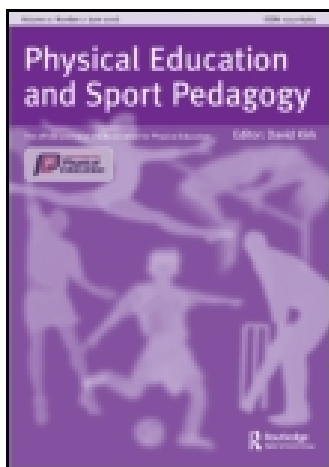




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A review of research on Sport Education: 2004 to the present

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A review of research on Sport Education: 2004 to the present

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Background: In 2005, Wallhead and O'Sullivan presented a review of research on the Sport Education model. In that review, the authors identified certain strengths of the model (particularly persistent team membership) in facilitating student engagement within student-centered learning tasks. Other areas (such as student leadership skills) were considered as potentially problematic. Suggestions were also made for future research.

Purpose: The three purposes of this review were to conduct a review of research on Sport Education since the 2005 analysis, to identify any new trends in research since the original review, and to describe the extent to which the limitations and future research directions of Wallhead and O'Sullivan have been addressed.

Data collection: Papers for analysis were selected through searches of EBSCO databases with the main identifier 'sport education'. Further journal articles were then obtained through the citations and references in the original documents.

Data analysis: Papers were initially categorized according to the following dimensions: country of origin, focus, participants, sport and length of season, data courses, analysis and results. They were then discussed in terms of the five common content standards and aims of physical education (e.g. skill and fitness development, personal and social responsibility) used in the 2005 review.

Findings: Thirty-eight papers were identified that satisfied the selection criteria, with all content standards receiving attention. Since the 2005 review, there been not only an expansion in the number of studies relating to Sport Education, but also the initiation of research in a number of new contexts, as well as those focused on new research questions. An analytic induction of these papers has placed them into three categories: (1) expanded sites of implementation; (2) students' motivational responses; and (3) learning to teach Sport Education.

Conclusions: Studies of Sport Education now take place in more diverse settings than before, and continue to progress with more sophisticated research designs and larger sample sizes. Still, more investigation is needed in the areas of peer instruction and the transfer of school-based learning to community sport.

Keywords: Sport Education; physical education; review

In 2005, Wallhead and O'Sullivan (2005) presented a review of 28 data based empirical studies that pertained to the Sport Education model. Using the five common content standards (i.e. motor skill development, tactical knowledge and performance, fitness, social development, and student attitudes and values; Alexander and Luckman 2001),

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Wallhead and O'Sullivan set about to achieve three goals. These were to describe the model, to review the data-based research pertaining to the model, and to provide a summary and critique of the research evidence and propose directions for future research.

Table 1 provides a summary of the key findings of the Wallhead and O'Sullivan (2005) review. The table contains three columns. The first, like the Wallhead and O'Sullivan paper, is organized around the five content standards. The second column reflects the second goal, that of describing the analysis of the research, while the third column summarizes their suggestions for future research. The authors have kindly confirmed this table as an accurate representation of their review findings.

Wallhead and O'Sullivan's (2005) review outlined four suggestions concerning the design of future research. These included: (1) provide a comparison of the model with alternative teacher-directed approaches to teaching sport in physical education; (2) utilize appropriate comparison groups within experimental, or more probably, quasi-experimental research designs in the future; (3) more longitudinal data collection protocol that extends past the end of one or two units; and (4) examine the existence and/or nature of the school-community partnerships that have been formed between curricular Sport Education and junior sport and evaluate the efficacy of these collaborations.

The organization of this review will take a slightly different track from the original. Given the model has been described in great detail in a number of reviews (e.g. Curtner-Smith and Sofo 2004, who focused on students' and teachers' responses to the model; Kinchin 2006, who also organized his findings around the perspectives of teachers and students; Wallhead and O'Sullivan 2005) and in texts pertaining to it (e.g. Penney et al. 2005; Siedentop, Hastie and van der Mars 2004) that discussion is precluded from the review. Instead, this review will: (1) present an update on the research since 2005; (2) identify any new trends in research since the original review; and (3) describe the extent to which the limitations and future research directions of Wallhead and O'Sullivan have been addressed.

Identification of studies

Papers for this review were selected through an initial search of the EBSCO database, which includes journals from North America, the United Kingdom, Europe and Australia. The main identifier used was 'sport education'. Further journal articles were then obtained through the citations and references in the original documents. Consistent with the Wallhead and O'Sullivan (2005) review, the only studies included in this review were empirically-based peer-reviewed papers. That is, papers which focused upon the practical strategies required to implement Sport Education within various physical education settings were not included. As an example, papers such as the one by Sinelnikov et al. (2005) concerning a bicycle safety season published in the *Journal of Physical Education, Recreation and Dance* were not included as they were purely descriptive. Likewise, and again in accord with Wallhead and O'Sullivan, dissertation abstracts in their primary form were not included.

Summary of studies since 2005

Table 2 provides an overview of each of the 38 data-based empirical articles that have formed the basis of this review. While Wallhead and O'Sullivan's (2005) review included six columns; the study, its focus, participants/setting, data collection methods, type of

Table 1. Summary of key findings and suggestions from Wallhead and O'Sullivan (2005).

Content standard	Research findings	Areas for future research
Motor skills	• anecdotal evidence from teachers and students supporting skill and play improvement • other studies reporting teacher skepticism • student leadership skills during peer-assisted learning tasks have been identified as potentially problematic • only one study <i>empirically</i> examining motor skill competency	• empirical examination of skill development
Tactical knowledge and performance	• some support for the efficacy of SE in developing student game play competency • the systematic quantification of changes in student tactical knowledge and performance as a result of SE unit/s has been sparse	• further research is required to examine the dynamics of peer interaction and subsequent content learning and performance that occurs during student-led tasks of the curriculum
Fitness	• research examining student fitness is virtually non-existent	• evidence for the efficacy of the SE curriculum in promoting out-of-school physical activity through extra-curricular participation
Personal/social development	• SE increased the level of interaction and cooperation between students • teachers perceived the model to be fostering leadership, teamwork, peer support and active pursuit of socially responsible and equitable participation • student data supported these findings	
Student attitudes	• teacher anecdotal and quantified accounts of a greater level of equitable participation by students within both practice sessions and game-play • students suggest a higher level of engagement	
Values	• team affiliation is one of the most attractive features of the model • the model's efficacy in promoting gender equity remains controversial • student leadership has been identified as potentially problematic for the promotion of equitable participation	• examine the potential of SE to promote more positive cultural dimensions of sport and physical activity

analysis and results, this table includes details of the country of origin as well as more particulars concerning the description of the seasons and a more detailed description of the methodology. Also included in the table is the journal that published the paper.

Table 2. Overview of data-based studies utilizing Sport Education.

