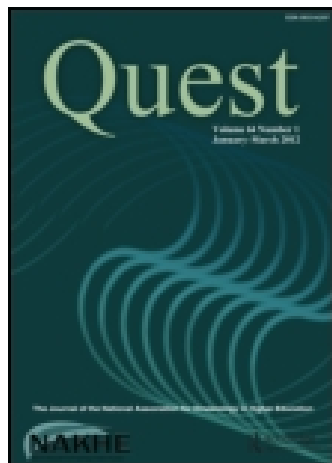


This article was downloaded by: [University of Bath]

On: 22 February 2015, At: 12:32

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



[Click for updates](#)

Quest

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/uqst20>

Can Cooperative Learning Achieve the Four Learning Outcomes of Physical Education? A Review of Literature

Ashley Casey^{ab} & Victoria A. Goodyear^c

^a School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, United Kingdom

^b Department of Physical Education and Sports Sciences, University of Limerick, Limerick, Ireland

^c Institute for Sport and Physical Activity Research, University of Bedfordshire, Bedford, United Kingdom

Published online: 26 Jan 2015.

To cite this article: Ashley Casey & Victoria A. Goodyear (2015) Can Cooperative Learning Achieve the Four Learning Outcomes of Physical Education? A Review of Literature, *Quest*, 67:1, 56-72, DOI: [10.1080/00336297.2014.984733](https://doi.org/10.1080/00336297.2014.984733)

To link to this article: <http://dx.doi.org/10.1080/00336297.2014.984733>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms &

Can Cooperative Learning Achieve the Four Learning Outcomes of Physical Education? A Review of Literature

ASHLEY CASEY

*School of Sport, Exercise and Health Sciences, Loughborough University,
Loughborough, United Kingdom
Department of Physical Education and Sports Sciences, University of Limerick,
Limerick, Ireland*

VICTORIA A. GOODYEAR

*Institute for Sport and Physical Activity Research, University of Bedfordshire, Bedford,
United Kingdom*

Physical learning, cognitive learning, social learning, and affective learning are positioned as the legitimate learning outcomes of physical education. It has been argued that these four learning outcomes go toward facilitating students' engagement with the physically active life (Bailey et al., 2009; Kirk, 2013). With Cooperative Learning positioned as a pedagogical model capable of supporting these four learning outcomes (Dyson & Casey, 2012), the purpose of this review was to explore the empirical research in the use of Cooperative Learning in physical education reported on the achievement of learning in the physical, cognitive, social, and affective domains (or their equivalents). The review found that while learning occurred in all 4 domains, the predominant outcomes were reported in the physical, cognitive, and social domains. Affective learning was reported anecdotally, and it became clear that more work is required in this area. The article concludes by suggesting that research into the outcomes of this and other pedagogical models needs to focus on learning beyond the initial instructional unit and extend over a period of years and not just weeks.

Keywords Peer-assisted learning, group work, competitive, individualistic learning

Introduction

If physical education is to sustain its valued cultural and moral position within education, Kirk (2013) argued that we should focus on how best to promote the “educationally beneficial outcomes for students, across a range of domains” (p. 978). Drawing on Bailey et al.'s (2009) discussions on educationally beneficial learning outcomes in physical education, Kirk (2010, 2012, 2013), among others (cf., Haerens, Kirk, Cardon, & De Bourdeaudhuij, 2011; Metzler, 2011), has argued that we should comprehensively and cohesively address learning in the physical, cognitive, social, and affective domains. Indeed, for physical education to be capable of promoting the physically active life, Kirk (2012) positioned these four learning domains as the legitimate learning outcomes of physical education. However,

Address correspondence to Ashley Casey, School of Sport, Exercise and Health Sciences, Loughborough University, Ashby Road, Loughborough, LE11 3TU, UK. E-mail: A.J.B.Casey@lboro.ac.uk

given that Bailey et al. (2009) felt that learning in these domains can only occur “given the right social, contextual and pedagogical circumstances” (p. 16), how can we recognize if and when legitimate learning is occurring?

One way in which the pedagogical circumstances, the legitimate learning outcomes of physical education, and a socio-cultural perspective to learning can be considered is through models (O’Sullivan, 2013) and, more specifically, pedagogical models (Kirk, 2013). There is an increasing level of advocacy for the use of pedagogical models, and at the forefront of this argument are Kirk (2012, 2013) and Metzler (2011). Kirk (2012) claimed that for physical education to achieve cultural legitimacy in the medium-term (~10 years) and long-term future (~20 years), physical education should adopt a models-based approach. In other words, curricula should be organized around pedagogical models rather than the multi-activity approach.

Pedagogical models, or curriculum or instructional models as Jewett and Bain (1985) and Metzler (2011) have respectively called them, are not new, but some have received more attention than others. Certainly, while models including Sport Education and Teaching Games for Understanding were constructed and developed in the 1980s by researchers in the field of physical education and sport pedagogy, Cooperative Learning only began to gain momentum in physical education during the early part of the 21st century and emerged from its use in other curriculum subjects such as English, math, and science (Dyson & Casey, 2012; Johnson & Johnson, 2009). Such has been the enduring presence of Sport Education and Teaching Games for Understanding that both have been the subjects of review of literatures of their own (for the two latest examples, see Harvey & Jarrett, 2014; Hastie, de Ojeda, & Luquin, 2011). In contrast, Cooperative Learning has previously been clustered with peer-assisted learning (PAL) in systematic reviews in this area (see Ward & Lee, 2005). Given the emergence of Cooperative Learning as a legitimate pedagogical model in physical education (Dyson & Casey, 2012; Metzler, 2011) it seems appropriate at this time to review the developing body of literature published in this area, especially if we are to better understand if the model is capable of facilitating learning in the four domains positioned by Kirk (2012) as the legitimate learning outcomes of physical education.

Cooperative Learning as a Pedagogical Model

Cooperative Learning was developed in the 1970s amid concerns that students rarely had the opportunity to develop or even use their interpersonal skills in the traditional competitive and individual learning environments of schools (Johnson & Johnson, 2009; Kagan & Kagan, 2009; Slavin, 1995, 1996). Through combining social and academic learning, Cooperative Learning was seen as a method of promoting students’ interpersonal skills and their ability to interact and achieve in an ever-changing economic and social world (Kagan & Kagan, 2009). Since its initial development, Cooperative Learning has been researched extensively. Separate meta-analyses (Johnson, Johnson, & Stanne, 2000; Johnson, Maruyama, Johnson, Nelson, & Skon, 1981; Kyndt et al., 2013; Stanne, Johnson, & Johnson, 1999), and reviews of this research literature (Johnson & Johnson, 1974; Slavin, 1983) suggest that Cooperative Learning brings about significant gains to students’ learning and furthers their development as young people. Indeed, the reported learning outcomes of Cooperative Learning from these analyses and reviews can be summarized as academic achievement (an ability to apply and understand content), interpersonal skill development and relations (communication skills and/or peer relations), enhanced participation (engagement with learning tasks), and an improvement in young people’s psychological health (self-esteem and/or motivation).

