Models-Based Practice: Learning From and Questioning the Existing Canadian Physical Education Literature

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Abstract: The culture of physical education (PE) has been identified as needing transformation because traditional PE practice privileges competitive sports, rigid requirements and uniformity. These practices marginalize and alienate 'lower skilled' participants, and result in a negative influence on students' self-concepts, providing a sense of alienation within physical education. A recent pan-Canadian analysis of PE policies confirmed that curricular philosophies included critical considerations, however, learning outcomes continued to reflect primarily traditional PE models. Models-Based Practice (MBP) focuses on student-centred learning across multiple learning domains (i.e., affective, cognitive, psychomotor), an approach that strongly influences the likelihood that students will engage in active lifestyles. In a literature review on Canadian PE, 60 sources were identified, where 59 focused on singular pedagogical models while only one addressed MBP: "Teaching Games for Understanding" (TGfU) (54), "Cooperative Learning" (2), "Teaching Personal and Social Responsibility" (2), "Sport Education"(1), and MBP (1). This literature review reveals that although a range of pedagogical models could form the basis of MBP as an innovative approach to the teaching and learning of PE, TGfU dominates the Canadian pedagogical model literature. Results suggest that empirical research needs to be undertaken for MBP to achieve its theorized potential in order to achieve meaningful physical education curricular change.

Keywords: Cooperative Learning, Instructional Models, Models-Based Practice, Pedagogical Models, Physical Education, Teaching Games for Understanding, Teaching Personal and Social Responsibility, Sport Education

Introduction

Physical education (PE) needs to be transformed as traditional PE practices have a tendency to privilege competitive sports, and promote rigidity and uniformity. These practices effectively marginalize many girls and 'lower skilled' participants, and in so doing, result in a negative influence on students' self-concepts (Ennis, 1999; Hickey, 2008; Singleton, 2009; Tischler & McCaughtry, 2011). Physical education reformists have advocated Models-Based Practice (MBP) as one path toward meaningful pedagogical and curricular change (Casey, 2014; Kirk, 2010; Metzler, 2011). MBP is a contemporary critical pedagogical approach organized around the implementation of multiple and diverse pedagogical models chosen to support students in achieving specific learning outcomes (affective, cognitive, and psychomotor). For example, Teaching Personal and Social Responsibility uses physical activity as the medium for developing personal and social responsibility while Cooperative Learning supports groups of students in learning with, for, and from one another in successfully negotiating physical challenges or tasks. Using multiple models have been promoted by PE reformists internationally as a promising avenue for large scale PE reform (Casey, 2014; Kirk, 2010, 2013). Because of a growing international consensus on the benefits of MBP, there is some urgency to understand the ways in which these pedagogical models are being used and studied in Canada.

What Are Pedagogical Models and Models-Based Practice in PE?

Since MBP is the implementation of multiple pedagogical models aimed at achieving a variety of PE learning outcomes, it is necessary to briefly describe pedagogical models. Pedagogical models are designed to facilitate student learning in school-based PE. These models have been developed to support the whole child by offering inclusive, learner-centred, relevant physical activity opportunities that promote outcome achievement in multiple domains (Haerens, Kirk, Cardon, & De Bourdeaudhuij, 2011; Metzler, 2011). Metzler (2011) defines a pedagogical model as:

> a comprehensive and coherent plan for teaching that includes descriptions of students' needs and abilities, statements of intended outcomes, teacher's content knowledge expertise, developmentally appropriate and sequenced learning activities, expectations for teacher and student behaviors, unique task structures, measures of learning outcomes, and mechanisms for assessing the faithful implementation of the model itself. (p. 22)

Pedagogical models, the blueprints of MBP, are designed to provide a coherent plan and set of strategies for teaching that take into consideration students' needs and abilities in providing unique and diverse learning activities, intended outcomes, assessment, teacher expertise, and fidelity measurements (Joyce, Weil, & Calhoun, 2004; Metzler, 2011).

One example of these pedagogical models, *Teaching Games for Understanding* (TGfU), is an approach to the teaching and learning of "fundamental concepts of team and individual game tactics and strategies that relies ontologically and epistemologically upon pedagogically developed constructivist notions of teaching and learning for its existence and its knowledge base" (Singleton, 2009, p. 332). The model uses participation in games (including sport) to gain deeper understandings of player decisions, strategies, and tactics (Butler, 2013a). In this way, the game acts as the teacher, while the teacher assumes the role of facilitator by designing contexts and situations that provide challenge, expertly observing, and incorporating focused questioning (Butler, 2013a; Butler, Storey, & Robson, 2014; Hopper, 2007). The constructivist foundations of TGfU assume "motor skill[s] will be more proficient if it follows cognitive learning" (Metzler, 2011, p. 363), and as such prioritizes cognitive, psychomotor, and affective learning domains respectively.

What Does Models-Based Practice in PE Look Like?

Models-Based Practice (MBP) prioritizes participants and "serve[s] as a fulcrum for the interdependence and irreducibility of learning, teaching, subject matter and context" (Casey, 2012, p. 13). As a program based in the use of multiple pedagogical models, MBP approaches curricular outcomes with the learner's needs at the centre of all pedagogical decisions. Other contextual considerations such as prescribed curriculum outcomes and PE content (e.g., educational gymnastics, rhythmic activities, fundamental motor skills) would also inform the decision of which pedagogical models to implement.