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
USA	Curtner-Smith and Sofo (2004)	Described the views of 15 American pre-service teachers' of the teaching-learning process while teaching SE and multi-activity units during an early field experience.	15 pre-service teachers (9 male/6 female) 7 th , 8 th & 9 th grade students	Football	No. of lessons: 10 Time per lesson: 40 mins Lessons per week: –	Critical incidents (after each lesson) Questionnaires to teachers (end of the season)	Qualitative: Analytic induction and frequency count of critical incidents	Pre-service teachers generally find SE more attractive due to its compatibility with their occupational socialization and its social and cultural rights.	<i>Sport, Education and Society</i>
ENG	MacPhail and Kinchin (2004)	Used drawings to study children's perceptions and meanings during SE.	46 students (3 classes) 5 th grade	Team invasion game with a large ball	No. of lessons: – Time per lesson: – Lessons per week: – 16 weeks	Student drawings (end of the season) Group interviews with students (3 months after the drawings)	Qualitative: Drawing item analysis using a 16 item code list	Fun, game play, affiliation and belonging to a group were most represented.	<i>Physical Education and Sport Pedagogy</i>
ENG	Kinchin et al. (2004)	Perceptions of SE in a boys-only English high school.	106 boys (3 classes) 9 th grade	Football, rugby and basketball	No. of lessons: – Time per lesson: – Lessons per week: – 12 weeks	Questionnaire to students (2 weeks after the season)	Quantitative: Frequencies and percentages of items	High levels of team inclusion. Role taking was fun. Over half cited the team as a factor in helping to improve performance. More opportunities to practice.	<i>Bulletin of Physical Education</i>
AUS	Browne, Carlson, and Hastie (2004)	Compared two approaches (traditional and SE) to teaching rugby for student learning, enjoyment and affection.	53 boys (2 classes) 8th grade One class traditional, one SE.	Rugby	No. of lessons: 20 Time per lesson: 45 mins Lessons per week: 2	Pre and post assessment of skills (18 items) – by teacher and also student self-evaluation Interviews with students (throughout)	Quantitative: ANOVA: IV = time, class type; DV = skill Qualitative: Constant comparison and analytic induction of interviews	Students in SE showed significant increases in perceived learning and also reported having developed a better understanding of the game. Differences between groups were explained by the increased membership and feelings of belonging in SE.	<i>European Physical Education Review</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
USA	McCaughtry et al. (2004)	Used cognitive learning theory to investigate how teachers learn to teach SE.	21 pre-service teachers (14 male/7 female) in two groups 7 th & 8 th grade students	Football and volleyball	No. of lessons: 20 Time per lesson: 45 mins Lessons per week: –	Researcher's field notes Interviews with teachers (after each lesson and at end of the seasons)	Qualitative: Analytic induction and constant comparison	The first group applied the simplest and decontextualized activities, and expressed resistance to the incorporation of the model. The second group did not correctly apply the role of skill development, so they could not successfully implement the model.	<i>European Physical Education Review</i>
USA	Parker and Curtner-Smith (2005)	Compared physical activity levels of SE and traditional units.	2 pre-service teachers (1 male/1 female) 6 th , 7 th & 8 th grade students	Mini football	No. of lessons: 10 Time per lesson: ~32 mins Lessons per week: 1	Videotaping of all lessons Data analysed using SOFIT	Quantitative: ANOVA: IV = class type; DV = pupil activity, lesson context and teacher behavior	Students in the traditional unit spent slightly more than the recommended 50% of lesson time in moderate to vigorous physical activity (MVPA). Students in SE did not approach this level.	<i>Physical Education and Sport Pedagogy</i>
KOREA	Kim et al. (2006)	Examined the responses of a teacher to students' roles and relationships during SE.	One class of middle school students	Volleyball	No. of lessons: 12 +2 (assessment) Time per lesson: 45 mins Lessons per week: 1	Researcher's field notes Teacher journal Interviews with teacher (once every two weeks)	Qualitative: Analytic induction and constant comparison	Student growth in their understanding and competence in their roles and teamwork. Success in developing SE is neither guaranteed nor easily achieved. Talented professional teachers and good support are key ingredients for a positive outcome.	<i>European Physical Education Review</i>
USA	Mowling,	Examined student drawings to determine what they	17 students (7 boys/10 girls)	Football	No. of lessons: 20 Time per lesson:	Drawings and drawing narratives by students	Qualitative:	Three key themes emerged: (1) winning as a primary	<i>Journal of Teaching in</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
	Brock, and Hastie (2006)	perceived as most important during SE.	4 th grade		30 mins Lessons per week: 5	(6 times throughout the season)	Drawing item analysis using a 49 item code list	agenda; (2) a strong focus on affiliation and festivity; and (3) minimal representation of roles and responsibilities.	<i>Physical Education</i>
AUS	Hastie and Curtner-Smith (2006)	Examined the experiences of teacher and student reactions to a TGfU unit designed following the structure of SE.	29 students (11 boys/18 girls) 6 th grade	Batting / fielding games	No. of lessons: 22 Time per lesson: 30 min Lessons per week: 5	Critical incidents (after each lesson) Tactical quizzes (4 during the season) Game design forms (end of the season) Team interviews (end of the season)	Qualitative: Analytic induction and constant comparison Frequency counts of CIs	Students were able to understand, appreciate and implement a number of rudimentary batting, bowling/pitching, and fielding tactics as well as some overarching principles, rules and structures of batting/ fielding games.	<i>Physical Education and Sport Pedagogy</i>
HONG KONG	Ka and Cruz (2006)	Examined the effects of SE on learning interest and student collaboration.	28 students High school grade level	Football	No. of lessons: 9 double lessons Time per lesson: -30 mins Lessons per week:—	Researcher's field notes Student reflective logs Individual and group interviews	Qualitative: Analytic induction and constant comparison	Positive effects on the interests of student learning and collaboration.	<i>Journal of Physical Education & Recreation (HK)</i>
RUSSIA	Hastie and Sinelnikov (2006)	Examined the participation and perceptions of Russian students to SE.	37 students (18 boys/19 girls) 6 th grade	Basketball	No. of lessons: 18 Time per lesson: 40 mins Lessons per week: 3	Videotaping of lessons (2 per week) Questionnaires to students (end of the season) Small group interviews (mid-point and end of the season)	Quantitative: ANOVA: IV = phase of the season, gender, skill level; DV = participation levels Percentage scores of role compliance and questionnaire data Qualitative: Analytic induction and constant comparison	Students of both genders and skill levels spent most of their lesson time actively engaged in motor tasks. Students demonstrated significant competence in the officiating and coaching roles associated with the season. Students commented that they found the season to be particularly interesting, that they enjoyed having student coaches and that they developed significant team affiliation.	<i>European Physical Education Review</i>

(Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
USA	Ko, Wallhead, and Ward (2006)	Examined how physical education teachers interpret and use knowledge presented in professional development workshops in their teaching practices.	5 teachers (3 male/2 female) 4 secondary/1 elementary	Basketball, Ultimate Frisbee, floor hockey (3)	No. of lessons: between 8 and 15 Time per lesson: – Lessons per week: –	SE benchmark observational Instrument Interviews	Qualitative: Analytic induction and constant comparison Qualitative: Comparisons between workshop and actual lesson plans, as well as between workshop teaching intent and actual implementation	Students commented that they found the season to be particularly interesting, that they enjoyed having student coaches and that they developed significant team affiliation. Varying levels of alignment between what teachers planned and actually enacted within the SE unit, with teachers implementing less and/or modified down the SE elements stipulated within the unit plan. The highest level of ‘washout’ of SE content from workshop to practice occurred between the teacher planning and implementation phases. Identified the contextual limitations of the workshop in preparing them to deliver a new pedagogical strategy. The findings indicated students’ conceptions of fair play changed as the unit progressed. Initially, students described fair play as being polite to other teams and not arguing with the officials or with your team.	<i>Journal of Teaching in Physical Education</i>
USA	Brock and Hastie (2007)	Examined students’ conceptions of fair play during SE.	10 students (5 boys/5 girls) 6 th grade	Modified football	No. of lessons: 26 Time per lesson: – Lessons per week: 3	Researcher’s field notes Videotaping of all lessons Individual and group interviews (throughout)	Qualitative: Analytic induction and constant comparison	The findings indicated students’ conceptions of fair play changed as the unit progressed. Initially, students described fair play as being polite to other teams and not arguing with the officials or with your team.	<i>ACHPER Healthy Lifestyles Journal</i>
USA	Wallhead and O’Sullivan (2007)	Utilized a defined didactic research methodology to examine the development of	6 focus students (from a class of 27)	Tag rugby	No. of lessons: 15 Time per lesson: 45	Video recording of all lessons and wireless microphone on student	Qualitative: Examination and	High level of engagement and compliance with the intended content of the peer	<i>Physical Education and Sport Pedagogy</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
		content knowledge and performance within the peer teaching tasks of a SE season of tag rugby.	8 th grade		mins Lessons per week: –	coach. Interviews with student-coaches (pre and post lessons) Interviews with team (after each lessons)	identification of Critical Didactic Incidents (CDIs)	teaching tasks. Peer teaching was efficacious in developing participants' knowledge of many of the lower complexity tag rugby content learning goals Students failed to learn higher order content during peer teaching primarily due to instructional deficiencies of the student coach.	
IRL	McMahon and MacPhail (2007)	Explored the mechanisms that facilitated or inhibited learning to teach SE from the perspective of a pre-service teacher.	1 pre-service teacher (female) 29 students from 1st level (11-13 years)	Hybrid netball/ basketball game (hoopball)	No. of lessons: 10 Time per lesson: 40 mins Lessons per week: 1	Interviews with pre-service teacher (at week 4 and week 10) Teacher diary	Qualitative: Constant comparison method	Professional socialization acquired during initial training has the greatest influence on beginning teachers in the learning to teach the model.	<i>European Physical Education Review</i>
RUSSIA	Sinelnikov, Hastie, and Prusak (2007)	Examined the motivational responses of Russian students during the skill practice, officiating, and game play phases of SE seasons.	45 students (22 boys/23 girls) in two 6 th grade classes 58 students (26 boys/ 32 girls) in three 9 th grade classes	Basketball (6 th grade) and volleyball (9 th grade)	No. of lessons: 18 Time per lesson: 50 mins Lessons per week: 3	Situational Intrinsic Motivation Scale (measures motivation, internal regulation, external regulation, and amotivation) – given 3 times during the season	Quantitative: ANOVA: IV = phase of the season, grade level; DV = situational motivation	The autonomy supportive social factors of SE results in high levels of students' self-determined behavior and high levels of motivation.	<i>ICHPER-SD Research Journal</i>
AUS	Pill (2008)	Examined one teachers' perceptions of SE as an alternative model for upper primary school PE.	1 male teacher 27, 6 th /7 th grade students	Basketball	No. of lessons: 10 Time per lesson: 45 mins Lessons per week: 1	Teacher journals Interviews with teacher (end of the season)	Qualitative: Comparative interpretation	Results suggest that from the teacher's perspective, SE is potentially more motivating and inclusive of the students normally less inclined toward participation. The team affiliation feature of the SE approach was perceived as the key design element for enhanced motivation.	<i>ACHPER Healthy Lifestyles Journal</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
ENG	MacPhail et al. (2008)	Explored childrens' experiences of fun and enjoyment during SE.	70 students 5 th grade	Netball and basketball	No. of lessons: 16 Time per lesson: 90 mins Lessons per week: 1	Interviews with students and teachers (throughout) Questionnaires to students (before starting the unit before the end of the season) – enjoyment measures, perceived competence, achievement goal orientation, and motivation Skills test (pre-post)	Qualitative: Analytic induction and constant comparison Quantitative: Paired t tests were used to examine pre-post differences	Students found the model to be fun and entertaining. Sense of affiliation and membership of a team. Increased autonomy. Students' perceptions of success changed.	<i>Research Quarterly for Exercise and Sport</i>
USA	Pritchard et al. (2008)	Compared two approaches (traditional and SE) to teaching volleyball on skill development, knowledge and game play.	47 students (26 SE, 21 trad) 9 th grade	Volleyball	No. of lessons: 20 Time per lesson: 50 mins Lessons per week: 5	Knowledge test (pre-post) Game play analysis using GPAI	Quantitative: MANOVA: IV = class type; DV = skill, knowledge, game performance	No significant improvement in skills, but significant gains in game performance in SE. Both groups showed significant improvements in knowledge.	<i>Measurement in Physical Education & Exercise Science</i>
USA & UK	Curtner-Smith, Hastie, & Kinchin (2008)	Examined the adoption (or not) of SE by beginning teachers in terms of socialization theory.	10 teachers (6 Americans and 4 Britons) in first or second year of teaching	various		Interviews with teachers	Qualitative: Analytic induction and constant comparison	Identified three levels of adoption: complete, watered down and cafeteria style.	<i>Sport, Education & Society</i>
RUSSIA	Sinelnikov and Hastie (2008)	Studied the ecology of SE in one Russian school.	42 students (12 boys/30 girls) in 2 classes 9 th grade	Basketball	No. of lessons: 18 Time per lesson: 50 mins Lessons per week: 3	Videotaping of all lessons Researcher's log Interactive student journals (daily) Group interviews (mid-point and end of the season)	Qualitative: Analytic induction and constant comparison	- High levels of task accomplishment in management and instructional task systems. - Most dramatic observations were noted in the student social system. For some, the disruption in their social agenda led to different ways of fun. For others, the season design allowed for team affiliation and achieving goals previously	<i>European Physical Education Review</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
HONG KONG	Cruz (2008)	Examined the perceptions of teachers and students to the introduction of SE.	110 students 2 teachers High school	Football	No. of lessons: 12/ 18 Time per lesson: 40 mins Lessons per week: 2	Researcher's log Teacher journal Interviews with teachers (at the end of the season) Questionnaire to students (at the end of the season)	Qualitative: Analytic induction and constant comparison method	unseen or unavailable during physical education. • The greatest difficulty for teachers was planning before implementation. • Most students supported the model and understood more about the organization of football, collaborative activities and teamwork.	<i>Journal of Physical Education & Recreation (HK)</i>
RUSSIA	Hastie, Sinelinikov, and Guarino (2009)	Examined the development of skill and tactical knowledge during a season of badminton.	41 students (18 boys and 23 girls) 8 th grade	Badminton	No. of lessons: 18 Time per lesson: 45 mins Lessons per week: 3	Skills test (pre-post) Tactical knowledge test (pre-post) Game play analysis using GPAI	Quantitative: ANOVA: IV = time; DV = skill, tactical knowledge, game performance	• Students improved significantly in object control and in game play. Significant improvements in students' ability to select tactical solutions and make arguments for those decisions.	<i>European Journal of Sport Science</i>
USA	Vidoni and Ward (2009)	Examined the effects of fair play instruction on student social skills during SE.	7 selected students (3 boys/ 4 girls) from 2 classes 8 th grade	Tag rugby	No. of lessons: 18 Time per lesson: 40 mins Lessons per week: –	Data were collected on: (1) students' active participation, and (2) students' helpful and harmful behaviors Social validity questionnaires were completed by students, the teacher, and a panel of physical education professionals	Quantitative: ABA techniques: Single subject multiple baseline design across two behaviors	Fair Play instruction was effective in increasing students' active participation, and in decreasing waiting time for all participants. Little difference between baseline and intervention for helpful behaviors. A decrease in the number of harmful behaviors.	<i>Physical Education and Sport Pedagogy</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
RUSSIA	Sinelnikov (2009)	Description of a professional development program for Russian teachers to learn to teach SE.	2 teachers 6 th grade	Basketball	No. of lessons: 18 Time per lesson: 45 mins Lessons per week: 3	E-mail and telephone conversations Researcher's log 7 semi-structured interviews with each teacher	Qualitative: Analytic induction and constant comparison method	Identified a need for sample lesson observance in the training phase. Teachers reported the need for constant validation of the accuracy of their teaching or model implementation. Distinct value of a cooperative colleague.	<i>European Physical Education Review</i>
USA	Brock, Rovegno, and Oliver (2009)	Explored the social interactions of students and their perspectives on what happens during a unit of SE.	10 students (5 boys/5 girls) from a class of 80 6 th grade	Modified football	No. of lessons: 26 Time per lesson: – Lessons per week: 3	Videotaping of all lessons Researcher's log Lesson plans 14 small-group interviews & 25 individual interviews Interviews with the teacher (after each lesson) Student journals	Qualitative: Analytic induction and content analysis	Students specifically defined status based on four characteristics: economic level, attractiveness, athletic involvement, and personality. Status influenced students' social interactions during group work in terms of whose opinions were acknowledged and which students were silenced.	<i>Physical Education and Sport Pedagogy</i>
USA	Hastie et al. (2009)	Examined the impact of an obstacle course SE season on students' aerobic fitness levels.	48 students (23 boys/25 girls) 5 th grade	Fitness	No. of lessons: 15 Time per lesson: 40 mins Lessons per week: 3	Pre-post test using PACER	Quantitative: ANOVA: IV = time, class type; DV = total laps, achievement of healthy fitness standard	Significant improvement in number of laps run and number of students in the healthy fitness zone.	<i>Research Quarterly for Exercise & Sport</i>
IRL	Kinchin, Macphail, and Ni Chroinin (2009)	Examined the perceptions of students and teachers with respect to an inter-school SE festival.	8 teachers from 4 primary schools and 33 groups of students	Hybrid netball/basketball game		Interviews with teachers (before, during and after the festival) Interviews with students (before, during and after the festival)	Qualitative: Analytic induction and constant comparison method	Excitement and uncertainty prior to the festival. Post-festival, pupils focused on their team's performance and spoke positively about their memories of the day.	<i>Physical Education and Sport Pedagogy</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants / Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
AUS	Spittle and Byrne (2009)	Investigated the influence of SE on student motivation.	115 students (97 boys/18 girls) 41 SE and 74 traditional 8 th grade	Hockey, football and Australian football	No. of lessons: 10 Time per lesson: 100 mins Lessons per week: 1	Pre-post inventories: Intrinsic motivation with IMI, goal orientations with TEOSQ, perceived motivational climate with PMCSQ	Quantitative: ANOVA: IV = time, class type; DV = intrinsic motivation, goal orientations, motivational climate	Teachers reported the success of the festival in maintaining pupils' interest. Significant difference between the conditions on changes in perceived competence, task orientation, and mastery climate, with the traditional condition decreasing significantly from pre- to post-test compared with SE.	<i>Physical Education and Sport Pedagogy</i>
USA	Stran and Curtner-Smith (2009)	Described potential changes and development of value orientations of PE teachers while teaching SE.	2 male pre-service teachers 6 th , 7 th & 8 th grade	Flag football & tennis Ultimate Frisbee and basketball	No. of lessons: – Time per lesson: – Lessons per week: – 8 weeks	Researcher observations (1 per week) Interviews (pre, middle, and end of the seasons)	Qualitative: Analytic induction and constant comparison method	A strong disciplinary mastery orientation influenced the type of seasons delivered. Belief that the teachers broadened their beliefs about their teaching toward the end of student teaching to the extent that they expressed interest in goals related to other pedagogies.	<i>Sport, Education & Society</i>
USA	Stran and Curtner-Smith (2009)	To discover factors that led pre-service teachers' interpretation and delivery of SE seasons.	2 male pre-service teachers 6 th , 7 th & 8 th grade	Flag football & tennis Ultimate Frisbee and basketball	No. of lessons: – Time per lesson: – Lessons per week: – 8 weeks	Researcher observations (1 per week) Interviews (pre, middle, and end of the seasons)	Qualitative: Analytic induction and constant comparison method	Results revealed that high quality SE-Physical Education Teacher Education facilitated both a commitment to the model and the ability to teach the full version of it for a teaching-oriented and moderately coaching-oriented PT. Key element appeared to be the teaching of prescribed mini-seasons before student teaching.	<i>Journal of Teaching in Physical Education</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
USA	Fittipaldi-Wert et al. (2009)	Examined the effects of SE for students with visual impairments.	28 students with visual impairment (17 boys/11 girls) Summer sports camp	Beep baseball, bocce and goalball	No. of lessons: 12 Time per lesson: 50–60 mins 1 week camp	Researcher's log Individual and group interviews (beginning and end) Sports Camps Evaluation Instrument (pre and post)	Qualitative: Inductive analysis Quantitative: Percent change on questionnaire items	Participants perceived that SE was effective in providing an authentic sport experience for students with visual impairments. Campers' self perceptions of the knowledge and abilities in the sports, their willingness to participate, and sense of team affiliation increased across the week.	<i>Palaestra</i>
USA	Stran and Curtner-Smith (2010)	Used Shulman's set of seven knowledge types in order to discover the relative importance of different knowledge types in PTs' teaching of SE and the ways in which they acquired and developed this knowledge.	2 male pre-service teachers 6 th , 7 th & 8 th grade	Flag football & tennis Ultimate Frisbee and basketball	No. of lessons: – Time per lesson: – Lessons per week: – 8 weeks	Researcher observations Interviews (weekly) Weekly significant incident and journal reports Analysis of teaching portfolio	Qualitative: Inductive analysis using QSR program	A hierarchy existed in terms of the importance and contribution of each of Shulman's knowledge types to the PTs' teaching of SE, with curricular knowledge taking primary importance. General pedagogical knowledge, content knowledge, pedagogical content knowledge, and knowledge of learners also made a significant contribution to the PTs' success.	<i>Physical Education and Sport Pedagogy</i>
RUSSIA	Sinelnikov and Hastie (2010)	Objective measurement of the motivational climate of a season of SE.	21 students (12 boys/9 girls) 9 th grade	Volleyball	No. of lessons: 18 Time per lesson: 40 mins Lessons per week: 3	Videotaping of all lessons	Quantitative: Analysis of the videos with the protocol of Morgan et al.	Overall climate was neither mastery-oriented nor performance-oriented, but rather an intermingling of the two approaches.	<i>Physical Education and Sport Pedagogy</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
RUSSIA	Sinelnikov and Hastie (2010)	Examined the autobiographical memories of students about their experiences in SE.	34 students (15 boys/19 girls) 9 th grade	Basketball, football and badminton		Student surveys Students interviews (in groups of two or three) using autobiographical memory techniques	Qualitative: Analytic induction and constant comparison	Skill practice and practice phase competition had more of a mastery-oriented climate, while performance behaviours were more prevalent during formal competition. • Strongest memories reflected the key features of SE. • Students perceive SE is more serious and organized than traditional PE.	<i>Journal of Teaching in Physical Education</i>
USA	Perlman and Goc Karp (2010)	Provided a qualitative examination of the perceptions of students and teachers from their experiences in two consecutive units of SE.	24 students (17 boys/7 girls) High school	Flag football and football	No. of lessons: 12 in each Time per lesson: 72 mins Lessons per week: 4	Researcher field notes. Interviews with students (once per week) Interviews with teachers (twice per week)	Qualitative: Analytic induction and constant comparison	Distinct aspects of SE (e.g. team affiliation and an affective game play rubric) were supportive of student's psychosocial needs and self-determination. Structural aspects of SE assisted in facilitating movement along the self-determined continuum through support for relatedness, competence and autonomy.	<i>Physical Education and Sport Pedagogy</i>
USA	Perlman (2010)	Examined the influence of Sport Education on amotivated students affect and needs satisfaction.	78 students (24 boys/54 girls) High school	Basketball, volleyball, soccer and lacrosse	No. of lessons: 15 in each Time per lesson: 60 mins Lessons per week: 3 or 4	7-item enjoyment subscale of IMI Needs satisfaction through BPNS-PE	Quantitative: ANOVA: IV = time, class type; DV = enjoyment, autonomy, competence and relatedness	Amotivated students in SE perceived significantly higher levels of enjoyment and satisfaction of the need for relatedness than students taught by the traditional-approach.	<i>Journal of Teaching in Physical Education</i>

