Motivational Climate in Games Concept Lessons

by Michael Charles McNeill and Joan Marian Fry, National Institute of Education, Singapore; Md Hairil, Johari Ministry of Education, Singapore

Abstract

This is an investigation of the motivational climate generated in games lessons taught by three experienced, specialist physical education (PE) teachers using a tactical games approach (Games Concept Approach, GCA). The pupils' personal motives for participation in the units were also explored. Three PE specialists were purposefully selected to teach one of three games units, each from a different games category: (a) territorial/invasion (soccer), (b) net/barrier (volleyball), or (c) striking/fielding (tee-ball). In all, data were collected from 115 pupils aged between 11 and 13 years of age (Grade 5/6) in three different elementary schools. Results showed evidence of a strong mastery and moderate performance climate overall, and these results are consistent for the three classes and for both boys and girls. However, MANOVA did find teacher/game differences in the pupils' personal participation motives in terms of "energy release". Although boys responded more positively to "learning skills/concepts", "status/recognition" and "energy release", there was no overall difference for gender. Pupils identified success, learning and affiliation as the most significant personal motives for participation in their GCA lessons. The results support the GCA (a tactical games-teaching approach) as appropriate pedagogy generating motivational experiences in elementary school physical education and focusing children's motives for participation across games categories.

Key words: participant motives, children/pupils

This study explored children's motivation within games lessons in Singapore. In particular, the focus was on elementary school pupils' perceptions of the motivational climate established by their physical education teachers using a tactical games-teaching approach and on those children's motives for participation in the lessons. The particular games teaching approach of the investigation is a Singapore-developed hybrid of the United Kingdom-originating teaching games for understanding (TGfU) model (Bunker & Thorpe, 1986; Thorpe, 1992) and the sport concepts and skills model developed by United States-based Griffin, Mitchell, and Oslin (1997).

Background

In this section we address key constructs associated with the study. These are teaching games for understanding, the games concept approach, and motivational climate.

Teaching Games for Understanding

The ground swell of support for tactical games pedagogy was generated by researchers and pedagogues in the 1990s (see Kirk & Macdonald, 1998), and interest in their constructivist potential has continued to gain momentum in the new millennium (see inter alia Azzarito & Ennis, 2003; Oslin & Mitchell, 2006; Wright & Forrest, 2007). Although there are several variations (such as Game Sense [den Duyn, 1997], Play Practice [Launder, 2001], and Game Intelligence [Wein, 2004]) most tactical approaches can be traced back to TGfU. Early research into these pedagogies mainly focussed on student learning outcomes: changes in psychomotor and cognitive performance as a result of lesson participation. However, Pope (2005) argued that (a) teachers should elicit the fun and excitement of games play to capture their human element, and (b) researchers should explore the affective domain of those learning through tactical approaches. Thus, we acknowledge Bunker and Thorpe's (1986) original claim "that if we can help children to 'understand' games and to reduce the importance attached to the teaching of techniques in strictly controlled situations then the joy and satisfaction of games will be open to children of all abilities" (p. 25), and return to the very premise of TGfU philosophy, to the founding belief that game-play per se is motivating.

Bunker and Thorpe argued that if the play component of games lessons were to be maximised then learners would be more engaged in lessons than they reportedly have been in traditional, technically-taught physical education (PE). We contended that a context where a TGfU version is embedded in a mandated national syllabus (Rossi, Fry, McNeill, & Tan, 2007) would offer a unique opportunity to undertake this investigation. Such is the case in Singapore, where, prior to a PE syllabus revision in 1999, a discipline mastery approach (Jewett, Bain, & Ennis, 1996) that focused on techniques and drills (McNeill, Fry, Wright, Tan, Tan, & Schempp, 2004) was in operation (Tan & Tan, 2001). Similar to the situation with Western youngsters (Carlson 1995), Singaporean children report liking the traditional, technical approach less than learning through the GCA, often questioning the relevance of lesson content and pressuring their teachers for games play (Fry, Tan, McNeill, & Wright, 2010).

The Games Concept Approach

The Singapore form of tactical games pedagogy (Wright, McNeill, Fry, & Wang, 2005), the games concept approach (GCA), "emphasises game play and places skill learning within its game context" (Curriculum Planning and Development Division, 1999, p. 2). Unlike traditional games pedagogy where techniques and skills are central to the content, GCA is problem-based and organized around games concepts. The teacher uses various constructivist play-and-reflect strategies to extend students' knowing what and knowing how to play. The GCA has challenged the status quo of Singapore PE in three ways: (a) Its lesson structure is play, practice, then replay, rather than warm up, skills development then skills application; (b) the lesson content focuses on developing games play with understanding, instead of fitness and technique; and (c), the lesson process is constructivist rather than technicist in orientation (McNeill et al., 2004).