After considering students' needs (e.g., experiences in cooperation and collaboration), team building challenges could be approached through a *Cooperative Learning* approach. Students could be supported in developing community through a *Teaching Personal and Social Responsibility* approach to dance education, which uses physical activity as the medium to support the development of affective learning outcomes such as responsibility for self and caring for others. *Peer Teaching* provides students with the opportunity to work in partners and take on the role of both teacher and student, an approach that could be used to support deeper and more creative understandings in educational gymnastics. *TGfU* provides a constructivist and critical approach to games and sport learning as well as giving learners the opportunity to invent games.

Where Do We Go From Here?

The conviction that MBP represents a better form of PE practice is represented in literature and research conducted primarily in the United States, United Kingdom, Australia, and New Zealand (e.g., Callcott, Miller, & Wilson-Gahan, 2015; Casey, 2014; Gurvitch, Lund, & Metzler, 2008; Kirk 2010, 2013). However, if MBP is ever to live up to its theorized potential as a means by which to achieve meaningful physical education curricular change, MBP as the implementation of multiple pedagogical models requires deeper investigation. While there is substantial evidence on the benefits of employing singular models (e.g., Teaching Personal and Social Responsibility, Cooperative Learning, Teaching Games for Understanding), less is known about the ways teachers and teacher educators implement multiple pedagogical models to achieve a variety of PE learning outcomes. MBP implementation, adoption, and research has the potential to contribute to the field of PE by adding theoretical influence on curriculum development and pedagogical practice. With this rationale in mind, this review synthesizes the Canadian literature on pedagogical models and what is known about MBP with the intent of identifying current knowledge and future possibilities about the ways that research on pedagogical models influences Canadian PE.

Identification of Studies

The literature review was guided by questions, such as: "Why is MBP advocated by critical curriculum pedagogues internationally?" and "What do Canadian studies contribute to both local and global knowledge

and understanding of MBP?" Canadian literature pertaining to (a) singular pedagogical models and (b) the use of multiple models was systematically searched and reviewed using a four-phase approach as described below, similar to that employed by Harvey and Jarrett (2013) in their review of games-sense studies.

Criteria for inclusion in this 2016 literature review included: (a) being considered Canadian (i.e., empirical research conducted in Canada, other types of peer-reviewed literature containing Canadian content or at least one author based in Canada at time of publication), (b) published in English language peer-reviewed journals or books, and (c) containing content specific to individual pedagogical models or the use of multiple models/MBP in PE. The first phase included performing EBSCO database and Google Scholar searches using combinations of search terms such as "Canada," Canadian," "model(s) based practice," "model(s) based instruction," "instructional model(s)," "pedagogical model(s)," and "physical education." Metzler's (2011) contemporary and highly referenced compilation of models provided eight more search terms: "Direct Instruction," "Personalized System for Instruction," "Cooperative Learning," "Sport Education," "Peer Teaching," "Inquiry Teaching," "Tactical Games," "Teaching Personal and Social Responsibility." As this search was performed, terms were added to the list such as "Teaching Games for Understanding," and "game sense," as they were identified as common alternatives to the term "tactical games." Sixty-eight combinations of search terms were used in this initial search and yielded 54 sources (i.e., articles and book chapters). Using the documents found during the first phase, the second phase consisted of manual searches of the reference sections resulting in the identification of six prominent Canadian researchers of pedagogical models. Google Scholar and Summon searches for these recurring scholars/authors performed during phase three added an additional 23 results. The fourth phase involved scanning all documents to ensure they met the inclusion criteria as outlined above. This led to the identification of 60 publications that were used in the final review.

Results

Of the 60 sources identified at the time of this literature review, only one focused on MBP in Canada (Fletcher & Casey, 2014). Results revealed a reliance on and the prioritization of one particular model, *Teaching Games for Understanding (TGfU)*. Of the 60 sources identified, 54 represented TGfU and related approaches (e.g., games education, inventing games, and tactical awareness). Three other pedagogical models were addressed in the Canadian PE literature: *Teaching Personal and Social Responsibility* (2), *Cooperative Learning* (2), and *Sport Education* (1). Table 1 serves as a summary of the literature reviewed, including the pedagogical model, the authors, and the type of article in order to provide ease of access to the articles and information therein, and to support understanding of the results and discussion.

Table 1. Summary of Canadian literature pertaining to physical education pedagogical models.

Pedagogical Model	Theoretical	Practical	Empirical	Review
Teaching Games for Understanding (TGfU)	Butler (2006) Butler (2005) Butler & McCahan (2005) Butler, Oslin, & Mitchell (2008) Butler & Ovens (2015) Butler & Robson (2013) Butler & Robson (2012) Butler, Storey, & Robson (2014) Holt, Tamminen, Jones (2007) Hopper (2011)	Bell & Hopper (2003) Bell & Hopper (2000) Butler (2016)* Butler (2013b) Butler & Hopper (2016) Butler, Sullivan, McGinley, Vranjes (2007) Gibson (2016) Hopper (2016) Hopper (2007) Hopper (2003) Hopper & Bell (2001) Hubball, Lambert, & Hayes (2007) Mandigo (2016)	Butler (2014) Butler (2013a) Lodewyk (2015) Mandigo, Holt, Anderson, & Sheppard (2008) Randall (2003) Richardson, Sheehy, & Hopper (2013) Robinson (2011) Robinson & Foran (2011) Slater & Butler (2015) Storey & Butler (2013)	Holt, Strean, Bengoechea (2002)