(Continued.)

Table 2. (Continued.)

Country	Authors	Focus of the study	Participants/ Context	Sport(s)	Length of study	Data sources	Analysis	Results	Journal
USA	Wallhead, Hagger, and Smith (2010)	Effects of SE on students' voluntary participation in a lunch-time recess sport club.	192 students participants (aged 9–14 years) from four elementary schools and 1 junior high school	Badminton and tag rugby	No. of lessons: 12 (6 in each) Time per lesson: 30 min. Lessons per week: 2	Pre-post inventories: Perceived autonomy support, Perceived locus of causality, Theory of planned behavior Participation in recess sport club	Quantitative: MANOVA and structural equations model, with goodness of fit index Confirmatory factor analysis	There was no difference in the need for autonomy and competence. Trans-contextual model of motivation accounted for a significant proportion of the explained variance in lunch recess sport club intention and participation. Autonomy supportive curriculum models, such as SE, may have the potential to facilitate transfer of motivation and participation in PA from a physical education to an extra-curricular context.	<i>Research Quarterly for Exercise and Sport</i>

Location of the season

With regard to country of origin, we report here the country in which the Sport Education season took place, not that of the authors. As with the previous review, the majority of seasons were located into the United States (41%). Submissions also continued from England and Ireland. The most notable difference was in the emergence of studies from non-native English-speaking countries, with reports of seasons from Russia (7), Hong Kong (2), and Korea (1). Of interest is that there are no studies from non-native English-speaking countries in the European Union, only one from Australia (which previously reported data from major national trials), and none from the home of the first major trial of Sport Education, New Zealand (see Grant 1992). In addition, and perhaps as a result of Shehu's (1998) critique of Sport Education from an African perspective, there has been no research from this continent.