These reported learning outcomes have great synergy with the aspired learning outcomes of physical education that were identified by Bailey et al. (2009) and later re-enforced by Kirk (2013). Certainly, in his positioning of Cooperative Learning as a model of physical education, Metzler (2011) drew on the work of Hilke (1990) to argue that Cooperative Learning was both an achievement-oriented and process-oriented model. In other words, when applying the learning outcomes of Cooperative Learning to physical education, the model is designed to foster gains in physical performance and cognitive understanding (i.e., academic achievement) that occur in coherence with the development and use of students' interpersonal skills and their meaningful participation in learning (i.e., social learning) and to help students to increase motivation, self-esteem, or self-confidence to learn (i.e., affective learning) (Bailey et al., 2009; Casey & Dyson, 2009; Hilke, 1990; Metzler, 2011). Taking this stance, and by drawing on the extensive empirical evidence in general education, Cooperative Learning is a model that could be said to effectively promote the achievement of student learning in the physical, cognitive, social, and affective domains—at least in general education. The question that concerns this review of literature is “Can Cooperative Learning achieve these same learning outcomes in physical education?”

Since the early empirical work in physical education by Dyson and Strachan (2000), there has been an increase in the international breadth and scope of research in this area. Drawing on research from eight international countries, and the subsequent conclusions made from pedagogical research in the last decade, Casey and Dyson (2012) believed that Cooperative Learning considers human movement to be “something which is undertaken within a cooperative relationship with others” (p. 173). In contrast to traditional pedagogical practices, Cooperative Learning acknowledges that “teaching as telling is no longer appropriate” (Lieberman & Pointer-Mace, 2008, p. 226) and that movement and learning about movement does not occur in isolation from the cognitive, social, or affective domains (Casey & Dyson, 2012; Dyson, 2001; Lafont, Proeres, & Vallet, 2007). Through Cooperative Learning, young people learn about movement in physical activity contexts and come to understand how their experiences are relevant, meaningful, and transferable by working together to learn without direct instruction from the teacher (Bähr & Wibowo, 2012). Students are encouraged to interact with each other and learn from the experiences that they create largely by themselves (Dyson, Griffin, & Hastie, 2004).

Moving Metzler's (2011) interpretation of Cooperative Learning forward, Casey and Dyson (2012) recently positioned Cooperative Learning as a pedagogical model due to its ability to meet the legitimate learning outcomes of physical education by exploring the interrelation between teaching, learning, content, and context. Reinforcing Dyson and Grineski's (2001) and Dyson and Rubin's (2003) earlier arguments, Casey and Dyson (2012) considered learning in the physical, social, cognitive, and affective domains, and the interrelation of the four concepts of pedagogy, to occur as a result of teachers' use of five fundamental elements: (1) positive interdependence, (2) individual accountability, (3) group processing, (4) promotive face-to-face interaction, and (5) small group and interpersonal skills. While Cooperative Learning was developed along four separate lines in education by its protagonists Johnson, Johnson, Slavin, Kagan, and Cohen (who all hold differing perspectives as to what elements and structures support group work and enhance achievement), physical education has primarily followed Johnson and Johnson's (1991) conceptual approach that defined these five fundamental elements of group-based learning (Goodyear, 2013). Perhaps influenced by Dyson's earlier application of the conceptual approach, these five elements have been positioned as a central pentagonal scaffold, which supports, facilitates, and deepens the achievement of the four learning outcomes (i.e.,

physical, social, cognitive, and affective) of physical education (Dowler, 2012; Dyson & Strachan, 2000; Lafont, 2012).

Despite the positioning of models (Kirk, 2013; O'Sullivan, 2013) as a central facet of the possible future of physical education and the publishing of a number of reviews on other models (e.g., Sport Education and Teaching Games for Understanding), Cooperative Learning has yet to be acknowledged as having anything but a beginning literature in physical education (Barrett, 2005). The only comparable review of its kind was conducted by Stanne, Johnson, and Johnson (1999), who, in exploring the effect of cooperative, competitive, and individualistic learning in kinesiology, suggested that Cooperative Learning brought about gains to students' motor performance, social support, interpersonal attraction, and self-esteem. Yet, in physical education, there is no analysis of the literature that seeks to ascertain whether Cooperative Learning can bring about these learning outcomes and indeed fulfill the physical, cognitive, social, and affective learning outcomes of the subject.

To legitimize Cooperative Learning in both current and future pedagogical practice, we need to move beyond the intuitive notion that Cooperative Learning "works" and start to explore future directions for research in this area (Casey, 2014). Certainly we need a comprehensive understanding of if and how Cooperative Learning provides the right pedagogical circumstances for achieving the educational beneficial learning outcomes of physical education. In doing so, and as this review sets out to achieve, we can begin to ascertain the efficacy of Cooperative Learning within a models-based approach and begin to conceptualize directions for future research that could enhance and strengthen teaching and learning in physical education.

Methodology of Review

Shulruf (2010) held that the purpose of any systematic review of literature is to "examine the material pertaining to a particular area" (p. 596). The key difference between a systematic approach and a traditional descriptive or narrative review is that the former uses methods that allow the researchers to control potential methodological biases (Shulruf, 2010). This approach acknowledges the body of research that exists and seeks to draw synthesis from the findings while acknowledging and accounting for researcher bias (Barr, Hammick, Koppel, & Reeves, 1999; Boaz, Ashby, & Young, 2002).

In seeking to undertake a systematic review of the empirical literature pertaining to the use of Cooperative Learning in physical education, Shulruf's (2010) five methodological steps were followed. In what follows, adherence to these steps and processes undertaken in completing this review are shown.

1. *Focus on a specific question:* How has the empirical research in the use of Cooperative Learning in physical education reported on the achievement of learning in the physical, cognitive, social, and affective domains (or their equivalents)?
2. *Use a protocol to guide and plan the processes to be followed:* The basis of this article is a consideration of peer-reviewed, empirical research into inservice teachers', pre-service teachers', and K-12 and higher-education students' experiences of Cooperative Learning in physical education and physical activity contexts.
3. *Identify as much of the relevant literature as possible through a comprehensive search:* Literature was selected by searching EBSCO databases and the Physical Education Index with the main search term: "Cooperative Learning Physical Education." Secondary searches were completed using the main search term combined with the

subcategories of “physical education,” “physical activity,” and “movement.” Physical activity and movement contexts were selected as related terms to further reduce the scope of studies found that reported on Cooperative Learning in physical education but also use physical activity and other movement-related contexts to inform physical education literature. After this initial search, works were analyzed for suitability. Further journal articles were obtained through the citations and references in the originally discovered documents.

4. *Make decisions about the inclusion and exclusion of studies based on methodological criteria:* All potential studies were scanned to ensure they met the inclusion criteria. The only studies contained within the present review were empirically based, interventional, peer-reviewed papers written in English. Purely descriptive papers or dissertation abstracts were not considered. In this way, even though some works represented potential data, they were excluded from the final review if they did not represent the intervention or discuss the methods of analysis. This included several peer-reviewed professional articles in such journals as *Physical Education Matters*. Furthermore, studies were also excluded if they reported on cooperative games rather than Cooperative Learning. Cooperative games do not necessitate the use of the five fundamental elements but instead suggests that students should be dependent on one another to learn (Dyson & Grineski, 2001; Grineski, 1996). Thus, cooperative games are pedagogical practices that differ to the Cooperative Learning model. In the end, 27 studies were identified that satisfied the selection criteria.
5. *Synthesis of research findings and being explicit and transparent:* Analysis of the 27 works followed a systematic process of inductive analysis and constant comparison (as per the protocols recommended by Denzin and Lincoln [1994] and Lincoln and Guba [1985]). Each study was read first to confirm its initial inclusion in the review. Once this was completed, each work was independently read again and coded “to make the task of analysis more straightforward by sifting relevant material from a large body [of writing]” (Potter, 2009, p. 615). These coded sections were transcribed and affixed with preliminary notes about their nature and interest. The selection of codes was inclusive at this stage. Coding then became a cyclical process, and new understanding brought the authors back to previously read material with fresh understanding (Potter, 2009).