Detailed case studies have been undertaken of early implementation of the GCA by Singapore teachers, both novice (Lam, 2002; McNeill, Fry, Wright, Tan, & Rossi, 2008) and experienced (Leow, 2004; Low, 2006; Rossi et al., 2007) and revealed that the quality of GCA lessons was affected by contextual factors (time, space, equipment). Studies of children's responses to learning through the GCA (Fry & Tan, 2004; Fry et al., 2010) found that, even within limited resources, children respond very favourably to this pedagogy. Their self-reported perceptions have been that, compared with previous technically taught games lessons, GCA lessons add-value to their PE experiences (Fry et al., 2010). Although a small minority reported disinterest or no change in learning through the GCA, for most children the lessons have been very enjoyable as they reportedly generate excitement, heightened interest in learning, and a variety of added learning outcomes. However, in spite of such excitement generated among children in GCA lessons, little has been done to investigate the motivational climate generated by the teacher, what might be seen as the heart of TGfU-related pedagogies.

Motivational Climate

In attempting to legitimize the TGfU, Griffin, Brooker, and Patton (2005) have encouraged researchers to ground their investigations in learning theory. One suggested foundation is achievement goal theory which provides a framework for understanding how students think about themselves in relation to their classmates and how they evaluate performance accomplishments. The motivational climate refers to the situational goal structure of the environment created by significant others (in this case the PE teacher), which is recognized as having two major components: mastery (task) and performance (ego) (Wang & Biddle, 2001).

Distinguishing between the two motivational climates, a mastery (task-involving) motivational climate (Ames, 1992) is characterised by an emphasis on effort, improvement, contributions to group efforts, and collaborative learning and has adaptive implications for the type of learning (task) in which children are engaged (Morgan, Sproule, McNeill, Kingston, & Wang, 2006). Considered a positive or healthy orientation, mastery is associated with intrinsic attributes such as self-reference, effort/ perseverance (Wang & Biddle, 2003), intentions to participate in physical activity (Biddle, Soos, & Chatzisarantis, 1999), and positive attitudes towards exercise (Papaioannou, 1994; Spray & Biddle, 1997; Walling & Duda, 1995).

Alternatively, a performance (ego-involving) motivational climate (Ames, 1992) emphasises interpersonal competition, challenging social exchanges, normative feedback, public evaluation, and social comparison and is linked to maladaptive outcomes. Morgan et al. (2006) stated that performance orientation is often associated with comparative performance and negative dispositions that, in worst case situations, can lead some participants to cheating in an attempt to outperform others. However, a learner or player may have both dispositions: a strong mastery orientation that is essential for task application and perseverance for self-improvement (White, Duda, & Keller, 1998), and a moderate to strong performance orientation needed to address the will to win (Sproule, Ollis, Gray, Thorburn, Allison, & Horton, in press; Walls, 2006) in the challenge of competitive lesson tasks.

Previous motivational research undertaken in Singapore (Morgan et al., 2006) has identified a high task/moderate performance climate generated by student teachers in games lessons on practicum. In contrast, the current study investigated tactical games lessons taught by experienced teachers. We also sought to confirm the consistency of the motivational climate generated across three distinct games classifications. First, because motivation has been linked to quality of participation, but still not sufficiently researched in association with TGfU approaches, we examined the motivational climate, as perceived by the pupils, in these GCA lessons. The omission of this aspect of pupil voice was considered a limitation in Gray, Sproule and Morgan's (2009) study of team invasion games. Second, we explored the nature of children's motives for GCA participation, and third, we were interested to find out if there was consistency of motivational climate across games categories (invasion, net/barrier, striking/ fielding). The present inquiry also responds to Chen and Light's (2006) argument that similar "close-focus case studies" (p. 57) are necessary to generalize from the data and so inform the profession at large.

Method

This was a descriptive study conducted within three contexts: Three experienced PE teachers, each from a different elementary school, taught eight-GCA lessons. Ethical clearance was obtained from the University as well as the Ministry of Education.