Grade levels used

The most frequent grade levels for Sport Education studies were those most associated with middle school (sixth through eighth) with 20, followed by high school (ninth through twelfth) with 11. Fewer studies (seven) emerged from elementary school, with those studies being in predominantly in fourth and fifth grades.

Sport studied

Figure 1 shows the different sports that were selected for the seasons under examination. While the category axis in the chart gives the parent name for each sport, it should be noted that in many cases, the sport was a modified version of the game. For example, in the studies of Mowling, Brock, and Hastie (2006) and Parker and Curtner-Smith (2005), students participated in soccer games of five versus five in favour of the regular 11 versus 11. Likewise, Pritchard et al. (2008) used a progressive competition format with high school volleyball classes that began with two versus two games, and evolved through three versus three (and four versus four) to the final games which were six versus six. Nonetheless, examination of Table 2 shows that many papers did not fully disclose the specifics of the game, particularly in terms of how they were modified.

In other cases, the game was designed specifically for the season. MacPhail et al. (2008) used an invasion game adapted from netball and basketball in which the goal was to bounce a ball into a hoop placed on the ground behind a backcourt line. Further, in the study of Hastie and Curtner-Smith (2006), the students designed the batting and fielding game themselves.

Figure 1 shows an almost exclusive use of invasion games (75%) and net games (19%) during seasons. Of note, only two seasons involved striking and fielding games and the only target game (bocce) was included in a week-long sports camp for students with visual impairments (Fittipaldi-Wert et al. 2009). Continuing the tendency identified by Wallhead and O'Sullivan (2005), only one study (Hastie et al. 2009) used fitness activities as the 'sport' for a season. Consequently, at least in the research domain, Oslin's (2002) concern for the lack of inclusion of more paidiaic activities such as hiking, biking and ice-skating continues.

Study methodology

The most common methodology adopted in the studies involved qualitative techniques (23), while quantitative data are reported in 12 studies, and five used both qualitative and quantitative methods. Within the quantitative and mixed methods, six studies used

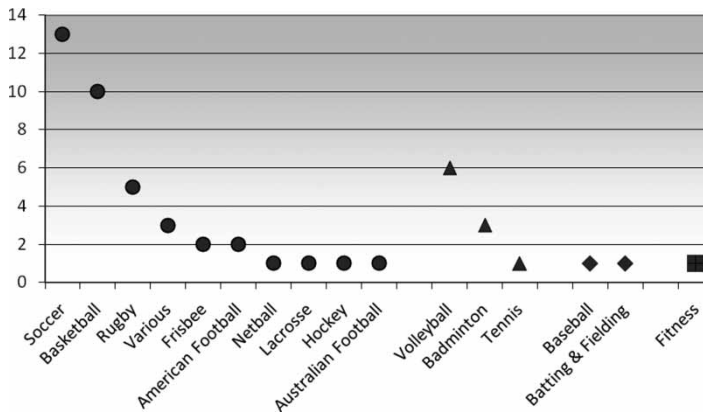


Figure 1. Sports selected for seasons of Sport Education.

comparison groups within experimental or more quasi-experimental research designs. In all of these studies, comparisons were made between students participating in Sport Education seasons and those taking part in more traditional skills, drills and game-based units. The one true experimental design appeared in the study of Pritchard et al. (2008) who randomly assigned 47 ninth grade students to participate in different volleyball classes. In the other study examining skill and tactical development, Browne, Carlson, and Hastie (2004) compared two intact eighth grade rugby classes. The other studies using comparison groups involved different dependent variables. Parker and Curtner-Smith (2005) examined time spent in physical activity, Spittle and Bryne (2009) and Perlman (2010) measured a number of psychological variables, while Hastie et al. (2009) compared the development of aerobic fitness.

The more recent quantitative studies of Sport Education not involving comparison groups used designs more sophisticated than simple survey research. The study of Vidoni and Ward (2009) was the first to use specific intervention techniques within a season of Sport Education. Focusing on fair play instruction, this study adopted an applied behavior analysis methodology to enhance selected students' active participation and helpful behaviors, while concurrently reducing their harmful behaviors. Wallhead, Hagger and Smith (2010) used a large data set from five schools to test a theory of motivation using structural equations modeling and confirmatory factor analysis.

Qualitative studies also progressed beyond a reliance only on field notes and/or interviews, although all studies did use these techniques. The studies of Hastie and Curtner-Smith (2006) and Curtner-Smith and Sofo (2004) used critical incident techniques to capture a more ongoing account of students' and pre-service teachers' experiences respectively within Sport Education. MacPhail and Kinchin (2004), and Mowling, Brock, and Hastie (2006) used drawings and students' narrations of these drawings in order to obtain a deeper understanding of younger students' perceptions of Sport Education.

Comparisons with the previous review

Fitness

In terms of fitness, Wallhead and O'Sullivan (2005) suggested there were minimal data on how Sport Education is able to promote particular fitness components. Indeed, since their review, there has been only one study that specifically centered fitness as a season outcome.

In a season in which students designed and competed in a number of obstacle course races, Hastie et al. (2009) reported that students made significant improvements in their performance on the Progressive Aerobic Cardiovascular Endurance Run (PACER) test, and more students reached their age-related healthy fitness zone than had done before the season commenced. Further, post-test scores showed the students in the obstacle course season ran significantly more laps on the PACER than students in the control group who participated in their regular physical education lessons. Nonetheless, it needs to be remembered that the selected 'sport' for this season was one in which aerobic fitness was the focus. We still have no data on the development of various fitness indices following participation in team or individual sports seasons such as volleyball, badminton or athletics.

Like the study of Hastie and Trost (2002), Parker and Curtner-Smith (2005) examined student activity levels during a season of Sport Education. Using the 'System for Observing Fitness Instruction Time' (SOFIT) observation instrument (see McKenzie 2009), the major finding was that students in a more traditional, skills-drills unit spent slightly more than the recommended 50% of lesson time in moderate to vigorous physical activity (MVPA) while the pupils in the Sport Education unit did not approach this level (36.6% of their time in MVPA, 38.7% sitting and 22.8% time standing). However, it must be remembered this was a particularly short unit (10 x 31 minute lessons and five lessons of game play) taught by pre-service teachers, and given the relative time requirements for all the different components of Sport Education, may not have given a true account of the complete experience. As a case in point, the season studied by Hastie and Trost (2002) extended over 22 lessons with an experienced teacher in which students were in MVPA for just over 60% of the lessons.

Skill development, game play and tactical awareness

Since the 2005 review, there have been four publications relating specifically to the development of skill during seasons of Sport Education. As noted earlier, two of these (Browne, Carlson, and Hastie 2004 and Pritchard et al. 2008) offered comparative studies between seasons of Sport Education and units best referred to as traditional. In the Browne paper, the results indicated that students in both the Sport Education class as well as the traditional skills-based class made significant improvements in their knowledge of the game as well as their skill. In addition, the students in Sport Education showed significant gains in perceived learning and also reported that they developed a better understanding of the game.

Pritchard et al.'s (2008) volleyball study also showed improvements in content knowledge, but in contrast to the Australian data of Browne, Carlson and Hastie (2004), this study revealed no significant gains in skills test scores. However, the authors do report an increase in game quality for students in Sport Education. In particular, students in Sport Education improved in their ability to make correct decisions of using the right type of shot and executing that shot correctly, which in turn improved skill execution. These data are consistent with a badminton study (Hastie, Sinelnikov, and Guarino 2009) in which Russian eight-grade students made improvements in both the selection (what shot to make) and execution (ability to produce the desired shot) dimensions of their game play. In this study, however, students also made significant improvements on badminton skills tests that measured their ability to control the shuttle and hit it more aggressively.