The initial codes and notes were “cut and pasted” so that “all (or a subset of) the data on a given theme could be put together” (Lee & Fielding, 2009, p. 537). Then the separate bodies of codes were compared and either combined and placed into wider unnamed categories (which were also given notes about their nature and interest) or discarded. This process was more exclusive, as material deemed irrelevant was discounted from the review. These categories (and their accompanying notes) remained in flux until such time that the final themes of this review were consolidated through the process of inductive analysis undertaken by the authors. Throughout, and to help *manage bias* and increase the *trustworthiness* of these findings, all key decisions were made together (Kitchenham, 2004).

Trends and Limitations

Before discussing the results, it is worth noting some common trends and some potential limitations with the studies undertaken to date on Cooperative Learning in physical education. The literature surrounding the development of student learning in physical, cognitive, social, and affective domains, while diverse (studies from nine countries were featured in this review), predominantly originate from research conducted in the States, the United

Kingdom, and France. Furthermore, this body of research mostly centers on answering the question “Does it [Cooperative Learning] work?” rather than asking what the benefits to learners and their learning might be over time.

In his consideration of the potential futures for physical education, Kirk (2010), drawing on the work of Ennis (1999), held that any continuation of instructional units lasting between four and six lessons (which is inherent to a multi-activity curriculum) does not allow learning to progress beyond the most basic level. Students are only introduced to new movement skills, tactics, and techniques and are afforded limited time to become competent in their movement capabilities. However, short instructional units remain particularly evident in some applications of Cooperative Learning, despite a growing body of research that suggests it takes multiple units for students to learn how to learn in this way (cf., Casey, 2014; Goodyear, 2013; Harvey & Jarrett, 2014; Hastie et al., 2011). Indeed, six works in this review explored the use of Cooperative Learning across units lasting 6 lessons or less, while another six studies explored learning within units of less than 10 lessons. The emphasis on short studies is a limitation of both this review and the wider research in Cooperative Learning. However, it also suggests that Cooperative Learning, like other pedagogical models (cf., Harvey & Jarrett’s [2014] review of Games-Centered Approaches) has often been applied only within a wider multi-activity curriculum.

Given the reported importance of the five elements of Cooperative Learning (cf., Dyson & Casey, 2012; Johnson & Johnson, 2009) it is important to note that only 6 of the 27 studies made deliberate reference to how the 5 elements were actualized in the teaching units studied. However, while the majority of works did not report on the five elements, over half (17 out of 27) identified which of the five Cooperative Learning elements had been implemented. Since Dyson and Grineski (2001) argued that Cooperative Learning structures support the fulfillment of the elements, by providing ways of organizing students for interaction, it could be argued that these studies at least *sought* to use the five elements. Nonetheless, and building on the work of Hastie and Casey (2014), in most of the literature, the reader was left to accept the word of the author(s) that Cooperative Learning had been deployed. Moreover, 21 of the 27 works offered no explanation as to how the teacher(s) had maintained “curriculum fidelity” (Zhu, Ennis, & Chen, 2011) with the model. In contrast, all studies gave some details about the number, age, and prior experience of participants, although the level of detail around teacher(s) experiences of using Cooperative Learning varied.

The study by Dyson, Linehan, and Hastie (2010) stands out in this review as exemplary because of its diligence in presenting ample evidence in each of the five structural components. Further they clearly illustrated how fidelity with the model was maintained, gave details of the participants and their prior experience, and were engaged with the model for an extended 6-month period. Moving forward, this approach taken by Dyson et al. (2010) should serve as a potential yardstick for future studies on Cooperative Learning in physical education.

Results

The analysis of the 27 studies revealed four key findings/themes pertaining to the physical, cognitive, social, and affective domains: (a) academic learning (this theme contains findings related to the physical and cognitive domains), (b) social learning, (c) team participation (both themes (b) and (c) related to findings around the social domain), and (d) affective learning (explores reported findings in the affective domain). Each of these themes will be discussed in relation to their respective learning domain(s) in this section.

The primary focus of the majority of school-based empirical research on the Cooperative Learning model in physical education has explored student learning (Cohen & Zach, 2013). In different cultural contexts and educational settings (K–12 and higher education), Cooperative Learning was reported to have an impact on students' physical competence, cognitive understanding, social skills, and affective development (Goodyear & Casey, 2015). Indeed, on a number of occasions, the learning outcomes were interrelated, whereby academic and social learning were seen and positioned as being on par with one another (Casey, Dyson, & Campbell, 2009). For example, Lafont (2012) suggested that as students' communication skills (social learning) improved so did their understanding of the relevant motor skills (academic learning). Furthermore, and as a consequence of improved communication with each other, improvements in motor performance and the tactical choices were reported to have occurred. Additionally, students reported that their throwing and catching skills were enhanced due to heightened levels of confidence, enjoyment, and self-esteem, developed as a result of receiving feedback and encouragement from members of their team (Dyson, 2001).

The mechanisms used to make judgments about student learning varied between studies. Overall, there was a balance between qualitative and quantitative data collection and analysis procedures, yet most judgments were made using qualitative methods (14 studies) rather than quantitative (11 studies) or mixed method designs (2 studies). Furthermore, it was only the quantitative studies that compared student learning to a control group. Subsequently, in over half of the studies, student learning in Cooperative Learning was not compared to other learners in different pedagogical approaches.

One of the broadest, albeit anecdotal, findings of this review was that teachers believed that student learning progressed in each of the four domains. Furthermore, teachers believed that this learning surpassed that achieved in the traditional pedagogical approaches (i.e., skills and drills) used prior to using Cooperative Learning. However, while exploring the four themes: (a) academic learning, (b) social learning, (c) team participation, and (d) affective learning—it became clearer that empirical support for this anecdotal evidence ranges from the tenuous to the strong.

Academic Learning

Exploration of this theme aims to show how learning in the physical and cognitive domains has been reported. Primarily, it is suggested that academic learning has been positioned as either physical development (often in the form of skill and technique improvement) or cognitive development (often in the form of increased tactical understanding and/or improved decision making). Focusing on academic learning allows exploration of Cooperative Learning's reported ability to enhance learning in these two domains.