Model			
	Hopper (2002) Hopper (1998) Hopper (1994) Hopper & Kruisselbrink (2002) Hopper & Sanford (2010) Lloyd & Smith (2010) Mandigo, Butler, & Hopper (2007) Mandigo & Corlett (2010) Mandigo & Holt (2004) Memmert, Almond, Bunker, Butler, Fasold, Griffin,…Nopp (2015) Randall (2008) Richard & Wallian (2005) Singleton (2009) Storey & Butler (2010) Wilson (2002)	Mandigo & Anderson (2003) Richard (2010) Robinson & Melnychuk (2009) Sandher (2016) Sheppard (2007)	
Sport Education (SE)		Pressé, Block, Horton, & Harvey (2011)	
Teaching Personal and Social Responsibility (TPSR)			Beaudoin (2015) Beaudoin (2012)
Cooperative Learning (CL)	Bradford, Hickson, & Evanview (2014)		Dyson (2001)
Models-Based Practice (MBP)			Fletcher & Casey (2014)

*This book has 5 theory chapters followed by 9 practical chapters. Therefore, for the purpose of the table it was categorized as practical. This is not to be dismissive of the theory and in fact, it is necessary to note that the theory is fundamental in gaining a deep understanding of the practice.

Teaching Games for Understanding: Canada's Contribution

TGfU dominated the PE pedagogical model literature reviewed. First conceived by Bunker and Thorpe (1982) in the United Kingdom, TGfU is a pedagogical approach that focuses on learners' tactical understandings of games and game play to increase successful participation, support learning in multiple domains (i.e., affective, cognitive, psychomotor) and promote students' overall enjoyment. Canadian

researchers and practitioners have played an influential role in promoting TGfU and advancing knowledge and understanding of the model in Canada and internationally (Mandigo, Butler, & Hopper, 2007). TGfU, a constructivist approach to the teaching and learning of PE content, aligns pedagogically with trends in the Canadian school system because it moves away from ineffective approaches to teaching and learning by providing opportunities to develop skills such as critical thinking, problem-solving, decision-making, leadership, and interpersonal skills (Butler, 2006; Butler, Oslin, Mitchell, & Griffin, 2008; Hubball, Lambert, & Hayes, 2007; Singleton, 2009).

Despite curricula across Canada stressing the need for children and youth to "develop the necessary, attitudes, skills, and knowledge that lead to an active and healthy lifestyle" (Mandigo, Corlett, & Lanthrop, 2012, p. 20), PE learning outcomes across the country largely reflect a traditional approach focused on competitive sport and movement techniques and skills; games; and various definitions of fitness (Kilborn, Lorusso, & Francis, 2016; Thomson & Robertson, 2014). TGfU provides a bridge between traditional approaches and more complex understandings of physical education as a component of overall health. Canadian TGfU literature supports the potential of this model to contribute to the development of active and healthy lifestyles (Mandigo & Anderson, 2003; Richard, 2010). TGfU also supports the increasing emphasis on physical literacy within Canadian PE and sport by providing opportunities to experience a sense of joy of movement (Lloyd & Smith, 2010), the joy of a well-played game (Hopper, 1994; 1998; 2007), a positive sense of competence (Mandigo & Anderson, 2003), and transference of skills and tactics across games and activities (Sheppard, 2007).

In advancing TGfU as a model worthy of implementation in Canadian schools, it has been argued that it is not that sports and games should be eliminated or even de-emphasized in PE programs but rather it is *how* sport, games, and activities are presented and delivered to students that must change if long term healthy living is the goal (Bell & Hopper, 2003; Holt, Strean, Bengoechea, 2002; Hopper, 2002; Mandigo & Holt, 2004; Storey & Butler, 2010). TGfU invites students to apply their past knowledge and understandings to develop personally meaningful understandings and ways of knowing (Butler & McCahan, 2005; Bell & Hopper, 2000; Hopper & Kruisselbrink, 2002; Mandigo & Corlett, 2010; Richard & Wallian, 2005; Singleton, 2009).

Researchers have also sought to both clarify misunderstandings and advance the TGfU model. Recruiting TGfU's founders, Len Almond, David Bunker, and Rod Thorpe as participants, research was conducted to address their concerns that the TGfU being presented at conferences, particularly practical sessions, was not always the TGfU approach they had originally intended (Butler, 2014). In their theorizing, the original intent of TGfU was to provide researchers and teachers the tools necessary to support students in benefitting from accessibility to all games, engagement for all learners at all stages of learning, and providing motivation for learners to be involved in their own learning (Butler, 2014). In furthering the model, and as a means by which to provide opportunities to experience high levels of success and enjoyment, Hopper (2011) proposed *modification by adaptation*, where games are adapted based on participant need (i.e., skill level, understanding of the game); a critical extension to exaggeration and representation modifications already present within the model (Richardson, Sheehy, & Hopper, 2013). Complexity thinking—an emergent construct within PE literature—was explored in relation to TGfU and the formalized process of inventing games as a means by which to support both teachers and students in developing critical games literacy (Butler, 2016; Butler & Robson, 2013; Butler & Robson, 2012; Butler, Storey, and Robson, 2014; Richardson, Sheehy, & Hopper, 2013; Storey & Butler, 2013). Inventing games, an element of TGfU that moves beyond constructivist understandings and into complexity thinking and theory, has been the focus of recent TGfU developments (see Butler, 2016; Gibson, 2016; Hopper, 2016; Mandigo, 2016; and Sandher, 2016). TGfU researchers in Canada have contributed to the field internationally by exploring and sharing ways in which TGfU contributes to a renewal in PE approaches to games and sport, ultimately benefiting students.