Participant Selection

Members of the local teachers' network were invited to participate in this project. With a minimum of three years teaching experience, three of ten volunteers were selected at an interview framed around their career history as well as Metzler's (2000, pp. 422-423) tactical games model benchmarks, to which Leow (2004) had previously validated the alignment of key GCA teacher and pupil behaviours. Their GCA expertise was grounded in their initial teacher preparation, and extended through local continuing professional development courses and/or while studying overseas. The interviewer (third author, also a PE teacher and Head of Department) determined which expert was best equipped to teach a unit from one of three games categories (Bunker & Thorpe, 1986).

Deployed in different elementary schools, the teachers specialized in (a) soccer (invasion), (b) volleyball (net/barrier), or (c) tee-ball (striking-fielding)[1]. Each taught eight 30-minute lessons in their respective games category over a four-week period to upper-elementary school children (N=115: a=38 with 16 boys, 22 girls; b=41 with 21 boys, 20 girls; c=36 with 16 boys, 20 girls). Metzler's benchmarks were applied in weekly lesson observations in order to confirm that each teacher was authentically using the GCA. Document checking (lesson plans), field notes (site notation), and informal conversations with teachers provided further external validity (Berg & Latin, 1994) to the study.

The school principals facilitated access to the PE classes during which the data collection was scheduled. A demographic check revealed that all schools were similar (all state schools), all classes were co-educational with populations representing the cultural milieu of Singapore (a representative mix of Chinese, Malay and

Indian children). All children (53 boys, 62 girls) provided written parental consent for participation in the study.

Data Collection

Shortly after their last GCA lesson, the pupils' class/form/homeroom teachers administered a two-part survey that took about 20 minutes to complete. Information was gathered on (a) pupils' views of the motivational climate generated in the GCA lessons, and (b) their personal motives for participations in those lessons. The first part comprised the Lapopecq-Singapore, a 17-item modified version of Papaioannou's 1994 inventory (Sproule, Wang, Morgan, & McNeill, 2007). This instrument has four subscales, with two that measure a *mastery* climate (student learning orientation and teacher-initiated learning orientation), and two a *performance* climate (student worries about mistakes and student competitive orientation). Each item is measured on a 5-point scale with 5 being "high".

The second part was a modified version of Gill, Gross and Huddlestone's (1983) Participation Motivation Questionnaire (PMQ) wherein the stem to the 5-point Likert items was altered to suit the context (GCA-specific rather than general PE lessons). Each question began, "While participating in the GCA ..." A 27-item list of possible reasons for children's participation embraced eight factors: *learning skills/concepts* (4 items), *competition* (3 items), *status/recognition* (4 items), *energy release* (3 items), *team atmosphere* (4 items), *affiliation* (3 items), *fitness* (3 items), and *success* (3 items).

Data Analysis

The first step in analysis involved describing the motivational climate of three GCA units and the children's motives for participation in those lessons. Second, a series of MANOVAs tested for consistency of motivational climate and of children's motives for participating across the units taught by Mr Soccer, Mr Softball and Mr Volleyball. Because gender differences in PE lessons had sometimes been reported for this age group (see Luke & Cope, 1994; Palmer, 1994), consistency was also analysed across the boys' and girls' responses. Post-hoc Tukey HSD tests were used to establish if and where any differences existed.

Results and Discussion

The results of this study indicate that the GCA was a valuable medium for developing game-sense within the specific setting, Singapore elementary schools. The specific findings are discussed below.

Motivational Climate

Pupils' perceptions of the motivational climate, as measured by the Lapopecq-Singapore (Sproule et al., 2007), are presented in Table 1. SPSS15 found strong internal consistency (Cronbach *alpha*=.851) for the inventory when used in this study. Overall, the mean for the learning/mastery orientation (Factors 1 and 2) was above 4 (M=4.14) and considered high on the five-point Likert scale, whereas the mean for pupils' performance orientation (Factors 3 and 4) was moderate (M=3.31). The Lapopecq-Singapore data were analysed by teacher and gender using a two-way MANOVA. Results confirmed general consistency in pupils' responses (Wilks' Λ = .942, F [8, 212]=.808, p=.597) across the three classes and for gender {Wilks' Λ = .950, F [4, 106]=1.396, p=.240).