The Hastie, Sinelnikov, and Guarino (2009) study also formally tested students' tactical awareness. Using the assessment instrument developed by Blomqvist et al. (2000), it was found that the students demonstrated significant improvements in their ability to select tactical solutions and make arguments for those decisions when watching videotaped

performances of badminton games. An earlier study (Hastie and Curtner-Smith 2006) also examined the development of tactical understanding. During a hybrid season in which the organizational structure followed Sport Education principles but adopted a pedagogical style using problem solving and guided discovery approaches, it was found that by the unit's conclusion, the students were able to understand, appreciate, and execute a number of rudimentary batting, bowling/pitching, and fielding tactics and strategies. They also understood the overarching principles, rules and structures of batting/fielding games, appreciated their importance, and were able to transfer them from one game to another.

Personal/social development (cooperation, empathy, self-discipline)

In their 2005 review, Wallhead and O'Sullivan described some of the difficulties associated with the devolution of power from the teacher to the students, such as role responsibility and gender separation. In particular, they note the potential for students who are given responsibility to act in ways that do not alienate or oppress their teammates. The results of recent research on this particular aspect of the model show differing results. For example, Pill (2008) suggests that the teacher in his study believed that Sport Education was potentially more motivating and inclusive of the students normally less inclined toward participation. Further, the students in the study of Kinchin et al. (2004) also reported high levels of team inclusion, with over half citing the team as a factor in helping to improve performance.

Nonetheless, Brock, Rovegno, and Oliver (2009), in an acutely in-depth study of a single team, across an entire unit, found a number of cases where certain students' opinions were silenced. By observing all of the social interactions and decisions of one group during a season of soccer, Brock, Rovegno, and Oliver clearly demonstrated that students with higher status dominated the social interactions during group. In this case, high status was achieved by 'being rich', physically attractive, being involved in athletics outside of class, and having a friendly and engaging personality. The poignant conclusion from this study was that 'we must explore these inequities and study ways in which teachers can create an environment that enables students to learn physically, cognitively, and socially through equitable interaction and participation' (Brock, Rovegno, and Oliver 2009, 372). While models such as Sport for Peace (Ennis et al. 1999) and Empowering Sport (Hastie and Buchanan 2000) have described Sport Education hybrids aimed at promoting more equitable participation, there is still a place in the literature on Sport Education for studies that describe and evaluate the effectiveness of specific interventions aimed at including all student voices. While Brock, Rovegno, and Oliver's (2009) season included elements that ran counter to the intent of Sport Education (i.e. the lack of small-sided games in which everyone plays all the time) that element does not diminish the critical lesson from this study. That is, while teachers might perceive that students are treating each other in fair and equitable ways, or the majority of students report positive team relations, we must still be vigilant to the potential for some students' voices to be silenced. Further studies that closely monitor group work during Sport Education are certainly warranted.

Student attitudes (enthusiasm, enjoyment)

There has been a continuance of studies reporting students' enthusiasm and enjoyment as a result of participation in Sport Education. Many of these were the 'first time' studies

conducted in non-native English-speaking countries. Students in Russia (Hastie and Sinelnikov 2006), Hong Kong (Ka and Cruz 2006) and Korea (Kim et al. 2006) all reported their attraction towards physical education taught using the model. These results provide evidence for the assertion that no matter the location, students enjoy participating in classes in which they perceive as more serious and for which they are held accountable.

Within the English language locations, researchers moved from descriptive to more explanatory objectives. For example, the study of MacPhail et al. (2008) searched for a more comprehensive understanding of students' conceptions of fun and enjoyment. Using interviews and a number of psychological measures (e.g. enjoyment, perceived competence, achievement goal orientation, and motivation) they confirmed that students found the model to be fun and entertaining, and developed a sense of affiliation and membership of a team. Autonomy perceptions also increased. While not a central part of the study, students' perceptions of success also changed. Many students believed they improved in both the physical and mental skills of game play, the latter being supported by teachers who suggested the students were much more tactically aware.

Kinchin, MacPhail, and Ni Chroinin (2009) focused exclusively on the culminating event within a season. Examining the perceptions of students and teachers with respect to an inter-school Sport Education festival, it was found that prior to the festival students' excitement and anticipation was also accompanied by a degree of uncertainty. Post-festival, pupils focused on their team's performance and spoke positively about their memories of the day. Teachers reported the success of the festival in maintaining pupils' interest with pupils keen to prepare their teams to play against other schools.

New methodologies were also used to get insight into students' perceptions. The studies of MacPhail and Kinchin (2004) and Mowling, Brock, and Hastie (2006) used drawings as ways to examine younger student's experiences in Sport Education and their interpretations. In the first study, fun, game play, affiliation and belonging to a group were most represented. The second extended the design to include a more extensive analysis system (49 coding categories versus an original 16), as well as multiple data points (drawings were collected six times throughout the season). As with the MacPhail and Kinchin study, a strong focus on affiliation and festivity was represented, as was game play. However, in the Mowling, Brock, and Hastie paper, winning was seen as a primary agenda for many students during the later stages of the season. The key message from both these papers is that drawings provide extensive data on the topic, but only in cases in which they are accompanied by narratives.

Values (affinity, equity, culture)

One of the structural features of Sport Education that sets it apart from out-of-school sport is the opportunity for teachers to include a formal accountability system for fair play. By having season champions decided by factors other than just a win/loss record helps to reinforce the educative values of the sport experience (Siedentop, Hastie, and van der Mars 2004). The idea that fair play needs to be specifically foregrounded in a season is supported by the findings of two studies in which it was absent. In Mowling, Brock, and Hastie's (2006) study with fourth grade students, winning through competition proved to be the students' primary agenda as the unit progressed into the later phases of the season. These authors suggested that future seasons with younger students might concentrate more on the idea of fair play and focus more on achievements other than simply winning.

When discussing fair play with sixth grade students, Brock and Hastie (2007) showed that students initially described fair play as being polite to other teams and not arguing with the officials or with your team. However, as the season progressed, and winning games became more important, the captains believed they could only justify equal amounts of playing time for all team members during low-risk situations when the game was not in jeopardy. Particularly it appeared that students perceived as lower skilled could only be goalkeeper during practice or in a game when the team had a big lead. Further, although there was initial resistance by the players to the captain's choices of some students playing more than others, by the post-season they also justified more playing time for higher-skilled students if winning the game was in question.

Based on the notion that fair play and other social skills need to be explicitly taught, Vidoni and Ward (2009) set out to determine the extent to which Sport Education encourages fair play behaviors and to examine the extent to which an intervention called Fair Play Instruction could influence the occurrences of fair play behaviors during a season. The results of this study demonstrated that fair play instruction was consistently effective in increasing students' active participation, and in decreasing waiting time for all participants. There was, however, little difference between baseline and intervention for helpful behaviors, but on a positive side, there was a decrease in the number of harmful behaviors.

New trends in research

Since the 2005 review, not only has there been an expansion in the number of studies relating to Sport Education, there has also been the initiation of research in a number of new contexts, as well as those focusing on new research questions. An analytic induction of these papers has placed them into three categories: (1) expanded sites of implementation; (2) students' motivational responses; and (3) learning to teach Sport Education.

Expanded sites of implementation

While all the studies in the Wallhead and O'Sullivan review were situated in native English-speaking, western-oriented countries (i.e. Australia, New Zealand, USA, or the UK and Ireland), there has been an expansion in the sites of Sport Education seasons. We now have reports of first time experiences from Asia and Eastern Europe. In Hong Kong, Ka and Cruz (2006) and Cruz (2008) investigated soccer seasons with high school students and teachers. In the first study, results indicated that there were positive effects on students' learning interests and collaboration under this teaching model. In particular, there were increases in students' participation as well as the development of collaboration within teams as they learned to play and take responsibility for their roles. Cruz's (2008) second study spoke more of the challenges faced by teachers in planning their seasons.

This issue of planning was also a significant one for the Korean teachers in the study of Kim et al. (2006). In particular, challenges for teachers lay in navigating the demands of a change in pedagogy, particularly as this related to a facilitator of learning in the context of introducing students to new roles and pedagogical relationships in Sport Education.