Research on additional pedagogical models in Canada

In addition to the strong presence of TGfU, three pedagogical models featured in the literature: *Cooperative Learning* (1 empirical, 1 theoretical), *Sport Education* (1 practical), and *Teaching Personal and Social Responsibility* (2 empirical) (see Table 1). Metzler (2011) provides detailed overviews of these models in a

PE context including the foundations of the models, teaching and learning features, and implementation needs and modifications. *Cooperative Learning* (see Metzler, 2011; Slavin, 2011) one of the most recognized educational models worldwide, is characterized by groups of students learning with, by and for each other rather than beside one another (Metzler, 2011). *Cooperative Learning* (CL) in a PE setting has distinct roles for teachers and students. CL prioritizes affective and cognitive learning domains, and psychomotor skills are put forth as a secondary priority. Teachers usually assign a task or challenge and act as facilitators. Students 1) work in the same group for extended periods of time (e.g., over weeks or months); 2) decide how they will organize themselves such as taking on roles (e.g., leader, errand monitor); 3) mediate problems within the group, and 4) decide on how to implement their plan to complete the task or challenge (Metzler, 2011). *Sport Education* (see Metzler, 2011; Siedentop, 1998; Siedentop, Hastie & Van der Mars, 2011), shares similarities with CL as students are arranged in teams for an extended period of time, in the case of SE, for an entire "sport season" (e.g., weeks, months). The teacher also acts as a facilitator with students taking on all roles required to complete a sport season (e.g., coach, time keeper, player, referee). Although sport is the medium through which the learning takes place, SE strives to balance affective, cognitive, and psychomotor learning outcomes. Learning the conduct of sport—etiquette, appreciation, fairness, strategy, structure—is linked with learning the movement patterns necessary to gain confidence in sport participation from the perspective of multiple roles. The main idea behind *Teaching Personal and Social Responsibility* (TPSR) (see Hellison, 2011; Metzler, 2011) is that PE and physical activity contexts are ripe with opportunities to learn and practice how to be responsible for self and others and to extend those learning to other contexts such as school, home, and the community. Pre-activity relational time with the teacher and classmates is followed by an awareness talk highlighting personal and social responsibility. Physical activity time is an opportunity to put awareness talk into practice while group and individual reflection work to transfer personal and social responsibility to future lessons and other contexts: in the classroom, lunch room, playground, home, and community.

Although extremely limited in number and scope (3 of the 60 sources reviewed), the Canadian literature on CL and SE demonstrates the potential of these models to positively influence physical activity knowledge, attitudes, and behaviours. For example, when CL was implemented in a Montreal school's elementary PE setting, student improvement in psychomotor and social skills were reported by both students and their teacher (Dyson, 2001). SE has also been put forth as a model in which students "with and without disabilities may be introduced to inclusive sports such as goalball, beep baseball, sit volleyball, wheelchair basketball, boccia, ramp bowling, and wheelchair rugby" (Pressé, Block, Horton, & Harvey, 2011, p. 33). Canadian empirical research also reported success with supporting Québec teachers' empowerment in learning to implement TPSR through a self-supervision framework (Beaudoin, 2012). However, it should be noted that implementing pedagogical models (such as TPSR) is complex and, as such, planned and continuous professional development is essential in supporting teacher confidence and to benefit students (Beaudoin, 2015).

It is remarkable that SE and TPSR are not more prominent within Canadian scholarship as SE is one of the most researched and best understood models in PE research worldwide (Kirk, 2013) and TPSR appears in several Canadian PE curricula (e.g., Newfoundland and Labrador (NL), Prince Edward Island (PEI), Nova Scotia (NS), and Saskatchewan (SK)). For example, NL PE curricula and framework documents state that TPSR is a model that should be implemented in the design of personally meaningful PE programs (Newfoundland and Labrador Department of Education, 2011) while Saskatchewan adopts TPSR concepts within learning outcomes supporting students in examining and assessing their personal and social responsibility (Saskatchewan Ministry of Education, 2010). Given that pedagogical models appear in existing curricular documents across Canada, PE researchers should be doing more to investigate their implementation in order to inform future practice.

Models-Based Practice in Canada: The Path Less Travelled

The only MBP article acknowledged the need for further investigation into the complexities and challenges faced in implementing a models-based approach within teacher education. Fletcher and Casey (2014) used collaborative Self-Study of Teacher Education Practice to understand the problematic and complex nature of adopting innovative practice. Each researcher gained valuable insights into their respective practice, which supported the implementation of a models-based approach. However, it was recommended that if

innovative approaches such as MBP are to gain a foothold in teacher education programs and school PE teachers' practice, future research will need to share the complexities, problems, and strategies used to overcome them (Fletcher & Casey, 2014).

Discussion

Canadian PE curriculum, mired in traditional approaches, limits the extent to which its holistic health rationales and active healthy living learning outcomes can be realized (Kilborn et al., 2016; Thomson & Robertson, 2014). As an alternative to ineffective traditional approaches and as a means by which to support dispositions for a lifetime of health, models-based approaches, advocated by PE reformists as one of the most promising avenues for large scale PE reform internationally, should be examined in much greater depth. The synthesis of results and findings from the existing literature indicates that there is still much to be learned and remains unknown with respect to MBP in Canadian PE contexts.

Understanding the potential and challenges of MBP in Canadian contexts is impossible without more extensive implementation and research of singular and multiple pedagogical models. A promising place to begin exploring MBP would be in those provinces which already support and advocate the use of pedagogical models in their curricular documents. However, the extremely limited Canadian-based TPSR literature identified in this review signals that either TPSR is not being implemented and/or not being studied within Canadian contexts. As such, insights about the opportunities and challenges of MBP are not being shared with others in the educational community. Investigating what appears to be a theory-practice gap would inform teacher practice and curriculum design.