Table 1. ***Children's Perceived Motivational Climate during CGA***

Factor	Sample Mean	SD	Invasion Mean	SD	Net/Barrier Mean	SD	Striking Mean	SD
1. Children's learning orientation	4.27	.67	4.15	.66	4.38	.63	4.28	.73
2. Teacher initiated learning orientation	4.01	.74	3.91	.79	4.17	.68	3.95	.75
3. Student's worry about mistakes	3.31	1.07	3.31	1.14	3.51	.97	3.10	1.09
4. Student's competitive orientation	3.31	1.15	3.21	1.09	3.53	1.14	3.18	1.21

Children's learning orientation (Factor 1) was identified as the strongest motivational climate factor by all three activity groups, while Factor 2 (*Teacher-initiated learning orientation*) was identified as the second strongest of the four factors. As both of these have a task focus, the three GCA teachers can be accredited with generating a *mastery orientation*. The mastery climate in Mr Soccer's class can be seen as the weakest (M=4.03, SD=0.73). Additionally, both Mr Soccer's and Mr Volleyball's pupils were more concerned about making mistakes (Factor 3), while those from Mr Tee-ball's class reported the lowest *competitive orientation* (Factor 4: M=3.18, SD=1.21), indicating that these pupils were least motivated to outperform their peers. Volleyball pupils reported the highest levels on all factors, but only reported a moderate performance orientation (M=3.52, SD=1.06).

From the above results, it can be inferred that, regardless of the games category of their lessons, when specialist teachers use this TGfU-like approach, it invoked a strong mastery lesson climate that is conducive for task adherence and perseverance, and thus likely to enhance learning. A mastery climate is also strongly associated with a commitment to the long-term pursuit of physical activity. Nevertheless, a moderate performance climate is one that ensures that learning is located in a challenging and relatively competitive environment (Walls, 2006). The finding that all three teachers were perceived to have established a high mastery with a moderate performance climate parallels Morgan et al.'s (2006) research on games teaching wherein a high learning/moderate performance climate was identified in lessons of student teachers in Singapore, albeit at a comparatively lower level.

Motives for Participation

The pupils of all three teachers had very positive motives to participate in their GCA lessons. (See Table 2.) They identified *personal success* as their most important reason; next was *learning*, with *affiliation* third highest. From the rank order listings in Table 2, Mr Soccer's class participated in GCA lessons to garner *success* (M=4.28, SD=0.85). This factor was generated through highly rated statements such as "I like the excitement when I or my friends score." The children also reported *energy release* (M=3.20, SD=1.13) as the lowest response overall, yet still within the very positive range. The *energy release* factor was drawn from statements similar to "I want to release energy." The strongest

response to the *energy release* motive was provided by Mr Tee-ball's pupils, and is evidence that the small-sided games play, characteristic of GCA pedagogy, was effective in providing a high level of purposeful activity that is not always evident in full-sided striking/fielding play for beginners. These results are indications that a mastery climate was operating across all GCA categories and support the evidence drawn from the Lapopecq-Singapore data.

Table 2. ***Pupil's Perceived Participation Motives during Tactical Instruction***

Rank	Factor	Mean	Invasion (soccer)	Net (volleyball)	Striking (tee-ball)
1	Success	4.25	4.28	4.14	4.33
2	Learning skills/concept	4.17	4.05	4.38	4.06
3	Affiliation	4.16	4.22	4.17	4.09
4	Fitness	4.12	3.99	4.24	4.10
5	Team Atmosphere	3.97	3.90	4.08	3.90
6	Competition	3.86	3.81	4.04	3.72
7	Status/recognition	3.78	3.70	3.96	3.67
8	Energy release	3.54	3.20*	3.63	3.79*

Tukey HSD * p < .05

A cross-teacher comparison of the eight different motive factor mean scores revealed that Mr Soccer's pupils were highest on *affiliation* (M=4.22, SD=0.78), which they perceived as very important for teamwork. Girls tended to appreciate "the time spent with their friends" during tactical instruction and *learning new skills/concepts*. They cited these as their primary motives for their participation in tactical lessons. Despite their registering lower means for *learning skills/concepts*, *team atmosphere* and *fitness*, girls still perceived these factors as very important reasons for participating. For Mr Volleyball's lessons, the strongest participation motive was *learning skills/concepts* (M=4.38, SD=0.64), indicating that those pupils valued learning as very important. This was generated through statements such as "I want to learn new concepts in game play." Similar to those in Mr Soccer's class, these pupils least sought out *energy release* (M=3.63, SD=0.94). Mr Volleyball's pupils reported the strongest values in six out of the eight different motives (M=4.0) rating them as very important. The pupils of both Mr Soccer and Mr Tee-ball identified *success* (M=4.33, SD=0.73) as their key motivator. Across the three games, the pupils of Mr Tee-ball rated *energy release* (M=3.79, SD=0.84) and *success* (M=4.33, SD=0.73) the highest.