A central feature of physical learning was enhanced game performance and improvements on students' motor skills. Quantitative (three studies), qualitative (four studies), and mixed method designs (two studies) reported on the improvements made by students in this aspect of physical education (Barrett, 2005; Casey et al., 2009; Darnis & Lafont, 2013; Dyson, 2001, 2002; Dyson & Strachan, 2000, 2004; Dyson et al., 2010; Lafont et al., 2007). Specifically, the literature showed that the use of Cooperative Learning enhanced the intensity of game play and/or physical activity. Cooperative Learning created more opportunities for passing and shooting, enhanced students' use and understanding of complex tactics, and simply provided time for students to have more "goes" at different activities. Moreover, students' ability to accurately replicate skills, both in games and activities, such as track and field athletics, was also enhanced. With regard to cognitive learning, several studies showed

that students had an enhanced game-related understanding of strategies, skills, and transfer of those to other activities (Casey, 2013; Casey & Dyson, 2009; Dyson, 2002; Dyson & Strachan, 2000, 2004; Dyson et al., 2010; Hastie & Casey, 2010; O'Leary & Griggs, 2010).

One of the core reasons for enhanced academic learning was identified as being the increased opportunities for talking between students. Discussions and time for promotive face-to-face interaction afforded students the opportunity to problem solve and in engage in higher-order thinking (Casey, 2004; Darnis & Lafont, 2013; Dyson & Strachan, 2004; Gossett & Fischer, 2005; Hastie & Casey, 2010). Interactions become promotive of the learning outcomes and focused on the task rather than being mundane and focused on anything and everything but the task (Smith & Parr, 2007). Darnis and Lafont (2013) summarized this key finding when they suggested that cooperative groups' discussions about their strategies for games led to improved motor and tactical skills.

Therefore, this theme demonstrates that Cooperative Learning develops academic learning through the physical and cognitive learning domains. Students acquire a level of physical competence and develop an understanding of movement techniques and tactics as a consequence of engaging with Cooperative Learning activities, most specifically (but not exclusively) because of the time given to promotive face-to-face interaction.

Social Learning

In agreement with Casey et al.'s (2009) argument that Cooperative Learning places academic and social learning on an equal par, and Metzler's (2011) discussions around the achievement- and process-oriented nature of the model, social learning was frequently mentioned as a primary learning outcome in this pedagogical model. The outcomes that represented social learning included (a) the development of interpersonal skills; (b) interpersonal relations and the ability to listen to team members; and (c) beliefs, the sharing of ideas, and constructing new understandings together (Casey, 2013; Casey & Dyson, 2009; Casey et al., 2009; Dyson, 2001, 2002; Dyson & Strachan, 2000, 2004; Goudas & Magotsiou, 2009). Significantly, these were all reported to occur in conjunction with the aforementioned gains in academic achievement; developments in physical performance were frequently attributed to receiving feedback and encouragement from peers (Barrett, 2005; Casey, 2004; Dyson, 2001, 2002; Dyson et al., 2010; Goodyear, Casey, & Kirk, 2014).

However, social learning was not just about the ability to cooperate with one another, work together as a team to learn, or develop good social relations, although these were all evident in the findings (André, Deneuve, & Louvet, 2011; André, Louvet, & Deneuve, 2013; Bayraktar, 2011; Casey, 2013; Casey & Dyson, 2009; Casey et al., 2009; Dyson, 2001, 2002; Dyson & Strachan, 2000, 2004; Goudas & Magotsiou, 2009; Hastie & Casey, 2010). Social learning was also about showing care, concern, empathy, respect for each other, and supporting and encouraging one another to learn (Bayraktar, 2011; Casey et al., 2009; Dyson, 2001, 2002; Dyson & Strachan, 2000; Goudas & Magotsiou, 2009; Johnson, Bjorkland, & Krotee, 1984; Yoder, 1993). For example, Goudas and Magotsiou (2009) found that as students increased their cooperative skills and their empathy for their teammates, students' quick-temperdness and tendencies to disrupt decreased. Yet while the development in all of these social skills supported academic achievement, these skills took time to develop. Although there is no definitive timeline for this, with different students adapting at different speeds, Casey et al. (2009) suggested that it took the initial few lessons and the first few weeks of a unit before students were comfortable working in their groups and could begin cooperating with each other.

One of the reasons cited for students' ability to cooperate and show empathy and respect for their teammates was the development of a leadership skill set by the students (Darnis & Lafont, 2013; Dyson, 2001; Dyson & Strachan, 2000). Specifically, enhanced leadership skills were evidenced through students' ability to guide their teams through a process of learning, their ability to take responsibility for their own and other individuals' learning, enhanced communication skills, and in particular, the ability to listen and speak clearly (Casey, 2004; Darnis & Lafont, 2013; Dyson, 2002; Dyson & Strachan, 2000, 2004; O'Leary & Griggs, 2010). O'Leary and Griggs's (2010) account of learners in a higher-education setting provided an example of the developing leadership skill set of students:

... listening to others, accepting the beliefs of the home-group members and potentially developing ideas for the required sequence. Moreover, a number of students felt that the responsibility of listening to their peers developed their cognitive learning in terms of remembering what they had been taught and understanding the material better. (p. 78)

While social learning was most often reported in the interactions between individual students, many additional occurrences were embedded in team interactions. However, given the prevalence of both Dyson and Grineski's (2001) learning teams structure (featured in 11 out of the 27 studies) and Aronson, Blaney, Stephan, Sikes, and Snapp's (1978) Jigsaw Classroom structure (featured in four studies), coupled with the clear emphasis on games lessons (14 out of the 27 studies used games as their context of choice), it was not surprising to discover that team participation made up the majority of the reports about social learning.

Team Participation

Through the use of the Cooperative Learning structure learning teams (and the argument that Cooperative Learning structures support the fulfillment of the elements [Dyson & Grineski, 2001]), it was foreseeable that a large number of the studies were reporting on the impact of some of the five elements on learning. Positive interdependence (often implemented through student roles inherent within learning teams; Dyson, 2001, 2002; Goodyear et al., 2014; Goodyear, Casey, & Kirk, 2013) and individual accountability (often implemented through member signatures, peer feedback, constant monitoring and interactions by the teacher and tick sheets to record performance; Dyson et al., 2010) both supported active participation. Engagement was supported because students were required to take responsibility for team learning and organizing themselves as a team (Dyson, 2001, 2002; Dyson & Strachan, 2000, 2004; Goodyear et al., 2013, 2014; O'Leary & Griggs, 2010) becoming, as Hastie and Casey (2010, p. 18) suggested, "self managers." Significantly, students saw themselves as more than just performers and felt that they had a wider responsibility to the group. Dyson and Strachan (2000) observed that "even during illness students participated in non-active roles, acting as coach for the day, coordinating the implementation and refinement of game strategy" (p. 28).

As students became increasingly familiar with the Cooperative Learning environment, active participation was further developed. Students were on task for the majority of lesson time (Dyson & Strachan, 2004; Dyson et al., 2010; Goudas & Magotsiou, 2009; O'Leary & Griggs, 2010) and became increasingly less dependent on the teacher and more dependent on each other—just as the model predicts should happen. Subsequently, as units progressed, students spent increasingly more time in learning tasks, working together to learn without

waiting for instructions from the teacher (Casey, 2013; Casey & Dyson, 2009; Dyson, 2001, 2002; Dyson & Strachan, 2000, 2004; Dyson et al., 2010). Students motivated and encouraged each other to learn, accepting and supporting the idea that all students had a role to play in each other's learning. Significantly, this involved the inclusion of those with learning difficulties and those who often disengage themselves from lessons, such as disaffected girls (André et al., 2011, 2013; Bayraktar, 2011; Casey, 2013; Casey et al., 2009; Dyson, 2001, 2002; Dyson & Strachan, 2000, 2004; Goodyear & Casey, 2015; Goodyear et al., 2014; O'Leary & Griggs, 2010; Polvi & Telama, 2000).