Furthering pedagogical models: Learning from Canadian successes

In seeking ways to advance multiple and diverse pedagogical model implementation there are lessons to be learned from what has been accomplished with TGfU in Canada. The overwhelming prevalence of TGfU sources identified in this review Canadian physical education literature suggests that games and sport (the contexts of TGfU) are woven into the very fabric of our society and therefore have been a major component of most PE programs across Canada (Mandigo & Corlett, 2010; Storey & Butler, 2010; Thomson & Robertson, 2014). TGfU has had local champions such as Joy Butler and Tim Hopper who have been instrumental in forwarding TGfU within Canadian research and curricular contexts. The alignment of TGfU with educational discourse such as learner-centred constructivist approaches, inclusion, multiple learning domains, and activity for lifetime outcomes provides more rationale as to its incorporation across research and teaching contexts. Although provinces vary in their emphasis on competitive games and sports, both continue as mainstays of curriculum offerings (Kilborn et al., 2016; Thomson & Robertson, 2014). Time and energy would therefore be best devoted to using games and sport as a positive physical activity vehicle in a way that best serves students' needs. The work of Canadian champions of TGfU who have concerned themselves with changing the *ways* in which games and sports are delivered is therefore of utmost importance in best serving students' needs. These champions have endorsed TGfU as a way to move away from traditional approaches to games driven by teacher-centred knowledge transmission toward a learner-centred, constructivist approach to games learning. It has been suggested that "when TGfU is implemented using pedagogical approaches in the learner-centred manner, it offers particular promise at successfully meeting the standards and expectations of PE curriculum across Canada" (Mandigo, et al., 2007, p. 19). It is foreseeable that other models such as *Sport Education*, a pedagogical model that is arguably the best developed and most often researched worldwide (Kirk, 2013,) could enjoy the same adoption within Canadian contexts if it too had local champions to connect its sporting and educational value.

Canadian scholars have identified TGfU as an educational innovation that can help bring PE in line with other subject areas and educational goals (Butler et. al., 2008; Singleton, 2009), including critical thinking, problem solving, and decision making (Butler, Sullivan, McGinley, & Vranjes, 2007; Butler et al., 2008, Singleton, 2009). Furthermore, the notion that games literacy fosters behavioural, social, and cognitive development among students through games instruction (Mandigo & Holt, 2004) highlights TGfU as a model which is able to devote significant attention to all three learning domains, an inherent characteristic of all pedagogical models (Kirk, 2013; Metzler, 2011). *Sport Education* (SE) attends to all three learning domains as it involves participants assuming a variety of roles (e.g., scorekeeper, coach,

tournament administrator, player) requiring the development of cognitive, social, and physical skills. SE approaches to curriculum delivery have demonstrated a "clear and tremendous potential" for SE as a student-centred pedagogical model that can "benefit any inclusive PE class" as part of a holistic, learner-centred environment (Pressé, et al., 2011, p. 38). *Cooperative Learning* (CL) also incorporates multiple learning domains (i.e., affective, cognitive, psychomotor) as it requires social skills in order to successfully meet group/team physical and cognitive challenges. Based on CL's successes in areas other than PE, such as enhanced academic knowledge, skill performance, and attitudes toward the learning environment, it continues to be espoused that CL holds promise in PE settings as well (Bradford, Hickson, & Evanview, 2014). One study revealed CL to be a "powerful instructional format" in PE, its implementation resulting in improvement in both motor skill and the development of social goals (Dyson, 2001, p. 279). Likewise, *Teaching Personal and Social Responsibility* (TPSR) not only attends to physical and cognitive learning domains through physical activity, but attends to the affective learning domain as it continues to evolve as a means by which support children in taking responsibility for their own and others' well-being. When implemented independently, pedagogical models meet diverse curricular goals and are situated to meet the needs of the whole child by attending to multiple learning domains. Given that learners' needs should be at the forefront of educational decision making, the potential for the implementation of multiple models to meet an even broader range of educationally beneficial outcomes than when implemented individually requires further and deeper investigation.

Conclusion

By engaging with questions "Why is MBP advocated by critical curriculum pedagogues internationally?" and "What do Canadian studies contribute to both local and global knowledge and understanding of MBP," this review explored Canadian MBP and pedagogical models literature. In the review, I identified Canadian trends in PE MBP and pedagogical models literature, and ascertained how current Canadian literature on PE and pedagogical models informs what must be undertaken in an effort to promote the adoption of MBP as an alternative to ineffective traditional models of PE. It is clear from this literature review that Models-Based Practice is an integral part of the radical reform that will move PE into the future (Kirk, 2010). Within a diverse Canadian PE context, more in-depth and wide-spread understanding of MBP is needed. Results from the literature review indicate that TGfU was found to be the prominent model within Canadian PE research contexts while other models are rarely researched. As teachers and teacher-educators, it is our responsibility to engage in the reconstruction of PE culture by exploring alternatives to historically ineffective traditional methods. MBP better targets a diverse set of learning outcomes for students. Canadian physical education researchers and practitioners have an opportunity to be champions in moving past singular pedagogical model implementation and toward praxis based in multiple models as a contemporary critical pedagogical approach that supports students in achieving multiple learning outcomes (affective, cognitive, psychomotor). Instead of pitting pedagogical models against each other (Robinson & Foran, 2011), a concerted, coordinated, cooperative, collegial, interdisciplinary effort on the part of teacher educators, practitioners, ministries and departments of education, school boards/districts, administrators, parents, students, and researchers will be required to bring about informed curricular change. As well as including a variety of voices, research needs to span all levels of PE (pre-kindergarten to post-secondary), include the longitudinal impact of adopting MBP on both teachers and students, and contribute solutions to barriers of implementation. However, curriculum renewal in PE through MBP is yet to become a reality. If PE is to continue to exist as part of the school curriculum in Canadian provinces and territories, now is the time to engage in reform.