As Light (2007) contends, it is essential that children should experience many opportunities for personal success and achievement in games and physical activity settings. Allowing children freedom to discover alternatives and empowering them to think critically and make tactical decisions contributes to feelings of success, satisfaction and accomplishment. However, to develop children's critical thinking competence, a goal of Singapore's PE syllabus, teachers must provide appropriate learning tasks and instructional scaffolding (Chen, 2001; Chen & Rovegno, 2000) similar to the examples cited in this study.

MANOVA identified significant difference in pupils' perceptions of tactical lessons across teachers (Wilks' Λ = .685, F [18, 202]=2.336, p=.002). The post-hoc Tukey HSD test found that pupils from tee-ball perceived *energy release* (p=0.035) higher than did those from soccer. Across the three units, MANOVA found no overall difference (Wilks' Λ = .895, F [9, 101] =1.313, p=.239) between boys' and girls' motives for participating in the tactical lessons. However, post-hoc Tukey HSD identified three factors where boys perceived *learning skills/concepts* (p=0.027); *status/recognition* (p=0.014) and *energy release* (p=0.008) to be a stronger motive than did girls.

Although reflective of a relatively small population, our findings represent a convincing argument in favor of tactical games lessons (GCA, a TGfU approach). They highlight strong agreement between the perceived motivational climate (Lapopecq-Singapore) and children's self-reported participation motives (PMQ).

Conclusion

The findings of this study indicate that a game-centered, tactical approach, in this case Singapore's GCA, has been a valuable medium for developing motivating game sense lessons within the specific setting. Although we do not generalize beyond the scope of these findings, they are nevertheless significant for the context in which they were contained: Singapore, upper elementary school, tactical games lessons (GCA), and experienced teachers. The research design confirmed a consistency of climate generated by teachers of soccer, volleyball and tee-ball and across both genders. The congruence of two motivational inventories across three discrete game categories presented a reliable case for the efficacy of the GCA.

This study has not only reinforced the assertions of Holt, Strean, and Bengochea (2002) as well as Pope (2005) that, beyond cognitive or tactical competence, *affect* is an important outcome of TGfU pedagogy, but has also addressed Light's (2007) concern that "young people's engagement in games, taught using understanding approaches, remains largely unexplored" (p. 77). In the eyes of the children who enjoyed extended game play (Leow, 2004) and who thought the GCA was important (Low, 2006), this games-centred tactical approach has been given legitimacy for use in Singapore elementary schools. Pupils reported success, affiliation, and learning as their key perceived motives that tie in with stated national curriculum goals, and reported experiencing a strong mastery climate. As Morgan et al. (2006) have acknowledged this is linked to lifelong participation in physical activity. We tentatively suggest that the motivational climate generated by all three teachers supports the value of a game-centered pedagogy. The power of these findings is in the homogenous nature of case selection: children from all three learning contexts—soccer, tee-ball, and volleyball (invasion, net/barrier, and striking/fielding)—reported experiencing a mastery learning climate generated by the TGfU-based pedagogy, so highlighting its universal relevance across the spectrum of games categories. In order to extend understandings, similar studies could be undertaken with larger samples, at different levels of schooling, as well as across social and/or national contexts.

Notes

[1] For more information on the GCA, see Fry et al. (2010),

McNeill et al. (2004), McNeill et al. (2008), Rossi et al. (2007), and Wright et al. (2006).

References

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*, 261-271.

Azzarito, L., & Ennis, C. D. (2003). A sense of connection: Toward social constructivist physical education. *Sport, Education and Society, 8*, 179-198.

Berg, K. E., & Latin, R. W. (1994). *Essentials of modern research methods in health, physical education, and recreation*. Englewood Cliffs, NJ: Prentice Hall.

Biddle, S., Soos, I., & Chatzisarantis, N. (1999). Predicting physical activity intentions using goal perspectives and self-determination theory approaches. *European Psychologist, 4*, 83-89.

Bunker, D., & Thorpe, R. (1986). Is there a need to reflect? In R. Thorpe, D. Bunker & L. Almond (Eds.), *Rethinking games teaching* (pp. 25-34). Loughborough: Loughborough University.