Affective Learning

While academic and social learning were the most frequently reported learning outcomes, affective learning was rarely considered in the reviewed studies. Drawing on the work of Bailey et al. (2009), Kretchmer (2005), and Pope (2005), it is suggested that affective learning in physical education and sport pedagogy is largely associated with psychological components of self-confidence, self-esteem, motivation, and self-worth. Yet within models-based practice (Metzler, 2011) and in the studies reporting on the learning outcomes of Cooperative Learning in this article, affective learning was used as a broad term to describe both social and psychological aspects of learning. For example, Dyson (2002) argued that affective learning developed, but in positioning this form of learning, he drew mainly on social learning outcomes, such as cooperation and students ability to encourage each other.

A further explanation for the lack of empirical research on the affective domain is that the purpose of most studies was to explore how students improved their performance, developed their cognitive understanding, and enhanced their social learning. Affective learning was rarely noted as a prominent feature of investigation. These limited accounts of the "psychological" aspect of learning, and the perhaps misleading evidence exploring the psychological aspects of learning, seem to highlight Pope's (2005) argument that affective learning is somewhat challenging to define due to its subjective and personal nature.

Nevertheless, while there was limited evidence reporting on the affective domain, many of the studies did suggest that students increased in self-confidence, self-esteem, and motivation (cf., Goodyear et al., 2014). In their work exploring girls' engagement in physical education, Goodyear et al. (2014) made an attempt to separate the social and affective domains by suggesting that social and cognitive learning had an influence on students' motivation and engagement. This study showed that girls who had previously disengaged from traditional forms of physical education became more motivated to learn when they were afforded the opportunity to participate in promotive face-to-face interactions and when they could analyze, evaluate, and provide feedback on their peers' performance. Similarly, those students that were described as often being unenthusiastic learners in traditional lessons became more motivated during Cooperative Learning when they could lead their team through learning tasks and create physical movement tasks to develop their team's game performance. Subsequently, Goodyear et al. (2014) provided an example as to how the social learning domain differs to the affective domain, and they showed how social and affective learning might also be seen on par with one another. However, on a cautionary note, this example, coupled with a number of other statements pertaining to self-confidence, self-esteem, or motivation rely on teachers' and students' subjective interpretation of learning and improvements (Dyson & Strachan, 2000, 2004; Dyson et al., 2010; Goudas & Magotsiou, 2009; Lafont et al., 2007; Polvi & Telama, 2000).

Exceptions to the somewhat subjective interpretations of affective learning came from the work of Cohen and Zach (2013) and Wang (2012). Cohen and Zach used the Physical

Education Teaching Self Efficacy Questionnaire as a measure of determining pre-service teachers' self-efficacy. These authors suggested that self-efficacy was in fact higher when the pre-service teacher used a more traditional approach in their instruction. Similar to Casey's reports on teachers' use of pedagogical models (Casey, 2014), and more specifically a teacher's use of Cooperative Learning (cf., Casey & Dyson, 2009; Casey et al., 2009), Cohen and Zach suggested that pre-service teachers had a lower self-efficacy when using Cooperative Learning for the first time. Indeed, pre-service and in-service teachers often feel out of their comfort zone when learning to teach in a new way (Casey, 2014).

Moving beyond the exploration of the affective domain in relation to pre-service teachers, Wang (2012) used the Achievement Motivation Scale to explore the affective learning of students in higher education as learners within Cooperative Learning units. Wang's study showed that students who experienced Cooperative Learning had greater achievement motivation. Wang suggested that the increase in achievement motivation during Cooperative Learning could be interrelated with learners' higher self-efficacy, successful experiences, group goals, and positive peer relations.

In taking Wang's (2012) increase in achievement motivation a step further, and by drawing on Deci and Ryan (2000), it seems reasonable to suggest that there was an increase in achievement motivation because students were, broadly speaking, intrinsically *and* extrinsically motivated. While this is a conceptual link, it is important to note that Wang's study did not detail the elements or the structure of Cooperative Learning. However, this finding strongly supports both Johnson and Johnson's (2009) and Slavin's (1996) perspectives on Cooperative Learning. Indeed, Johnson and Johnson (2009), whose work is very much based on Deutsch's (1949) social interdependence theory, suggested that increased effort to achieve is associated with interrelated learning goals between group members. These goals provide learners within an internal drive to help their peers to learn and, subsequently, their team to achieve. In contrast, Slavin (1996) argued that Cooperative Learning methods that rely solely on student interaction could not predict higher student motivation. Slavin (1990) claimed that for students to be optimally motivated and engaged within the learning tasks, individuals and team members should be given rewards for their learning. Therefore, Wang's study is the first within physical education to provide an indication that both Johnson and Johnson's (2009) and Slavin's (1996) perspectives need to be considered with regard to the affective domain. The findings from Wang suggest that positively inter-related goals and individual/team rewards can promote students' motivation by satisfying learners' needs, that is, autonomy, competence, and relatedness (cf., Deci & Ryan, 2000).

This section has shown there is limited evidence and empirical examples of affective learning within Cooperative Learning in physical education. However, the emerging findings do suggest that Cooperative Learning can support this learning domain, and the findings warrant further exploration of affective learning in K–12 physical education.

Discussion

This study began with the goal of answering the methodological question "How has the empirical research in the use of Cooperative Learning in physical education reported on the achievement of learning in the physical, cognitive, social, and affective domains (or their equivalents)?" The simple answer is that the empirical research shows evidence that Cooperative Learning can promote the achievement of learning in all four learning domains in physical education. The extant literature reports predominantly, and most robustly, on physical, cognitive, and social learning while offering a succession of anecdotal examples that indicate that the model may also facilitate learning in the affective domain.

At a deeper and more critical level, this review of literature suggests that if Cooperative Learning was receiving an interim school report, it would be told that while it had enjoyed a promising start in physical education, it still had much to prove. Although most of the studies did suggest that learning in each domain was strengthened, there were certainly limitations in the approach of each study. Most particularly, there was the brevity of many interventions (less than 6 weeks in some cases) and the lack of a report on the researchers' attempts to maintain fidelity to the model. As Casey (2014) surmised, we can point to much evidence that it works to promote its intended set of learning outcomes, we do not know (a) to what degree it works over time and (b) what the full potential of the model is when fidelity is maintained.

Kirk (2012, 2013) has positioned pedagogical models as the medium-term (~10 years) and longer-term (~20 years) future of physical education, and yet little is known about the effects of the longitudinal use of this particular model. Casey (2013) and Dyson and Strachan (2000, 2004) respectively, are the only researchers to publish studies that report on sequential learning over time. Through these studies, we begin to understand that student learning in the four domains can be advanced and deepened, but again, this been explored only over a 2-year period. These studies cannot explore the extent of learning over the mid- or even longer-term futures that Kirk has referenced. As Rovegno (2008, p. 92) suggested, "we are only beginning to unpack the complexity of these learning environments"; therefore, it seems imperative that we investigate the longitudinal use of pedagogical models and learn what happens when models are used over extended periods of time.

