weiss, 1994) with Japanese athletes scoring significantly higher on ego orientation. To date, however, cross cultural differences in perceptions of the motivational climate or the TARGET teaching behaviours that influence motivation in a PE setting have not been examined. The primary purpose of this study, therefore, was to examine the differences in student teacher behaviours that influence motivational climate and pupils' perceptions of the motivational climate in PE in the UK and Singapore.

Singapore has been training specialist teachers in PE since 1984 (McNeill *et al.*, 2003). At its inception the Singapore Physical Education Teacher Education (PETE) model was closely aligned with its UK counterpart through consultancy with Loughborough University (Jones, 1988). Although there are similarities to the UK model of Initial Teacher Education (ITE) there are local social and cultural factors that contribute to potential differences in the teaching behaviours of a Singapore trained PE teacher as compared with those of a UK PE teacher. For example, in Singapore many school programmes promote fitness as a central dimension of PE, as it is a major component of the school ranking system as measured by the School Excellence Model (School Appraisal Branch, 2000). Not only is fitness rec-

ognized as a significant contributor to the social dimension of a healthy and productive labour force, it plays a vital role in preparing male students for compulsory national service (McNeill *et al.*, 2003). Furthermore, Singapore's equatorial climate plays a significant role in the manner in which PE is taught, as does the average class size of forty (compared to 25-30 in the UK), and the problem of limited space for activity (Singapore is a small island city state with large school populations). Moreover, education in Singapore is perceived to be the most significant means of gaining access to social advancement (Aplin *et al.*, 1998), and competition for university places is fierce with only one in five with entrance qualifications being accepted (Cameron-Jones, 1997). These factors point to differences between Singapore and UK cultures and, as such, the teaching behaviours and pupils' perceptions of the motivational climates are hypothesized to differ in the present study. This is consistent with a 'cultural influence' viewpoint, (Chelladurai *et al.*, 1988). More specifically, it is hypothesized that the teaching behaviours and pupils' perceptions of the motivational climate will be more performance focused in Singapore in comparison to the UK.

## Method

### PARTICIPANTS AND PROCEDURES

The study was approved by both Universities' ethics in human research committees. The school's Principal / Headteacher and Heads of Departments gave permission to access the pupil sample pool and parents of pupils provided informed consent. A multi-method model of data collection was adopted for the study involving video-taped lesson observations and questionnaires. In Sue and Sue's (1987) opinion this multi-method approach is particularly desirable for cross-cultural studies as, when there is consistency across methods, the researcher can have greater confidence in his/her findings.

The participants were eight student teachers (4 male, 4 female; M age = 21.3 yrs, SD = 0.3) from a UK university and ten student teachers (4 male, 6 female; M age = 26.5 yrs, SD = 1.8) from a university in Singapore enrolled on a Post Graduate Diploma / Certificate in Physical Education (PGD/CE-PE) initial teacher education (ITE) programme and their respective UK (mean age 13.0 yrs, SD 1.0; 72 boys and 46 girls) and Singaporean pupils (mean age 13.1 yrs, SD = 1.6; 159 boys and 111 girls). The student teachers were randomly selected from their cohort and provided informed consent to take part in the study. Prior to this study, all student teachers had experience of being videotaped while teaching children during micro-teaching experiences, where the student teachers work with a small group of pupils within a class or teach a phase of the lesson to the whole class. The pupils were taught by the student teachers in their normal PE lessons with the supervising teacher present. The range of lesson time in Singapore was from 23.7 mins to 49.1 mins (M lesson time = 30.2 mins; SD = 6.99). In the UK the lesson time varied from 25.3 mins to 56.3 mins (M lesson time = 43.2 mins; SD = 11.79)