Carlson, T. B. (1995). "We hate gym": Student alienation from physical education. *Journal of Teaching in Physical Education, 14*, 467-477.

Chen, W. (2001). Description of an expert teacher's constructivist-oriented teaching: Engaging students' critical thinking skills in learning creative dance. *Research Quarterly for Exercise and Sport, 72*, 366-375.

Chen, S., & Light, R. (2006). "I thought I'd hate cricket but I love it!" Year 6 students' responses to game sense pedagogy. *Change: Transformations in Education, 9*(1), 49-58.

Chen, W., & Rovegno, I. (2000). Examination of expert and novice teachers' constructivist-oriented teaching practices using a movement approach to elementary physical education. *Research Quarterly for Exercise and Sport, 71*, 357-372.

Curriculum Planning and Development Division. (1999). *Revised physical education syllabus*. Singapore: Ministry of Education.

den Duyn, N. (1997). *Game sense: Developing thinking players*. Canberra: Australian Sports Commission.

Fry, J. M., & Tan, W. K. C. (2004). PE's our time, *it's for learning?* Reconciling pupils' concerns. A paper presented at the international conference of the Singapore Physical Education Association, Singapore.

Fry, J. M., Tan, W. K. C., McNeill, M., & Wright, S. (2010). Children's perspectives on conceptual games teaching: A value-adding experience. *Physical Education and Sport Pedagogy, 15*, 139-158.

Gill, D. L., Gross, J. B., & Huddleston, S. (1983). Participation motivation in youth sports. *International Journal of Sport Psychology, 14*, 1-14.

Gray, S., Sproule, J., & Morgan, K. (2009). Teaching team invasion games and motivational climate. *European Physical Education Review, 15*(1), 65-89.

Griffin, L. L., Mitchell, S. A., & Oslin, J. L. (1997). *Teaching sport concepts and skills: A tactical games approach*. Champaign, IL: Human Kinetics.

Griffin, L. L., Brooker, R., & Patton, K. (2005). Working towards legitimacy: two decades of Teaching Games for Understanding. *Physical Education and Sport Pedagogy, 10*, 213-223.

Holt, N. L., Strean, W. B., & Bengoechea, E. G. (2002). Expanding the Teaching of Games for Understanding model: New avenues for future research and practice. *Journal of Teaching in Physical Education, 21*, 162-176.

Jewett, A. E., Bain, L. L., & Ennis, C. D. (1995). *The curriculum process in physical education* (2nd ed.). Dubuque, IA: Wm. C. Brown.

Kirk, D., & Macdonald, D. (1998). Situated learning in physical education. *Journal of Teaching in Physical Education, 17*, 376-387.

Lam, B. K. D. (2002). *Experiences of using the Games Concept Approach among beginning physical education teachers*. Unpublished Honours dissertation. Nanyang Technological University, Singapore.

Launder, A. G. (2001). Play Practice: The games approach to teaching and coaching sports. Champaign, IL: Human Kinetics.

Leow, C. S. (2004). *A portraiture of GCA teaching strategies: A Singapore case study*. Unpublished Honours dissertation. Nanyang Technological University, Singapore.

Light, R. (2007). Accessing the inner world of children: The use of student drawings in research on children's experiences of game sense. In proceedings for the Asia Pacific Conference on Teaching Sport and Physical Education for Understanding (pp. 72-83). Victoria: Canada.

Loh, Y. M. D. (2006). *Students' perceptions towards a Games Concept Approach unit*. Unpublished Masters dissertation. Nanyang Technological University, Singapore.

Luke, M. D., & Cope, L. D. (1994). Student attitudes toward teacher behavior and program content in school physical education. *The Physical Educator, 51*, 57-66.

McNeill, M. C., Fry, J. M., Wright, S. C., Tan, W. K. C., Tan, K. S. S., & Schempp, P. G. (2004). "In the local context": Singaporean challenges to games teaching on practicum. *Sport, Education and Society, 9*, 3-32.

McNeill, M., Fry, J., Wright, S., Tan, C., & Rossi, T. (2008). Structuring time and questioning to achieve tactical awareness in games lessons. *Physical Education and Sport Pedagogy, 13*(3), 231-249.

Md. Hairil, J. (2000). *Primary school children's attitudes and perceptions of physical education in Singapore*. Unpublished Honours Dissertation. Loughborough University, UK.