In light of these discussions, important questions are raised about the true impact of short Cooperative Learning units (i.e., 10 lessons or less) and the potential of the model if longer interventions were to become the norm (as in the instances of Casey [2013] and Dyson & Strachan [2000, 2004] respectively). As these authors reported, the biggest impact on learning occurred when students had sufficient opportunities to learn through Cooperative Learning; it serves the field to know more about the learning outcomes that result from sustained deployment of the model. Furthermore, while the affective domain may have received a lack of attention to date due to the impersonal and subjective nature of this form of learning (Pope, 2005), it could also be argued that learning in this domain takes extended time to develop. This claim has plausibility when it is considered that most studies reviewed here reported that the three other learning domains were developed even in shorter units (lasting 12–14 lessons or less) and when they were not the prominent focus of investigation.

In considering how the affective domain might be explored, methods that did provide an understanding of affective learning were both interviews and standardized measures, such as the Physical Education Teaching Efficacy Questionnaire (Cohen & Zach, 2013). It is subsequently argued that understanding affective learning is both possible and desirable, and further research is called for that explores more learning within this domain over time. Yet in reiterating Bailey et al. (2009), to define and understand the authentic impact of this learning domain, it also seems reasonable to suggest that further research into affective learning in physical education more generally is also required, particularly when valuing the physically active life and motivation are the subject's *raison d'être* (Kirk, 2012).

In further considering future research agendas, research should seek to explore the impact of Cooperative Learning structures (i.e., Jigsaw, learning teams, pairs-check-perform; cf., Dyson & Grineski, 2001) on learning in the four domains. Certainly, one of the advantages of Cooperative Learning is that there are hundreds of structures that allow teachers to vary the way students access academic content and interact with one another to learn (Goodyear, 2013; Kagan & Kagan, 2009). Yet while Cooperative Learning affords

such variability, this review has shown that the structure of learning teams has been the dominant structure applied, and little is known about how other structures impact students' learning (Dyson & Grineski, 2001).

Exploring various Cooperative Learning structures becomes even more significant when we consider that physical education has followed Johnson and Johnson's (2009) conceptual approach (Goodyear, 2013). Indeed, learning teams has great synergy with Johnson and Johnson's (2009) structure for learning together. As a result, the principles of team rewards, the use of multiple structures in lessons, and group accountability (principles respectively suggested by Slavin [1995, 1996], Kagan and Kagan [2009], and Cohen [1994] to maximize achievement) have rarely been explored in physical education. By expanding the way Cooperative Learning is implemented through the use of structures, such as Student Teams Achievement Division, Numbered Heads Together, and Think-Share-Perform (that to some extent embody these relatively unexplored principles in physical education; Kagan & Kagan, 2009; Slavin, 1996), a further understanding around the essential elements or non-negotiable features of Cooperative Learning (cf., Goodyear, 2013) that maximize learning in the four domains might be achieved. Subsequently, it is suggested that there is a need for further research around the Cooperative Learning structures used most often in physical education.

In concluding this review of literature, it is suggested that Cooperative Learning is a pedagogical model that can contribute to achieving the legitimate learning outcomes of physical education (Bailey et al., 2009; Kirk, 2012, 2013). However, a key limitation in our understanding of the model is that we know little about what happens beyond the initial unit of instruction (Casey, 2011; Goodyear & Casey, 2015). Subsequently, to understand Cooperative Learning as a pedagogical model, further research is required on students' learning, teachers' use of the model, Cooperative Learning structures, and how the school contextual factors constrain or facilitate teachers' use of a model "beyond the honeymoon of pedagogical renovation" (Goodyear & Casey, 2015, p. 186).

References

- André, A., Deneuve, P., & Louvet, B. (2011). Cooperative learning in physical education and acceptance of students with learning disabilities. *Journal of Applied Sport Psychology*, 23, 474–485. doi:10.1080/10413200.2011.580826
- André, A., Louvet, B., & Deneuve, P. (2013). Cooperative group, risk-taking and inclusion of pupils with learning disabilities in physical education. *British Educational Research Journal*, 39(4), 677–693.
- Aronson, E., Blaney, N., Stephan, C., Sikes, J., & Snapp, M. (1978). *The jigsaw classroom*. Beverly Hills, CA: Sage.
- Bähr, I., & Wibowo, J. (2012). Teacher action in the cooperative learning model in the physical education classroom. In B. Dyson & A. Casey (Eds.), *Cooperative learning in physical education: A research-based approach* (pp. 27–41). London, England: Routledge.
- Bailey, R., Armour, K., Kirk, D., Jess, M., Pickup, I., & Sandford, R. (2009). The educational benefits claimed for physical education and school sport: An academic review. *Research Papers in Education*, 24(1), 1–27. doi:10.1080/02671520701809817
- Barr, H., Hammick, M., Koppel, I., & Reeves, S. (1999). Evaluating interprofessional education: Two systematic reviews for health and social care. *British Educational Research Journal*, 25, 533–544. doi:10.1080/0141192990250408
- Barrett, T. (2005). Effects of cooperative learning on the performance of sixth-grade physical education students. *Journal of Teaching in Physical Education*, 24(1), 88–102.