The study was conducted in ten government secondary schools located in Singapore and eight urban or rural state secondary schools located in and around small towns in Bedfordshire, UK. The data collected for Singapore were part of a larger curriculum development project. Each student teacher was observed and filmed teaching a single randomly selected lesson, whilst adopting their usual teaching behaviours for that activity. The class used for data collection had been taught by the student teacher for at least seven weeks previously, and was one of many classes taught by each student teacher. In Singapore all the classes were co-educational. In the UK, six of the observed lessons were taught in co-educational settings, and two lessons were taught in single-gender situations. All the lessons videotaped were at the equivalent of Key Stage 3 of the National Curriculum Physical Education (NCPE) for the UK (DFEE/QCA, 1999) (aged 11-14) and were filmed during the last three weeks of the student teachers' final teaching experience. In Singapore the lessons observed were drawn from the games and gymnastics areas of activity (9 from games and 1 from gymnastics) and they occurred mainly outside, on grass playing fields / all-weather pitches, or indoors in a gymnasium. In the UK, lessons observed were drawn from three NCPE areas of activity (6 athletics, 1 gymnastics and 1 games) and they were taught mainly outside, on grass playing fields, and once indoors, in a gymnasium.

In order to film the lessons, a camcorder was mounted on a tripod and positioned so as not to interfere with the lesson plan, and the camera focused on the student teacher throughout the lesson. The video recording began when at least one of the pupils had arrived in the lesson area and continued until the pupils were dismissed by the student teacher. The student teachers wore a wireless microphone throughout the lesson.

## MEASURES

The pupils were asked to complete the twenty six- item Learning and Performance Orientations in Physical Education Classes Questionnaire (LAPOPECQ) (Papaioannou, 1994). Factor analysis has revealed a five factor solution and a hierarchical structure (Papaioannou, 1994). Two factors (pupils' learning & teacher initiated learning) are first order factors of a higher order factor, 'Learning' and the remaining three factors (pupil competitive orientation, pupil worry and outcome orientation without effort) are sub-factors of a second higher order factor, 'Performance'. Pupils were asked to indicate their perceptions of a teacher initiated learning orientation (5 items; e.g., "The PE teacher was most satisfied when every pupil learned something new."), a pupil learning orientation (7 items; e.g., "The way the lesson was taught helped me learn how to exercise by myself."), pupil competitive orientation (5 items; e.g., "During the lesson pupils tried to outperform each other."), outcome orientation without effort (4 items; e.g., "The PE teacher was pleased with those pupils who managed to win with little effort.") and pupils' worry about mistakes (5 items; e.g., "Pupils worried about failing when performing skills because they would not look good in the eyes of the PE teacher."). The statements followed the stem: 'During today's PE lesson...' Responses were indicated on a five-point Likert-type scale, ranging from 1 strongly disagree to 5 strongly agree.

## VIDEO DATA ANALYSIS

The TARGET (Ames, 1992b) configuration modification of the Behavioral Evaluation Strategies and Taxonomies (BEST) (Sharpe & Koperwas, 1999) software developed by Morgan

*et al.* (2005a) was used to analyse the video data. As described in the introduction, based on Ames' (1992b) description of TARGET areas and motivational strategies, mastery, performance, and neither categories were identified and assigned a computer keyboard number or letter for coding of behaviours (see Table I for a description of the categories). The computer keyboard was configured to permit the recording of multiple and overlapping frequency behaviours (task, recognition and evaluation structures) and duration behaviours (authority, grouping and time structures) through depressing the appropriate keys. Validity and acceptable intra and inter-observer reliability (greater than .80) was established during the development of the measure (Morgan *et al.*, 2005a) in line with Sharp and Koperwas's (1999) recommendations to ensure reliability and accuracy of data records, and the use of recognized agreement tests and reliability procedures (Kazdin, 1982). Two researchers, instrumental in the development of the measure of teacher behaviours that influence motivational climate and trained in its use, undertook video analysis simultaneously on the observed teacher behaviours. The flexibility of the BEST system allowed the two researchers to pause both the video and the software system and to replay the video for discussion until complete and unambiguous 100% agreement was reached on the coding of the mastery, performance and neither categories of teaching behaviours.

The percentage frequency or duration scores per lesson for each of the individual TARGET structures was calculated by dividing the raw scores for mastery, performance and neither codings by the total number of codings and multiplying the result by 100. Mean percentage scores for the UK and Singapore lessons (see Table II) were then calculated by adding the percentage scores for all lessons and dividing by the number of lessons (8 for the UK and 10 for Singapore). Combined mastery, performance and neither scores were calculated by adding the mean percentage scores for all TARGET structures and dividing by the number of structures, as shown in Table II.