Metzler, M. (2000). I*nstructional models for physical education* (pp. 161-184). Boston: Allyn & Bacon.

Morgan, K., Sproule, J., McNeill, M., Kingston, K., & Wang, J. (2006). A cross-cultural study of motivational climate in physical education lessons in the UK and Singapore. *International Journal of Sport Psychology, 37*(4), 299-316.

Oslin, J., & Mitchell, S. (2005). Game centred approaches to teaching physical education. In D. Kirk, D. Macdonald, & M. O'Sullivan (Eds.), *Handbook of physical education* (pp. 627-651). London: Sage.

Palmer, M. E. (1994). *Boys' perceptions of physical education and physical activity in the eleven to thirteen age group*. Unpublished Master of Philosophy dissertation. Loughborough University, UK.

Papaioannou, A. (1994). Development of a questionnaire to measure achievement orientations in physical education. *Research Quarterly for Exercise and Sport, 65*, 11-20.

Pope, C. (2005). Once more with feeling: Affect and playing with the TGfU model. *Physical Education and Sport Pedagogy, 10*(3), 271-286.

Rossi, T., Fry, J., McNeill, M., & Tan, C. (2007). The games concept approach (GCA) as a mandated practice: Views of Singaporean teachers. *Sport, Education and Society, 12*(1), 93-111.

Spray, C. M., & Biddle, S. J. H (1997). Achievement goal orientations and participation in physical education among male and female sixth form students. *European Physical Education Review, 3*, 83-90.

Sproule, J., Wang, J., Morgan, K., & McNeill, M. (2007). Effects of motivational climate in Singapore PE lessons and intrinsic motivation and physical activity intention. *Personality and Individual Differences, 43*, 1037-1049.

Sproule, J., Ollis, S., Gray, S., Thorburn, M., Allison, P. & Horton, P. (in press). Promoting perseverance and challenge in physical education: the missing ingredient for improved games teaching. *Sport Education and Society*.

Tan, S. K. S., & Tan, H. E. K. (2001). Managing change within the physical education curriculum: Issues, opportunities and challenges. In J. Tan, S. Gopinathan & W. K. Ho (Eds.), *Challenges facing the Singapore education system today* (pp. 50-70). Singapore: Prentice Hall.

Thorpe, S. (1992). The psychological factors the teaching for understanding games movement. In T. Williams, L. Almond, & A. Sparkes (Eds.), *Sport and physical activity: Moving toward excellence* (pp. 209-218). London: Spon.

Walling, M. D., & Duda, J. L. (1995). Goals and their associations with beliefs about success in and perceptions of the purpose of physical education. *Journal of Teaching in Physical Education, 14*, 140-156.

Walls, G. S. R. (2006). *The ability of gender to challenge: Queensland senior physical education*, unpublished PhD thesis. James Cook University, Townsville, Australia.

Wang, C. K. J., & Biddle, S. J. H. (2001). Young people's motivational profiles in physical activity: A cluster analysis. *Journal of Sport and*

Exercise Psychology, 23, 1-22.
Wang, C. K. J., & Biddle, S. J. H. (2003). Intrinsic motivation towards sports in Singaporean students: The role of sport ability beliefs. *Journal of Health Psychology, 8*, 515-523.
Wein, H. (2004). *Developing Game Intelligence in Soccer*. Spring City, PA: Reedswain.
White, S. A., Duda, J. L., & Keller, M. R. (1998). The relationship between goal orientation and perceived purposes of sport among youth sport participants. *Journal of Sport Behavior, 20*, 474-483.
Wright, J., & Forrest, G. (2007). A social semiotic analysis of knowledge construction and games centred approaches to teaching. *Physical Education and Sport Pedagogy, 12*, 273-287.
Wright, S., McNeill, M., Fry, J., & Wang, J. (2005). Teaching teachers to play and teach games. *Physical Education and Sport Pedagogy, 10*(1), 61-82.
Wright, S., McNeill, M., Tan, C., Tan, S. Fry, J. M., & Schempp, P. (2006). Participant evaluation of a mentor training workshop: Implications for faculty development. *The ICHPER•SD Journal of Research in Health, PE, Recreation, Sport and Dance, 1*(2), 27-34.

Footnote

[1]For ease of reporting, the teachers are respectively referred to as Mr Soccer, Mr Volleyball, and Mr Tee-ball. ■