- Bayraktar, G. (2011). The effect of cooperative learning on students' approach to general gymnastics course and academic achievements. *Educational Research and Reviews*, 6(1), 62–71.
- Boaz, A., Ashby, D., & Young, K. (2002). *Systematic reviews: What have they got to offer evidence based policy and practice?* London, England: ESRC UK Centre for Evidence Based Policy and Practice, Queen Mary University of London.
- Casey, A. (2004). Piece-by-piece cooperation: Pedagogical change and jigsaw learning. *The British Journal of Teaching Physical Education*, 35(4), 11–12.
- Casey, A. (2011, June). *A review of literature of teachers' use of models-based practice: 1996 to the present*. Paper presented at the Association Internationale des Ecoles Superieures d'Education Physique (International Association for Physical Education in Higher Education) conference, University of Limerick, Ireland.
- Casey, A. (2013). 'Seeing the trees not just the wood': Steps and not just journeys in teacher action research. *Educational Action Research*, 21(2), 147–163. doi:[10.1080/09650792.2013.789704](https://doi.org/10.1080/09650792.2013.789704)
- Casey, A. (2014). Models-based practice: Great white hope or white elephant? *Physical Education and Sport Pedagogy*, 19(1), 18–34. doi:[10.1080/17408989.2012.726977](https://doi.org/10.1080/17408989.2012.726977)
- Casey, A., & Dyson, B. (2009). The implementation of models-based practice in physical education through action research. *European Physical Education Review*, 15(2), 175–199. doi:[10.1177/1356336X09345222](https://doi.org/10.1177/1356336X09345222)
- Casey, A., & Dyson, B. (2012). Cooperative learning in physical education. In B. Dyson & A. Casey (Eds.), *Cooperative learning in physical education: A research-based approach* (pp. 166–175). London, England: Routledge.
- Casey, A., Dyson, B., & Campbell, A. (2009). Action research in physical education: Focusing beyond myself through cooperative learning. *Educational Action Research*, 17, 407–423. doi:[10.1080/09650790903093508](https://doi.org/10.1080/09650790903093508)
- Cohen, E. G. (1994). *Designing groupwork: Strategies for the heterogeneous classroom*. New York, NY: Teacher College Press.
- Cohen, R., & Zach, S. (2013). Building pre-service teaching efficacy: A comparison of instructional models. *Physical Education and Sport Pedagogy*, 18, 376–388.
- Darnis, F., & Lafont, L. (2013). Cooperative learning and dyadic interactions: Two modes of knowledge construction in socio-constructivist settings for team-sport teaching. *Physical Education and Sport Pedagogy*, iFirst Article. doi:[10.1080/17408989.2013.803528](https://doi.org/10.1080/17408989.2013.803528)
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227–268. doi:[10.1207/S15327965PLI1104_01](https://doi.org/10.1207/S15327965PLI1104_01)
- Denzin, N. K., & Lincoln, Y. S. (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Deutsch, M. (1949). A theory of cooperation and competition. *Human Relations*, 2, 129–152. doi:[10.1177/001872674900200204](https://doi.org/10.1177/001872674900200204)
- Dowler, W. (2012). Cooperative learning and interactions in inclusive secondary school physical education classes in Australia. In B. Dyson & A. Casey (Eds.), *Cooperative learning in physical education: A research-based approach* (pp. 150–165). London, England: Routledge.
- Dyson, B. (2001). Cooperative learning in an elementary physical education program. *Journal of Teaching in Physical Education*, 20, 264–281.
- Dyson, B. (2002). The implementation of cooperative learning in an elementary physical education program. *Journal of Teaching in Physical Education*, 22(1), 69–85.
- Dyson, B., & Casey, A. (2012). *Cooperative learning in physical education: A research-based approach*. London, England: Routledge.
- Dyson, B., Griffin, L. L., & Hastie, P. (2004). Sport education, tactical games, and cooperative learning: Theoretical and pedagogical considerations. *Quest*, 56, 226–240. doi:[10.1080/00336297.2004.10491823](https://doi.org/10.1080/00336297.2004.10491823)
- Dyson, B., & Grineski, S. (2001). Using cooperative learning structures in physical education. *The Journal of Physical Education, Recreation and Dance*, 72(2), 28–31. doi:[10.1080/07303084.2001.10605831](https://doi.org/10.1080/07303084.2001.10605831)

- Dyson, B., Linehan, N. R., & Hastie, P. A. (2010). The ecology of cooperative learning in elementary physical education classes. *Journal of Teaching in Physical Education*, 29(2), 113–130.
- Dyson, B., & Rubin, A. (2003). Implementing cooperative learning in elementary physical education. *The Journal of Physical Education, Recreation & Dance*, 74(1), 48–55. doi:[10.1080/07303084.2003.10608363](https://doi.org/10.1080/07303084.2003.10608363)
- Dyson, B., & Strachan, K. (2004). The ecology of cooperative learning in a high school physical education program. *Waikato Journal of Education*, 10, 117–139.
- Dyson, B., & Strachan, K. W. (2000). Cooperative learning in a high school physical education program. *Waikato Journal of Education*, 6, 19–37.
- Ennis, C. D. (1999). Creating a culturally relevant curriculum for disengaged girls. *Sport, Education & Society*, 4, 31–49. doi:[10.1080/1357332990040103](https://doi.org/10.1080/1357332990040103)
- Goodyear, V. A. (2013). *Participatory action research: Challenging the dominant practice architectures of physical education* (Unpublished Doctoral Thesis). Luton, England: University of Bedfordshire.
- Goodyear, V. A., & Casey, A. (2015). Innovation with change: Developing a community of practice to help teachers move beyond the ‘honeymoon’ of pedagogical renovation. *Physical Education and Sport Pedagogy*, 20(2), 186–203. doi:[10.1080/17408989.2013.817012](https://doi.org/10.1080/17408989.2013.817012)
- Goodyear, V. A., Casey, A., & Kirk, D. (2013). Using flip cameras as a pedagogic device to explore girls’ (dis)engagement in physical education. *Active and Healthy Magazine: Australian Council Health, Physical Education and Recreation*, 20(3/4), 5–9.
- Goodyear, V. A., Casey, A., & Kirk, D. (2014). Hiding behind the camera: Social learning within the cooperative learning model to engage girls in physical education. *Sport, Education & Society*, 19, 712–734.
- Gossett, M., & Fischer, O. (2005). Bringing together critical thinking and cooperative learning between two schools. *Strategies: A Journal for Physical and Sport Educators*, 19(2), 27–30. doi:[10.1080/08924562.2005.10591181](https://doi.org/10.1080/08924562.2005.10591181)
- Goudas, M., & Magotsiou, E. (2009). The effects of a cooperative physical education program on students’ social skills. *Journal of Applied Sport Psychology*, 21, 356–364. doi:[10.1080/10413200903026058](https://doi.org/10.1080/10413200903026058)
- Grineski, S. (1996). *Cooperative learning in physical education*. Champaign, IL: Human Kinetics.
- Haerens, L., Kirk, D., Cardon, G., & De Bourdeaudhuij, I. (2011). Toward the development of a pedagogical model for health-based physical education. *Quest*, 63, 321–338. doi:[10.1080/00336297.2011.10483684](https://doi.org/10.1080/00336297.2011.10483684)
- Harvey, S., & Jarrett, K. (2014). A review of the game centered approaches to teaching and coaching literature since 2006. *Physical Education and Sport Pedagogy*, 19, 278–300.
- Hastie, P., & Casey, A. (2010). Using the jigsaw classroom to facilitate student-designed games. *Physical Education Matters*, 5(1), 15–16.
- Hastie, P. A., & Casey, A. (2014). Fidelity in models-based practice research in sport pedagogy: A guide for future investigations. *Journal of Teaching in Physical Education*, 33, 422–431.
- Hastie, P. A., de Ojeda, D. M., & Luquin, A. C. (2011). A review of research on sport education: 2004 to the present. *Physical Education & Sport Pedagogy*, 16(2), 103–132. doi:[10.1080/17408989.2010.535202](https://doi.org/10.1080/17408989.2010.535202)
- Hilke, E. V. (1990). *Cooperative learning*. Bloomington, IN: Phi Delta Kappa Educational Foundation.
- Jewett, A. E., & Bain, L. L. (1985). *The curriculum process in physical education*. Dubuque, IA: Wm. C. Brown.
- Johnson, D., & Johnson, F. (2009). *Joining together: Group theory and group skills*. Upper Saddle River, NJ: Pearson.
- Johnson, D. W., & Johnson, R. T. (1974). Instructional goal structure: Cooperative, competitive, or individualistic. *Review of Educational Research*, 44, 213–240. doi:[10.3102/00346543044002213](https://doi.org/10.3102/00346543044002213)
- Johnson, D. W., & Johnson, R. T. (1991). *Cooperative Learning lesson structures*. Edina, MN: Interaction Book Company.
- Johnson, D. W., Johnson, R. T., & Stanne, M. B. (2000). *Cooperative learning methods: A meta-analysis*. Retrieved from <http://www.tablelearning.com/uploads/File/EXHIBIT-B.pdf>