TABLE II  
*Comparisons between teacher's TARGET behaviours in the UK and Singapore*

	TARGET Structures	Sing. (M %)	UK (M %)	df	F	Effect Size	Power
Task	Mastery Tasks	5	15.7	1,16	2.44	.13	.31
	Performance Tasks	95	64.2	1,16	15.60*	.49	.96
	Neither Tasks	0.0	20.1	1,16	9.58	.38	.83
Authority	Mastery Authority	0.8	18.4	1,16	8.04	.33	.76
	Performance Authority	99.2	81.6	1,16	8.04	.33	.76
Recognition/ Evaluation	Mastery Recognition Evaluation	62.3	69.2	1,16	.50	.03	.10
	Performance Recognition/ Evaluation	18.0	11.6	1,16	.61	.04	.11
	Neither Recognition/ Evaluation	19.7	19.2	1,16	.02	.001	.05
Grouping	Mastery Grouping	66.1	44.1	1,16	4.35	.21	.50
	Performance Grouping	33.9	55.9	1,16	4.35	.21	.50
Time	Mastery Time	63.3	50.2	1,16	8.62	.35	.79
	Neither Time	36.7	49.8	1,16	8.62	.35	.79
Combined	Mastery	39.5	39.4	1,16	.00	.001	.05
	Performance	42.6	46.3	1,16	3.17	.17	.39
	Neither	17.8	11.3	1,16	10.40	.39	.86

\*  $p < .003$  (Bonferroni adjusted level)

## Results

### BEHAVIOURAL ANALYSIS

In order to determine whether any significant differences existed between the teacher behaviours that influence the motivational climate in the UK and Singapore, a series of one-way ANOVAs was conducted with country as the independent variable and each of the combined and individual mastery, performance and neither TARGET structures as the dependent variables. ANOVAs were conducted in preference to a MANOVA because there were less than three participants (lessons) for each dependent variable (Tabachnick & Fidell, 2001). Consistent with the hypothesis, results revealed significant differences in mean percentage performance tasks, with a moderate effect size and a high degree of power (see Table II). Further examination of the mean percentage scores (see Table II) revealed higher levels of performance tasks in Singapore than in the UK. Although not statistically significant at the adjusted level of significance due to multiple ANOVAs, a moderate effect size and acceptable level of power (Cohen, 1988) was also revealed for higher levels of performance authority (teacher-centred) and activity time, and lower levels of tasks without a clearly set goal in Singapore, compared to the UK (see Table II).

### QUESTIONNAIRE ANALYSIS

*Reliability of the LAPOPECQ.* Psychometric evaluation of the LAPOPECQ (Papaioanou, 1994) has identified a lack of internal consistency ( $< .70$ ) of the sub-scales using Cronbach's (1951) coefficient alpha analysis. Consistent with these findings, adopting Nunnally's (1978)  $> 0.7$  criterion level, the present study revealed less than acceptable alphas for teacher learning (.68), student competitive orientation (.61) and outcome orientation (.48) in Singapore and outcome orientation in the UK (.64). Given this and the theoretical importance of the higher order, learning and performance dimensions, it was decided to consider the higher order scales only in the analysis. Reliable alpha scores were found for the mastery and performance scales in both the UK and Singapore (see Table IV).

*Correlational analyses between perceived motivational climate and teacher behaviours.* Pearson product moment correlations were conducted to examine the relationship between the mean perceived motivational climate and the percentage TARGET behaviours per class (see Table III). No significant relationships were found between the perceptual data and the behavioural codings. These findings are discussed under the limitations to the study in the discussion section.

*Comparisons between pupils' perceptions of the motivational climate in the UK and Singapore.* A MANOVA was conducted to test for differences between pupils' perceptions of the motivational climate in the UK and Singapore. Analysis revealed a significant main effect for country (Wilks' lambda = .87;  $F(6,364) = 8.95, p < .001$ ). Further follow up, univariate analysis (Table IV) revealed significant differences in pupils' perceptions of a performance climate, whereas, no significant differences were found in perceptions of a mastery climate. In agreement with the hypothesis, further examination of the mean scores revealed a higher level of perceived performance climate in Singapore compared to the UK. The effect size for this difference was low, whereas the power of the analysis was high (See Table IV).