Acknowledgement

REFERENCES

Beaudoin, S. (2012). Using responsibility-based strategies to empower in-service physical education and health teachers to learn and implement TPSR. *Agora para la educación física y el deporte*, *14*(2), 161-177.

Beaudoin, S., Brunelle, J. P., & Spallanzani, C. (2015). The Journey of two Physical Education and Health Teachers in Learning to Teach Personal and Social Responsibility. *Revue phénEPS/PHEnex Journal*, *7*(2).

Bell, R., & Hopper, T. (2000). A tactical framework for teaching games: Teaching strategic understanding and tactical awareness. *Canadian Association of Health, Physical Education, Recreation, and Dance, 66*(4), 14-19.

Bell, R., & Hopper, T. (2003). Space the first frontier: Tactical awareness in teaching games for understanding. *Physical & Health Education Journal, 69*(2), 4-10.

Bradford, B. D., Hickson, C. N., & Evaniew, A. K. (2014). The cooperative learning equation: An effective approach in elementary school physical education. *Physical & Health Education Journal*, *80*(3), 6.

Bunker, D., & Thorpe, R. (1982). A model for the teaching of games in secondary schools. *Bulletin of Physical Education*, *18*(1), 5-8.

Butler, J. I. (2005). TGfU pet-agogy: Old dogs, new tricks and puppy school. *Physical Education and Sport Pedagogy*, *10*(3), 225-240.

Butler J. I. (2006). Curriculum constructions of ability: Enhancing learning through Teaching Games for Understanding (TGfU) as a curriculum model. *Sport, Education and Society*, *11*(3), 243-258.

Butler, J. (2013a). Situating ethics in games education. *Canadian Journal of Education*, *36*(4), 93-114.

Butler, J. (2013b). Stages for children inventing games. *Journal of Physical Education, Recreation & Dance*, *84*(4), 48-53.

Butler, J. (2014). TGfU–Would you know it if you saw it? Benchmarks from the tacit knowledge of the founders. *European Physical Education Review*, *20*(4), 465-488.

Butler, J. (2016). *Playing Fair*. Champaign, IL: Human Kinetics.

Butler, J. & Hopper, T. (2016). Inventing net and wall games. In J. Butler, *Playing Fair* (pp. 157-178). Champaign, IL: Human Kinetics.

Butler, J. I., & McCahan, B. J. (2005). Teaching games for understanding as a curriculum model. In L.L. Griffin and J.L. Butler (Eds.), *Teaching Games for Understanding: Theory, research, and practice. Human Kinetics* (pp. 33-53). Champaign, IL.

Butler, J., Oslin, J., Mitchell, S., & Griffin, L. (2008). The way forward for TGfU: Filling the chasm between theory and practice. *Physical & Health Education Journal, 74*(1), 6-12.

Butler, J., & Ovens, A. (2015). TGfU and its governance: from conception to special interest group. *Agora para la educación física y el deporte*, *17*(1), 77-92.

Butler, J., & Robson, C. (2013). Enabling constraints: Co-creating situated learning in inventing games. In A. Ovens, T. Hopper, & J. Butler (Eds.), *Complexity Thinking in Physical Education: Reframing Curriculum, Pedagogy, and -Research*, (pp. 107-120). New York: Routledge.

Butler, J., & Robson, C. (2012). If curriculum is a race (curerre) can TGfU put us back in? In E. Singleton and A. Varpalotai (Eds.), *Pedagogy in Motion: A Community of Inquiry for Studies in Human Movement* (pp. 147-168). Ontario, Canada. Althouse Press.

Butler, J. I., Storey, B., & Robson, C. (2014). Emergent learning focused teachers and their ecological complexity worldview. *Sport, Education and Society*, *19*(4), 451-471.

Butler, J., Sullivan, S., McGinley, S., & Vranjes, M. (2007). Danish longball: A novel game to introduce the batting/fielding games category. *Physical & Health Education Journal, 73*(3), 29-33.

Casey, A. (2014). Models-based practice: Great white hope or white elephant? *Physical Education and Sport Pedagogy, 19*(1), 18-34.

Callcott, D., Miller, J., & Wilson-Gahan, S. (2015). *Health and physical education: preparing educators for the future*. Cambridge University Press.

Dyson, B. B. (2001). Cooperative learning in an elementary physical education program. *Journal of Teaching in Physical Education, 20*(3), 264-281.

Dyson, B., Griffin, L. L., & Hastie, P. (2004). Sport education, tactical games, and cooperative learning: Theoretical and pedagogical considerations. *Quest*, *56*(2), 226-240.

Ennis, C. D. (1999). Creating a culturally relevant curriculum for disengaged girls. *Sport, Education, and Society, 4*(1)*,* 31-49.

Fletcher, T., & Casey, A. (2014). The Challenges of Models-Based Practice in Physical Education Teacher Education: A Collaborative Self-Study. *Journal of Teaching in Physical Education*, *33*(3), 403-421.

Gibson, B. (2016). Invasion game: Touch football. In J. Butler, *Playing Fair* (pp. 245-264). Champaign, IL: Human Kinetics.