Hastie and Sinelnikov studied the introduction of a Sport Education basketball season to sixth grade (2006) and ninth grade (Sinelnikov and Hastie 2008) Russian students. Given Russian students' general lack of group work and opportunities to develop student responsibility in their prior schooling experiences, the purpose of these studies was to examine how these students would respond to the novel demands (i.e. high levels of autonomy)

of participation in Sport Education. In all of these situations (Hong Kong, Korea and Russia), the findings were similar to previous research. The students were highly compliant with the explicit tasks in the managerial and instructional task systems, and became increasingly at ease with the tasks requiring less teacher direction. The affiliation provided by persisting teams and the enjoyment of formal competition were seen as particularly attractive by students, leading them to suggest they had enthusiastic engagement. Like their American counterparts (see Hastie 1996), the Russian students were able to demonstrate competence in the officiating and coaching roles associated with their season. In interviews during and following the season, the students commented that they found the season to be particularly interesting, that they enjoyed having student coaches and that they developed significant team affiliation.

In their study of the ninth grade Russian students, Sinelnikov and Hastie (2008) continued to examine the student social system that has been found in previous research to be so important in driving Sport Education (see Carlson and Hastie 1997; Hastie 2000). While in this study, some of the more talented boys responded in positive ways similar to the talented student in Kinchin's (2001) study, for others, the disruption in their social agenda led to different ways of having fun that were not compatible with the intended outcomes of the model. For the less skilled students, or those with less status in their previous physical education, Sport Education allowed for team affiliation and achieving goals previously unseen or unavailable.

Another first time study, while conducted in the United States, saw the incorporation of many of the features of Sport Education within a week-long sports camp for students with visual impairments (Fittipaldi-Wert et al. 2009). The students took membership of teams, developed mascots and posters, participated in games, and with the assistance of their sighted counselor, took part in some of the officiating and recording keeping aspects of the season. For these students their self-perceptions of their knowledge and abilities in the various sports (goalball, beep baseball and bocce), their willingness to participate, and sense of team affiliation increased across the week. For this particular season, however, what was particularly notable was that many campers appreciated the opportunity to get 'the whole sport experience'. That is, many of these students had not even played a full-length (in terms of time and player number) game of any team sport before, and certainly not one where the scores counted towards a season competition, or one that had designated officials.

Students' motivational responses

In 2004, Wallhead and Ntoumanis suggested one of the reasons for the attractiveness of Sport Education is that it provides a task-involving class climate that serves to promote intrinsic motivation. This idea is supported by Perlman and Goc Karp (2010) who also suggested that the structural aspects of Sport Education assist in facilitating movement along the self-determined continuum through support for relatedness, competence and autonomy. Consequently, a number of papers have begun to empirically test motivational aspects of Sport Education. Roughly grouped, these studies focus on measuring the perceived and objective climates of Sport Education seasons, comparing student motivation between Sport Education and more traditional units, and motivational changes that take place over a season.

With regard to the measurement of motivational climates, Sinelnikov, Hastie, and Prusak (2007) used the Situational Intrinsic Motivation Scale (which measures motivation, internal regulation, external regulation, and amotivation) during the skill practice,

officiating, and game play phases of two Sport Education seasons. They found the students reported high levels of self-determined behavior across all phases of their seasons, with particularly low levels of amotivation. This study was followed by the measurement and description of the objective motivational climate during one season (Sinelnikov and Hastie 2010a). Following the protocol of Morgan et al. (2005), the mean percentage of 'mastery', 'performance' and 'neither' teaching behaviors were calculated for a number of motivational climate variables (task, authority, recognition and evaluation, grouping and timing). Analysis showed that the objective motivational climate of skill practice and practice competition phase had more of a mastery-oriented climate, while performance behaviors in the competition phase were more prevalent.

In a follow-up to the Wallhead and Ntoumanis (2004) paper, Spittle and Byrne (2009) conducted an experimental study with high school students in Australia. In this case, significant differences were found between those in Sport Education and those in traditional skills-drills units on changes in perceived competence, task orientation, and mastery climate. In essence, the Sport Education condition was more successful in maintaining high levels of intrinsic motivation, task orientation, and mastery climate than the traditional condition, which was associated with a decrease in adaptive aspects of motivation for students.

A second pre-test/post-test design study focused on students identified as amotivated and non-participatory during regular physical education lessons (Perlman 2010). Following 78 students who participated in either Sport Education or more traditional classes, data were collected measuring affect (enjoyment) and needs satisfaction. It was found that the amotivated students in Sport Education perceived significantly higher levels of enjoyment and satisfaction of the need for relatedness than students taught by the traditional approach. There were however, no differences in the students' perceived need for autonomy and competence.

Learning to teach Sport Education

Given Sport Education has shown consistent validation as an appealing format for sport instruction in physical education, many researchers have shifted their focus onto how various groups learn to teach Sport Education. Those groups include pre-service teachers and practicing teachers in schools.

Pre-service teachers learning Sport Education

Curtner-Smith and Sofo (2004) were the first to examine conceptions of the teaching-learning process while teaching Sport Education. Studying a cohort of pre-service teachers during an early field experience, Curtner-Smith and Sofo found that these novice teachers were attracted to Sport Education primarily due to its compatibility with their occupational socialization. That is, many of these university students were drawn to physical education due to their orientation towards, and interest in sport, and by consequence, Sport Education was the form of physical education that was closest to their expectations. This finding was supported in later studies by Stran and Curtner-Smith (2009a, 2009b).

Following methodologies used earlier by Rovegno (1998) in studying how novices learn a new curriculum, McCaughtry et al. (2004) identified key challenges in learning to teach Sport Education during internships. These included struggling with instruction relating to tactical development, and misunderstanding the role of skill development. Consequently, a number of the participants in that study suggested they would be hesitant to

adopt the model once they began teaching, suggesting they would feel overwhelmed with the detailed planning and preparation requirements of Sport Education. McCaughtry et al. consequently made a number of suggestions for future training in the model including the need to reteach or reinforce the Sport Education model at multiple times during teacher development. These findings were strongly reinforced by McMahon and MacPhail (2007), who also suggest that a variety of teaching and learning experiences related to the Sport Education model must be provided if pre-service teachers are to be successful in learning to teach it. Further, they note that pre-service teachers need to be provided with ample opportunity to experience and practice the model, particularly in situations where the cooperating teacher provides informed help and support. This idea is supported by the findings of Stran and Curtner-Smith (2010) who suggest that giving pre-service teachers early exposure to Sport Education and having them teach within the model often during a series of early field experiences enables them to gain a solid understanding of its workings.

Studies of teachers in schools

While pre-service teachers can learn about, and how to do Sport Education across a number of experiences, there are fewer opportunities for teachers in schools. The most common avenue for facilitated learning opportunities is professional development workshops. Ko, Wallhead, and Ward (2006) studied the effectiveness of how physical education teachers interpreted and used knowledge presented in professional development workshops in their teaching practices. It was found that there were varying levels of alignment between what teachers planned and actually enacted within their units, with teachers implementing fewer and/or modified down the Sport Education elements stipulated within the unit plan. The highest level of washout of content from workshop to practice occurred between the teacher planning and implementation phases. Ko, Wallhead, and Ward also identified the contextual limitations of the workshop in preparing these teachers to deliver a new pedagogical strategy. It may also be the case that the process of teacher change may be more difficult for more experienced teachers (Sinelnikov 2009).

The study of Curtner-Smith, Hastie, and Kinchin (2008) also found varying levels of implementation of Sport Education elements by teachers. Studying a sample of newly-qualified teachers in both the United States and England, three levels of adoption were found. These were labelled as 'full version', 'watered-down', and 'cafeteria-style'. The full version of the model delivered units that were congruent with the spirit of Siedentop's (1994) intentions. Seasons were significantly lengthy, purposefully promoted team affiliation and festivity, and involved students in numerous playing and nonplaying roles. In contrast, watered-down seasons organized shorter units primarily around formal competition, but failed to include many of the other elements that transform traditional sporting units into Sport Education seasons. In particular, there was only perfunctory attention placed on roles. In cafeteria-style situations, teachers merely incorporated parts of Sport Education within what appeared to be traditional sporting units. Across three teachers, these involved placing students on teams for mini tournaments, with some including roles such as captain or manager. A number of factors were identified that explained why teachers interpreted and delivered Sport Education as they did. These included the teachers' acculturation, professional socialization and organizational socialization.