TABLE III  
Correlations between perceived climate & TARGET behaviours

% TARGET Behaviours	Perceived Mastery Climate	Perceived Performance Climate
	Pearson Correlation	Pearson Correlation
Mastery Tasks	.01	-.15
Performance Tasks	-.03	.45
Neither Tasks	.03	-.47
Mastery Authority	.20	-.16
Performance Authority	-.20	.16
Mastery Recognition & Evaluation	.25	.07
Performance Recognition & Evaluation	-.35	-.04
General Recognition & Evaluation	.12	-.09
Mastery Groups	-.42	.25
Performance Groups	.42	-.25
Active Time(Mastery)	-.19	.46
Inactive Time	.19	-.46

TABLE IV  
Comparisons between pupils' perceptions of the motivational climate in the UK and Singapore

LAPOPECQ Scales	UK Alpha	Sing Alpha	UK M	UK SD	Sing M	Sing SD	F	Effect Size	Power
Mastery	.88	.87	4.04	.62	3.96	.59	1.39	.01	.21
Performance	.85	.73	2.80	.68	3.12	.51	24.28*	.06	.99

\*p <.01 level

## Discussion

The primary purpose of this study was to compare the student teacher behaviours that influence motivational climate and pupils' perceptions of the motivational climate in the UK and Singapore. In line with a 'cultural influence' viewpoint (Chelladurai *et al.*, 1988), it was hypothesized that the teaching behaviours and pupils' perceptions of the motivational climates would be more performance oriented in Singapore, due to social and cultural differences between Singapore, a meritocracy, and the UK.

In agreement with the hypothesis of 'cultural influence', significant differences were found between the teaching behaviours in the UK and Singapore, and between pupils' perceptions of the motivational climate across cultures. More specifically, comparisons between the TARGET (Ames, 1992b) student teacher behaviours in the UK and Singapore revealed significantly higher levels of performance involving tasks (undifferentiated, competitive tasks) in Singapore compared to the UK. Furthermore, higher levels of per-

formance authority (teacher-centred) and activity time, and lower levels of tasks without a clearly set goal were found in Singapore, compared to the UK. Consistent with the observed student teaching behaviours, pupils' perceptions of a performance involving motivational climate were also higher in Singapore when compared with the UK. The higher levels of a performance climate in Singapore revealed by the behavioural and perceptual measures allows for greater confidence in the findings (Sue & Sue, 1987).

Consistent with a 'cultural influence' viewpoint (Chelladurai *et al.*, 1988), and with previous research on goal orientations in an Asian context (Kim & Gill, 1997; Kim *et al.*, 2003) the results of this study suggest that student PE teachers in Singapore are more likely to promote performance involving (competitive) tasks in lessons than student teachers in the UK. Furthermore, pupils in Singapore perceived a higher performance involving climate than their UK counterparts. One possible explanation for these findings may be the competitive meritocratic influence that promotes individual ability and achievement, as well as the perception of education in Singapore as the most significant means of gaining access to social advancement (Aplin *et al.*, 1998). No differences were found in perceptions of a mastery climate between pupils in the UK and Singapore, with both groups scoring high on this dimension. This is in line with Kim and Gill (1997) who found that Asian school athletes tend to allow multiple criteria for the judgement of success in sports, including both personal improvement (mastery focus) and the demonstration of superiority (performance focus).

The finding that Singaporean student teachers are more authoritative in their teaching approach than their UK counterparts, may be explained by the difficulty experienced by student teachers managing large numbers of pupils. Previous research in PE (e.g. Curtner-Smith, 1999; Hastie & Saunders, 1991) has highlighted the impact of large classes on pupils' learning and engagement in PE lessons. The lack of decision making and leadership roles given to pupils and the lower perceived teacher focus on learning in PE lessons in Singapore may, therefore, be due to pragmatic reasons associated with classes averaging forty pupils (McNeill *et al.*, 2003), compared to under thirty, which is the norm in the UK. Given the positive effects of encouraging pupils to actively participate in the learning process (Ames, 1992a; 1992b) and the importance of developing self-management skills to make life-time decisions about active living (Corbin, 2002), and that class sizes across the curriculum in Singapore are currently under review, it would seem appropriate for Singaporean student teachers to more fully apply the student-centred strategies that are highlighted in the impending syllabus (MOE, 2005) by involving more pupil decision-making in lessons.