Gurvitch, R., Lund, J. L., & Metzler, M. W. (2008). Chapter 1: Researching the Adoption Model-Based Instruction—Context and Chapter Summaries. *Journal of Teaching in Physical Education, 27*, 449-456.

Haerens, L., Kirk, D., Cardon, G., & De Bourdeaudhuij, I. (2011). Toward the development of a pedagogical model for health-based physical education. *Quest*, *63*(3), 321-338.

Harvey, S., & Jarrett, K. (2014). A review of the game-centred approaches to teaching and coaching literature since 2006. *Physical Education and Sport Pedagogy*, 19(3), 278-300.

Hellison, D. (2011). *Teaching personal and social responsibility through physical activity (4th ed.).* Champaign, IL: Human Kinetics.

Hickey, C. (2008). Physical education, sport and hyper-masculinity in schools. *Sport, Education and Society, 13*(2), 147-161.

Holt, N. L., Strean, W. B., & Bengoechea, E. G. (2002). Expanding the Teaching Games for Understanding model: New avenues for future research and practice. *Journal of Teaching in Physical Education*, *21*(2), 162-76.

Holt, N. L., Tamminen, K. A., & Jones, M. I. (2007). Promoting positive youth development through teaching games in physical education. *Physical & Health Education Journal, 73*(3), 8-13.

Hopper, T. (1994). Can we play the game? *Runner, 32*(2), 21-22.

Hopper, T. F. (1998). Teaching games for understanding using progressive principles of play. *Canadian Association of Health, Physical Education, Recreation, and Dance, 64*(3), 4-7.

Hopper, T. (2002). Teaching games for understanding: The importance of student emphasis over content emphasis. *Journal of Physical Education, Recreation & Dance, 73*(7), 44-48.

Hopper, T. (2003). Four r's for tactical awareness: Applying game performance assessment in net/wall games. *Journal of Teaching Elementary Physical Education*, *4*(2), 16-21.

Hopper, T. (2007). Teaching tennis with assessment "for" and "as" learning: A TGfU net/wall example. *Journal of Physical and Health Education*, *73*(3), 22-28.

Hopper, T. (2011). Game-as-teacher: Modification by adaptation in learning through game-play. *Asia-Pacific Journal of Health, Sport and Physical Education*, *2*(2), 3-21.

Hopper, T. (2016). Net and wall games. In J. Butler, *Playing Fair* (pp. 179-198). Champaign, IL: Human Kinetics.

Hopper, T., & Bell, R. (2001). Games classification system: Teaching strategic understanding and tactical awareness. *The California Association for Health, Physical Education, Recreation and Dance*, *66*(4), 14-19.

Hopper, T., & Kruisselbrink, D. (2002). Teaching Games for Understanding: What does it look like and how does it influence student skill learning and game performance? *AVANTE,* 1-29.

Hopper, T. F., & Sanford, K. (2010). Occasioning moments in the game-as-teacher concept: Complexity thinking applied to TGfU and video gaming. In L. Griffin and J. Butler (Eds.), *More Teaching Games for Understanding: Moving globally* (pp. 121-138). Champaign, IL: Human Kinetics.

Hubball, H., Lambert, J., & Hayes, S. (2007). *Theory to practice: Using the games for understanding approach in the teaching of invasion games. The Physical and Health Education Journal, 73*(2), 14-20.

Joyce, B., Weil, M., & Calhoun, E. (2004). *Models of teaching (7th ed.).* Boston, MA: Allyn & Bacon.

Kilborn, M., Lorusso, J., & Francis, N. (2016). An analysis of Canadian physical education curricula. *European Physical Education Review, 22*(1), 23-46.

Kirk, D. (2010). *Physical education futures.* London, England: Routledge.

Kirk, D. (2013). Educational value and models-based practice in physical education. *Educational Philosophy and Theory, 45*(9), 973-986.

Lloyd, R. J., & Smith, S. (2010). Feeling flow motion in games and sports. In L. Griffin and J. Butler (Eds.), *More Teaching Games for Understanding: Moving globally* (pp. 69-87). Champaign, IL: Human Kinetics.

Lodewyk, K. R. (2015). Relations Between Epistemic Beliefs and Instructional Approaches to Teaching Games in Prospective Physical Educators. *Physical Educator*, *72*(4), 677.

Lund, J., & Tannehill, D. (2005). Standards-based physical education curriculum development. Sudbury, MA: Jones and Bartlett.

Mandigo, J. (2016). Innovative approaches to opposed target games. In J. Butler, *Playing Fair* (pp. 87-107). Champaign, IL: Human Kinetics.

Mandigo, J. L. & Anderson, A. T. (2003). Using the pedagogical principles in net/wall games to enhance teaching effectiveness. *Teaching Elementary Physical Education, 14*(1), 8-11.

Mandigo, J., Butler, J., & Hopper, T. (2007). What is teaching games for understanding? A Canadian perspective. *Physical and Health Education Journal*, *73*(2), 14-20.

Mandigo, J., & Corlett, J. (2010). Teaching games for an understanding of what? TGfU's role in the development of physical literacy. In L. Griffin and J. Butler (Eds.), *More Teaching Games for Understanding: Moving* globally (pp. 69-87). Champaign, IL: Human Kinetics.

Mandigo, J., Corlett, J., & Lathrop, A. H. (2012). Physical Education in the Twenty-First Century: To Infinity and Beyond?. In E. Singleton and A. Varpalotai (Eds.), *Pedagogy in Motion: A Community of Inquiry for Human Movement Studies*. *The Althouse Press* (pp. 15-44). London: Ontario.