One of the key findings of the Ko, Wallhead, and Ward (2006) study was that their professional development provision did not include any formal support mechanisms designed to overcome many of the contextual barriers and facilitate implementation at

the school site. By consequence, these authors postulate that their teachers had little opportunity to reflect on their initial failures with a support person who could provide appropriate advice. Following on these findings, Sinelnikov (2009) examined a form of professional development which contained an extensive onsite presence which allowed for a systematic observation of the lessons combined with continual feedback and counseling. The outcomes from this study empirically demonstrated the significant advantages of extended, continuous, school-based, and contextualized professional development.

Limitations and future research directions

In addition to their summary of research, Wallhead and O'Sullivan (2005) provided suggestions concerning the design of future research. These included the need for comparative studies, more sophisticated research designs, longitudinal data collection, school-community partnerships, and student peer instruction.

Comparative studies

Authors were slow to take up this call. Indeed, prior to 2008 there were only two studies that compared classes taught using Sport Education and traditional formats. In 2004, Browne, Carlson, and Hastie examined learning in rugby across two classes, while in 2005, Parker and Curtner-Smith compared the time students spent in physical activity. However more recently we have seen an increasing number of studies that compare Sport Education seasons and more traditional skills-drills units on various outcomes. Those included Pritchard et al. (2008), who compared volleyball skill, knowledge and game play, Hastie et al. (2009) who compared the development of aerobic fitness, as well as Spittle and Bryne (2009) and Perlman (2010) who both examined student motivation.

Sophisticated research designs

While only two studies in the Wallhead and O'Sullivan review involved inferential statistical analyses of data (Hastie and Trost 2002; Wallhead and Ntoumanis 2004), 10 of the 35 studies since that review used inferential statistics from the general family of statistical models known as the general linear model (e.g. ANOVA, MANOVA, and structural equations models). While this may be the case, as noted earlier, only one (Pritchard et al. 2009) used a true experimental design in which students were randomly assigned to either the Sport Education or traditional unit groups. Nonetheless, the appearance of studies using larger data sets (Spittle and Bryne (2009) = 115; Perlman (2010) = 78 from an initial sample of 1176; Wallhead, Hagger, and Smith (2010) = 192) across a number of classes shows progression from the earlier studies that compared one class of each condition.

Longitudinal data collection

Despite calls for more longitudinal data collection protocols, there has only been one study since the Wallhead and O'Sullivan review that has examined students past a one-season experience. Using autobiographical memory theory techniques, Sinelnikov and Hastie (2010b) asked a cohort of Russian students to recall what they remembered about their previous three years of participation in Sport Education. Student responses were mostly from

the ‘general’ and more precise ‘event specific’ levels of recall, and their strongest and most detailed memories were of those features that provide Sport Education participants with what is termed authentic experiences. Sport Education was considered to be more serious and organized than regular physical education, and as a result of their participation in the officiating roles, the students believed they had a more comprehensive understanding of the sports they experienced through the model. Sinelnikov and Hastie (2010b) claim that these findings provide evidence that the features of affiliation, authentic competition and perceived learning that students find so attractive, last well beyond initial exposure to the model. Further, they recommend that future delivery of the model should strongly adhere to these basic tenets.

School community partnerships

Sadly, there have been no reports of research in which the intent was to develop connections and collaborations with the junior sport community. Consequently, the other key area of research recommended by Wallhead and O’Sullivan (2005), that of examining the potential of Sport Education to positively transform students’ experiences of sport beyond physical education, has not been realized. While in Australia, Sport Education initiatives have been created for both cricket and Australian football involving significant cooperation between schools and sports associations, we do not have any empirical data on the outcomes of these collaborations. Despite this however, the jury is still out with regard to whether Sport Education can realize its potential to promote ‘sustained connections’ for more pupils in relation to engagement in sport (see Penney, Clarke, and Kinchin 2002).

While the school-community link has not been formally investigated, the study of Wallhead, Hagger, and Smith (2010) did measure students’ voluntary participation in a lunch-time recess sport club. One hundred and ninety-two students from four elementary schools and one junior high school were given the opportunity to participate in sport clubs whose activities coincided with the units being taught during the physical education Sport Education seasons. It was found that the majority of participants chose to regularly attend the lunch recess sport sessions and were generally physically active during participation. Sport Education produced an increase in autonomous motivation in physical education, which consequently transferred into autonomous motivation in a lunch recess context. This autonomous motivation within a lunch-time context predicted the students’ intention and participation within the lunch recess sport club. This finding provides some preliminary evidence suggesting that the positive experiences from Sport Education might transfer to students’ motivation to engage in extra-curricular sport opportunities within school.

Student peer instruction

One implicit intention of Sport Education seasons is that students work within their teams to develop their own and collective skills. Part of this involves the use of student coaches whose responsibility is to work alongside the teacher to provide what Siedentop and Tannehill (2000, 125) refer to as ‘guided practice’. Nonetheless, this aspect of the model has been under-researched, a point first made by Hastie (2000), and then reinforced by Wallhead and O’Sullivan (2005) in their review. Wallhead and O’Sullivan then recommended future research use didactic methodology to provide a microanalysis of the teaching–learning process in Sport Education.

To date, there has only been one study that responded to this call. Using a particularly labour intensive protocol, Wallhead and O’Sullivan (2007) followed a single team of six

students in a season of eighth grade tag rugby. Interviews and observations were recorded pre, during and post lessons, in an effort to identify identifying ‘critical didactic incidents’, those episodes in the teaching-learning process that were considered problematic. Consistent with previous research, it was found that the most common site of misalignment between intended and actual content emerged during the student coach’s elaboration of content to peer participants. Nonetheless, the results from this study showed that the instructional approach of peer teaching could be effective in developing participants’ knowledge of many of the lower complexity tag rugby content learning goals of the unit, even if ineffective in achieving higher order content. The study also identified a number of areas that warrant future consideration, particularly those aspects of teacher planning, content knowledge and intervention that serve to prepare student coaches to become more effective instructors. This study was an important step in helping both teachers and researchers to tackle what is perhaps one of the most challenges elements of the model. Further research that replicates the methodology of this paper with a larger data set would be particularly valuable.

Conclusion

While both Wallhead and O’Sullivan’s (2005) review and this current one have focused upon ‘the big 5 aims of PE’, Siedentop states his goal for Sport Education is ‘to educate students to be players in the fullest sense and to help them develop as competent, literate and enthusiastic sportspersons’ (Siedentop 1994, 4). If an executive summary of the literature concerning those goals were to be made, it could be suggested that evidence for competency is ‘burgeoning and developing’, support for literacy is ‘emerging’, and that enthusiastic responses by students have been ‘significantly substantiated’. With specific reference to the studies since the 2005 review, Sport Education continues to be seen as an attractive model for teachers and students in schools, and by consequence, for researchers. The challenge now is to identify ways in which we can best address those areas of research that are still under-developed (i.e. school community links and peer instruction). While the previous review recommended more comparative studies, it is suggested that a more practiced-referenced approach (Kirk 2005) might be more appropriate. In this way, and fitting with Metzler’s (2005) recommendations, we focus more on whether Sport Education can achieve the outcomes for which it was designed. Metzler suggests that to compare approaches that promote different outcomes is akin to comparing apples to oranges.

However, given that seasons of Sport Education can be completed in so many diverse settings (e.g. across different grade levels and sporting activities), and can focus on different outcomes, it is critical that future studies provide significantly more detail about the context than we see in current reports. At a minimum, the following details must be included: the length of the season (how many days, and the length of lessons); a description of the roles taken by the students during the course of the season; the competition format adopted during the season; the scoring system used to determine the season champions, and other forms of student accountability embedded in the season plan. Armed with that information, readers are in a better position to evaluate the claims being made by the authors, and as a result, begin to develop strategies with which we can move the model forward.

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