The higher perceived performance climate in Singapore compared to the UK might also suggest that pupils find it difficult to switch off the dominant, meritocratic values, even in a 'non academic' domain such as PE [PE is a non examinable subject in Singapore and has a lower priority compared to academic studies (Gan, 1994)]. Gasmier (1992) suggested that the stress on teenagers, caused by living in a very competitive achievement-oriented education system, which connects personal worth with school performance and academic success, was a concern in Singapore. It may be appropriate, therefore, to reduce the normative achievement oriented focus, particularly in 'non academic' subjects such as PE and focus more on promoting a mastery climate. Future motivational climate intervention studies, which specifically evaluate the cognitive and affective responses of pupils in an Asian context is needed to address this issue and provide empirical evidence to support this suggestion.

There was more time to practice in PE lessons in Singapore than in the UK. One explanation for this finding might be the emphasis on skill acquisition in Singapore, as a reflection of the skills, knowledge and attitude goals of the previous PE Syllabus (MOE, 1999). Schools that are successful in extra-curricular activity are also acknowledged through the School Excellence Model, thus creating a need for skilful performance. The greater amount of physical activity time in lessons (over 60% of the lesson time) in Singapore may be beneficial from a health perspective. In comparison, results suggest that in the UK pupils in this study were only active for approximately 50% of lesson time, thus suggesting that there should be a greater focus in the UK on increasing the physical activity time within PE lessons to reduce the risk of chronic illness and enhance wellness (Corbin, 2002). Furthermore, student teachers in Singapore set significantly more task aims in lessons than their UK counterparts. Indeed, every task set by the Singaporean student teachers was accompanied by a clear goal, whereas in the UK, students were less clear on the task goals. Communicating the intended outcomes of the lesson to the pupils has been identified as an important aspect of effective teaching in PE (Mawer, 1995; Rink, 1996).

In conclusion, consistent with a 'cultural influence' viewpoint, (Cheladurai *et al.*, 1988), the findings of this study support the consideration of cultural factors to give a better understanding of motivational climate in PE lessons. Thus, this study adds to the claims of other researchers (e.g. Duda & Hayashi, 1998; Hayashi & Weiss, 1994; Kim *et al.*, 2003) in support of the inclusion of culture as a meaningful category for research in sport and exercise settings. It is crucial that we consider how pupils from different cultures give meaning to instructional behaviours and classroom events for effective

teaching to occur and do not simply accept universal predictions of motivational theory for PE lessons or practices for achieving them. It is important to acknowledge, however, that the differences in the UK and Singapore samples pertaining to a predominance of athletics in the UK may have contributed in some way to the significant differences in the results.

Previous mastery intervention studies in the USA and UK (e.g. Morgan & Carpenter, 2002; Solmon, 1996; Treasure, 1993) have shown that manipulating the TARGET structures to be mastery involving has resulted in a higher task orientation, higher levels of perceived competence, satisfaction and enjoyment, less boredom, a preference for more challenging tasks, and beliefs that success was the result of motivation and effort. An interesting future line of research would be to examine pupils' motivational responses to a mastery intervention programme in an Asian context, in order to consider whether any cultural differences are evident. In designing such initiatives, the results of the present study suggest that a particular focus should be on emphasizing self-referenced tasks and developing more pupil-centred teaching approaches such as the games concept approach (GCA), advocated in the recently implemented PE syllabus (MOE, 2005). The GCA was introduced to promote critical and creative thinking amongst pupils in the Revised Syllabus (1999). A local derivative of Bunker & Thorpes' 'understanding' model (1986), the GCA adopts a game-centred constructivist pedagogy to enhance tactical awareness through the application of game-related concepts (McNeill *et al.*, 2004). Such mastery teaching approaches are aimed at enhancing pupils' motivation within PE lessons.