- Johnson, D. W., Maruyama, G., Johnson, R. T., Nelson, D., & Skon, L. (1981). Effects of cooperative, competitive and individualistic goal structures on achievement: A meta-analysis. *Psychological Bulletin*, 89, 47–62. doi:[10.1037/0033-2909.89.1.47](https://doi.org/10.1037/0033-2909.89.1.47)
- Johnson, R. T., Bjorkland, R., & Krotee, M. L. (1984). The effects of cooperative, competitive and individualistic student interaction patterns on the achievement and attitudes of students learning the golf skill of putting. *Research Quarterly for Exercise and Sport*, 55(2), 129–134. doi:[10.1080/02701367.1984.10608388](https://doi.org/10.1080/02701367.1984.10608388)
- Kagan, S., & Kagan, M. (2009). *Kagan cooperative learning*. San Clemente, CA: Kagan.
- Kirk, D. (2010). *Physical education futures*. London, England: Routledge.
- Kirk, D. (2012). What is the future for physical education in the 21st century? In S. Capel & M. Whitehead (Eds.), *Debates in physical education* (pp. 220–231). London, England: Routledge.
- Kirk, D. (2013). Educational value and models-based practice in physical education. *Educational Philosophy and Theory*, 45, 973–986. doi:[10.1080/00131857.2013.785352](https://doi.org/10.1080/00131857.2013.785352)
- Kitchenham, B. (2004). *Procedures for performing systematic reviews (No. 0400011T.1)*. Keele, England: Software Engineering Group, Department of Computer Science, Keele University.
- Kretchmar, R. S. (2005). Teaching games for understanding and the delights of human activity. In L. L. Griffin & J. I. Butler (Eds.), *Teaching games for understanding: Theory, research, and practice* (pp. 199–212). Champaign, IL: Human Kinetics.
- Kyndt, E., Raes, E., Lismont, B., Timmers, F., Cascallar, E., & Dochy, F. (2013). A meta-analysis of the effects of face-to-face cooperative learning. Do recent studies falsify or verify earlier findings? *Educational Research Review*, 10, 133–149. doi:[10.1016/j.edurev.2013.02.002](https://doi.org/10.1016/j.edurev.2013.02.002)
- Lafont, L. (2012). Cooperative learning and tutoring in sports and physical activities. In B. Dyson & A. Casey (Eds.), *Cooperative learning in physical education: A research-based approach* (pp. 136–149). London, England: Routledge.
- Lafont, L., Proeres, M., & Vallet, C. (2007). Cooperative group learning in a team game: Role of verbal exchanges among peers. *Social Psychology of Education*, 10(1), 93–113. doi:[10.1007/s11218-006-9006-7](https://doi.org/10.1007/s11218-006-9006-7)
- Lee, R. M., & Fielding, N. G. (2009). Tools for quantitative data analysis. In M. Hardy & A. Bryman (Eds.), *The handbook of data analysis* (pp. 529–546). London, England: Sage.
- Lieberman, A., & Pointer-Mace, D. (2008). Teacher learning: The key to educational reform. *Journal of Teacher Education*, 59, 226–234. doi:[10.1177/0022487108317020](https://doi.org/10.1177/0022487108317020)
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. London, England: Sage.
- Metzler, M. (2011). *Instructional models for physical education* (3rd ed.). Scottsdale, AZ: Holcomb Hathway.
- O'Leary, N., & Griggs, G. (2010). Researching the pieces of a puzzle: The use of a jigsaw learning approach in the delivery of undergraduate gymnastics. *Journal of Further and Higher Education*, 34(1), 73–81. doi:[10.1080/03098770903477110](https://doi.org/10.1080/03098770903477110)
- O'Sullivan, M. (2013). New directions, new questions: Relationships between curriculum, pedagogy, and assessment in physical education. *Sport, Education & Society*, 18(1), 1–5. doi:[10.1080/13573322.2012.719868](https://doi.org/10.1080/13573322.2012.719868)
- Polvi, S., & Telama, R. (2000). The use of cooperative learning as a social enhancer in physical education. *Scandinavian Journal of Educational Research*, 44(1), 105–115. doi:[10.1080/713696660](https://doi.org/10.1080/713696660)
- Pope, S. (2005). Once more with feeling: Affect and playing with the TGfU model. *Physical Education and Sport Pedagogy*, 10, 271–286. doi:[10.1080/17408980500340885](https://doi.org/10.1080/17408980500340885)
- Potter, J. (2009). Discourse analysis. In M. Hardy & A. Bryman (Eds.), *The handbook of data analysis* (pp. 607–624). London, England: Sage.
- Rovegno, I. (2008). Learning and instruction in social, cultural environments: Promising research agendas. *Quest*, 60(1), 84–104. doi:[10.1080/00336297.2008.10483570](https://doi.org/10.1080/00336297.2008.10483570)
- Shulruf, B. (2010). Do extra-curricular activities in schools improve educational outcomes? A critical review and meta-analysis of the literature. *International Review of Education*, 56, 591–612. doi:[10.1007/s11159-010-9180-x](https://doi.org/10.1007/s11159-010-9180-x)
- Slavin, R. E. (1983). When does cooperative learning increase student achievement? *Bulletin*, 94, 429–445.

- Slavin, R. E. (1990). *Cooperative learning: Theory, research, and practice*. Boston, MA: Allyn and Bacon.
- Slavin, R. E. (1995). *Cooperative learning* (2nd ed.). Needham Heights, MA: Allyn and Bacon.
- Slavin, R. E. (1996). Research for the future: Research on cooperative learning and achievement: What we know, what we need to know. *Contemporary Educational Psychology*, 21, 43–69. doi:[10.1006/ceps.1996.0004](https://doi.org/10.1006/ceps.1996.0004)
- Smith, A., & Parr, M. (2007). Young people's views on the nature and purposes of physical education: A sociological analysis. *Sport, Education and Society*, 12(1), 37–58. doi:[10.1080/13573320601081526](https://doi.org/10.1080/13573320601081526)
- Stanne, M., Johnson, D. W., & Johnson, R. (1999). Does competition enhance or inhibit motor performance: A meta-analysis. *Psychological Bulletin*, 125(1), 133–154. doi:[10.1037/0033-2909.125.1.133](https://doi.org/10.1037/0033-2909.125.1.133)
- Wang, M. (2012). Effects of cooperative learning on achievement motivation of female university students. *Asian Social Science*, 8(15), 108–114. doi:[10.5539/ass.v8n15p108](https://doi.org/10.5539/ass.v8n15p108)
- Ward, P., & Lee, M. (2005). Peer-assisted learning in physical education: A review of theory and research. *Journal of Teaching in Physical Education*, 24, 205–225.
- Yoder, L. J. (1993). Cooperative learning and dance education. *Journal of Physical Education, Recreation and Dance (JOPERD)*, 64(5), 47–56. doi:[10.1080/07303084.1993.10609977](https://doi.org/10.1080/07303084.1993.10609977)
- Zhu, X., Ennis, C. D., & Chen, A. (2011). Implementation challenges for a constructivist physical education curriculum. *Physical Education and Sport Pedagogy*, 16(1), 83–99. doi:[10.1080/17408981003712802](https://doi.org/10.1080/17408981003712802)