Mandigo, J. L., & Holt, N. L. (2004). Reading the game: Introducing the notion of games literacy. *Physical & Health Education Journal, 70*(3), 4-10.

Mandigo, J., Holt, N., Anderson, A., & Sheppard, J. (2008). Children's motivational experiences following autonomy-supportive games lessons. *European Physical Education Review*, *14*(3), 407-425.

Memmert, D., Almond, L., Bunker, D., Butler, J., Fasold, F., Griffin, L., ... & Nopp, S. (2015). Top 10 Research Questions Related to Teaching Games for Understanding. *Research quarterly for exercise and sport*, *86*(4), 347-359.

Metzler, M. W. (2011). *Instructional models for physical education (3rd edition).* Scottsdale, Arizona: Holcomb Hathaway Publishers, Inc.

Newfoundland and Labrador Department of Education (2011). *Physical education intermediate curriculum guide: Program design and components.* Retrieved from http://www.ed.gov.nl.ca/edu/k12/curriculum/guides/physed/intermediate/section1-program%20design%20and%20components.pdf

Nova Scotia Department of Education (2011). *Physical education: Leadership 12 curriculum guide*. Retrieved from http://taphe.nstu.ca/images/Curriculum%20documents/NS%20PE%2012%20DRAFT.pdf

Pressé, C., Block, M. E., Horton, M., & Harvey, W. J. (2011). Adapting the sport education model for children with disabilities. *Journal of Physical Education, Recreation & Dance, 82*(3), 32-39.

Prince Edward Island Department of Education and Early Childhood Education (2011). *Prince Edward Island physical education curriculum: Grades K-6.* Retrieved from http://www.gov.pe.ca/photos/original/eecd_phyeduK6.pdf

Randall, L. (2003). Preservice teachers' understanding of the Teaching Games for Understanding approach to content delivery. *Avante*, *9*(1), 49–61.

Randall, L. (2008). Implementing TGfU in the field. *Physical and Health Education Journal, 74*(1), 16-20.

Richard, J.-F. (2010). Student involved formative assessment as a cornerstone to the construction of game performance. In L. Griffin and J. Butler (Eds.), *More Teaching Games for Understanding: Moving globally* (pp. 157-169). Champaign, IL: Human Kinetics.

Richard, J.-F., & Wallian, N. (2005). Emphasizing student engagement in the construction of game performance. In L. Griffin and J. Butler (Eds.), *Teaching Games for Understanding: Theory, practice and research* (pp. 19-32). Champaign, IL: Human Kinetics.

Richardson, K. P., Sheehy, D., & Hopper, T. (2013). Modification by adaptation: Proposing another pedagogical principle for TGfU. In A. Ovens, T. Hopper, & J. Butler (Eds.), Complexity Thinking in Physical Education: Reframing Curriculum, Pedagogy and Research (pp. 181-193). New York: Routledge.

Robinson, D. (2011). Possibilities for physical education teacher education: Service learning and TGfU. *Revue phénEPS/PHEnex Journal*, *3*(1), 1-16.

Robinson, D. B., & Foran, A. (2011). Pre-service physical education teachers' implementation of "TGfU tennis": Assessing elementary students' game play using the GPAI. *Revue phénEPS/PHEnex Journal*, *3*(2), 1-19.

Robinson, D., & Melnychuk, N. (2009). Assessing games understanding. *Strategies, 22*(5), 25-28.

Sandher, K. (2016). Striking game: Cricket. In J. Butler, *Playing Fair* (pp. 133-156). Champaign, IL: Human Kinetics.

Saskatchewan Ministry of Education (2010). *Physical education 5*. Retrieved from https://www.edonline.sk.ca/bbcswebdav/library/curricula/English/Physical_Education/Physical_Education_5_2010.pdf

Sheppard, J. (2007). Ready, aim, target games. *Physical & Health Education Journal, 73*(3), 34-39.

Siedentop, D. (1998). What is sport education and how does it work? *Journal of Physical Education, Recreation & Dance*, *69*(4), 18-20.

Siedentop, D., Hastie, P. A., & Van der Mars, H. (2011). *Complete guide to sport education*. Champaign, IL: Human Kinetics.

Singleton, E. (2009). From command to constructivism: Canadian secondary school physical education curriculum and teaching games for understanding. *Curriculum Inquiry, 39*(2), 321-342.

Slater, T., & Butler, J. I. (2015). Examining connections between the physical and the mental in education: A linguistic analysis of PE teaching and learning. *Linguistics and Education*, *30*, 12-25.

Slavin, R. E. (2011). Cooperative learning. *Learning and Cognition in Education Elsevier Academic Press, Boston*, 160-166.

Storey, B., & Butler J. L. (2010). Ecological thinking and TGfU: Understanding games as complex adaptive systems. In L. Griffin and J. Butler (Eds.), *More Teaching Games for Understanding: Moving globally* (pp. 69-87). Champaign, IL: Human Kinetics.

Storey, B., & Butler, J. (2013). Complexity thinking in PE: Game-centred approaches, games as complex adaptive systems, and ecological values. *Physical Education and Sport Pedagogy*, *18*(2), 133-149.

Tischler, A., & McCaughtry, N. (2011). PE is not for me: When boys' masculinities are threatened. *Research Quarterly for Exercise and Sport, 82*(1), 37-48.

Thomson, D., & Robertson, L. (2014). Fit for what? Critical analysis of the Canadian physical education curriculum. *Critical Education, 5*(16).

Wilson, G. E. (2002). A framework for teaching tactical game knowledge. *Journal of Physical Education, Recreation & Dance*, *73*(1), 20-26.

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