There are several limitations to this study which should be considered for future research in this area. The first issue surrounds the insignificant correlations between the observational measure of TARGET (Morgan, *et al.*, 2005a) and the LAPOPECQ (Papaioannou, 1994) (Table III). Close scrutiny of the individual items and sub-scales of the LAPOPECQ reveals that they focus primarily on the task goals (competitive or self-referenced), and on the recognition and evaluation structures of TARGET (Ames, 1992b). Thus, the task design, authority, grouping and time structures are not specifically addressed, which might partially explain the insignificant correlations. The LAPOPECQ has also been criticized for measuring dispositional goal orientations as well as the situationally emphasized climate structures for which it was designed (Duda & Whitehead, 1998). The development of a perceptual measure of TARGET would therefore be a worthy future direction for research which would allow researchers and practitioners to more accurately compare pupils' and teachers' perceptions with observed TARGET behaviours.

A further explanation for the insignificant correlations between the behavioural and perceptual measures of motivational climate may be due to the intraclass mean having to be used for the climate perceptions. This was necessary because the TARGET codings were measured as a class level variable in contrast to the pupils' perceptions which were assessed as an individual level variable. Papaioannou *et al.* (2004) recently revealed modest intraclass correlations (.20) associated with the measures of perceived mastery and performance climates using the LAPOPECQ. This suggests limited homogeneity in pupils' perceptions of the motivational climate behaviors of the teacher and may be a further reason for the lack of significant correlations between behaviours and perceptions. Furthermore, it may provide a rationale for using an observational coding system, such as the one developed by Morgan *et al.* (2005a), to measure motivational climate as a group-level variable.

When each of the TARGET structures is considered individually in both countries, (see Table III) consistent with the pupils' perceptions and with Morgan *et al.*' (2005a) previous research, the recognition and evaluation structures were highly mastery involving. On the other hand, the task and authority dimensions of the TARGET structures were strongly performance orientated. These findings suggest that certain TARGET structures may be more dominant than others in determining the pupils' perceptions of the climate, which may provide further explanation for the low correlations between perceived climate and a number of the TARGET structures. Future research should therefore aim to determine the interrelationships between the different TARGET structures, and their influence on perceptions of the motivational climate and motivational outcomes. One way to achieve this would be to design a series of interventions to manipulate different TARGET structures individually in a practical setting and evaluate the impact on pupils' motivational responses, using an observational measure as a manipulation check of the TARGET behaviours.

The poor internal consistency of the LAPOPECQ subscales for the Singaporean participants, as reported in the results, suggests possible differences in the interpretation of some of the LAPOPECQ items across cultures. Future research should therefore assess the psychometric properties of the LAPOPECQ in an Asian context. This would eliminate the possibility of key elements of Asian PE culture being omitted by adopting a 'western' framework in making the cross-cultural comparisons.

In relation to coding of the time structure in the present study, active time to practice was coded as mastery, and inactive time (time spent listening to the teacher, being organized into groups, or not involved in any aspect of planning, performing or evaluating) was coded as neither. Performance



time was therefore not coded. This is considered to be a limitation of the study, since active time might have resulted in the perception of either a mastery or performance climate. The most salient aspect of the time structure, according to Ames (1992b), is the provision of flexible time schedules to accommodate different rates of learning and achievement. Thus, if the teacher allows flexibility for pupils to learn at different rates, he/she is creating an inclusive, mastery involving climate, within which all pupils can work at their optimum rate and achieve their full potential. If, on the other hand, the teacher sets a common work rate for all pupils, and expects them to achieve the task to the same level, then clearly some pupils will be under-challenged and some over-challenged. Completing the task quickly and accurately would demonstrate higher ability, whereas, those who struggle to achieve it within the time constraints would be perceived, by themselves and others, as having lower ability, thus promoting a performance involving climate. Teachers should therefore strive to differentiate by time, and allow flexible work rates within lessons in order to create a mastery climate (Ames, 1992b). The coding of the time structure, therefore, needs to recognize the flexible versus inflexible aspect, in addition to the active versus inactive time.

Other limitations to the study include the assessment of only one lesson per teacher and the use of inexperienced student teachers. Although the development of the observational measure was initially designed for use with student teachers as part of their teacher education programme, it is accepted that more experienced practitioners may offer a different insight into the research. Future research of this nature should therefore endeavour to work with more experienced practitioners over a sustained period in developing an observational mastery intervention programme, whilst assessing the effects on participants' motivational outcomes and practitioners' self-reflection and professional development.

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