Conceptualizing meaningful physical education:
A secondary school study

by

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Abstract

A primary goal of physical education (PE) is to instill in young people a lifelong commitment to physical activity. However, not all current forms of PE are achieving this goal (Dyson, 2006; Kirk, 2010). Students claim that PE often lacks personal meaning and is detached from their lived realities due to a misplaced emphasis on obesity reduction, fitness outcomes, and a limited range of sport techniques (Kirk, 2010; Lodewyk & Pybus, 2013). As a result, many students may have miseducative experiences in PE (Gleddie, D. & Schaefer, L., 2014). The goal of this research project is not to prescribe a specific initiative for teaching PE. Rather, a broader understanding of students within each school context is required to conceptualize meaningful physical education experiences.

The purpose of this research was to 1) identify the concepts of Meaningful PE that students found to be most important and 2) distinguish which concepts have the most potential to provide students with Meaningful PE (Meaningful PE) (Beni, Fletcher, & Ní Chróinín, 2017; Fletcher, Ní Chróinín, Gleddie, & Beni, 2021) experiences. Data was collected using the GroupWisdom® Concept Mapping (GCM) (2021) platform and group semi-structured interviews with the objective to have PE students and teachers consider and conceptualize Meaningful PE. Three PE teachers and their students in an urban secondary sports academy school (SASS) in Alberta were the participants. GCM (Kane & Trochim, 2007) revealed the major tenet of Meaningful PE is relationships. These were articulated through four key concepts including kindness, quality education, fun, and physical activity. Findings also illustrated the value of GCM as an appropriate tool to assist students and teachers to identify context specific concepts of Meaningful PE.

Key words: Meaningful PE, physical education, group concept mapping

Preface

This thesis is an original work by Jodi Harding-Kuriger. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name: "Meaningful Physical Education: Testing a model for teaching and Learning", Nos. 00085341 and 00085341_AME2.

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With gratitude to:

Mike, the most understanding and hardworking husband…

Ooh, you make me live
Whatever this world can give to me
It's you you're all I see
Ooh, you make me live now, honey
Ooh, you make me live (Queen, 1976)

Aidan, the best son a Mom could ever ask for…

Oh, you're the best friend that I ever had
I've been with you such a long time
You're my [son]shine and I want you to know
That my feelings are true
I really love you
Oh, you're my best friend (Queen, 1976)

Our girls, Teegan & Karlin…

Ooh, you make me live
Ooh, I've been wandering 'round
Still come back to you (still come back to you)
In rain or shine, you've stood by me girl[s]
I'm happ[iest] at home (happy at home)
You're my best friend[s] (Queen, 1976)

My mentors, fellow grad students, & knowledge keepers – Doug G, Deirdre N, Sean L, Evelyn S, Patsy S, Anna K, Trudy C, Lauren S, Hayley M, Darcy C, Jonathan M, and so many more…

Ooh, you make me live
Whenever this world is cruel to me
I got you to help me forgive
Ooh, you make me live now, [teachers]
Ooh, you make me live (Queen, 1976)

My Mom & Dad, Madeleine & Ed Harding…

Oh, you're the first one when things turn out bad
You know I'll never be lonely
You're my only one [parents]
And I love the things
I really love the things that you do
Oh, you're my best friend[s] (Queen, 1976).

Much love to you all,
Jodi

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Glossary

Anchor statements	Statements on a point map that reflect well the content in their cluster vicinities.
Bridging Index (BI)	The bridging index (BI) is the value which measures "whether a statement was generally sorted with nearby statements (values close to 0) or with items located in other areas of the concept map (values closer to 1). Thus, items with lower bridging indices indicate more stable, narrowly focused thematic content" (Visek et al., 2015).
Bridging Statement	A statement with a BI of 1.00 indicates a "'bridging' statement because it bridges between or links the two more distant areas on the map" (Kane & Trochim, 2007, p. 101). A higher BI denotes a statement placed in an intermediary location of the map because of its connection to a variety of other statements on the map.
Delight	Sustained pleasure through engagement and commitment (Ní Chróinín, Fletcher, & O'Sullivan, 2018).
Educative Experiences	Experiences leading to growth & intrinsic motivation (Dewey, 1938); desire for more of these experiences.
Ethnicity	"Ethnicity" is often used to refer to a person's group and cultural identification, including nationality and ancestry (Sue & Dhindsa, 2006).
Extrinsic motivation	Participating in an activity to obtain an outcome outside of activity; for example: obesity reduction, fitness outcomes, or social acceptance (Csikszentmihalyi, 2014; Kretchmar, 2008; Le Masurier & Corbin, 2006; Teixeira et al., 2012) .
Fun	"Encompassing immediate enjoyment in the moment" (Ní Chróinín et al., 2018, p. 119).
Intrinsic Motivation	Participating in an activity because of its inherent satisfactions; the person experiences feelings of enjoyment, delight, personal accomplishment, and excitement (Csikszentmihalyi, 2014; Kretchmar, 2008; Teixeria et al, 2012).
Joy	When one is carried away by the experience. Our sense of time

	becomes distorted, our focus is complete, feedback from the experience is immediate and personal, "one is freed from the confines of the social self and may feel an exhilarating sense of transcendence" (Csikszentmihalyi, 2014, p. 182).
Meaning (noun)	"...in a broad, common sense way. It includes all emotions, perceptions, hopes, dreams, and other cognitions—in short, the full range of human experience" (Kretchmar, 2007, p. 382).
Meaningful (adjective)	Meaningful experiences are those that hold "personal significance" (Kretchmar, 2007, p. 382); 'meaningful' necessitates a greater emphasis on the *quality of an experience* (Kretchmar, 2008; Ní Chróinín et al., 2019).
Meaningful PE	the adjective meaningful, describing physical experiences which require reflection *with students* who then assess the *quality of the experience* based on 1) their perceived purposes of the PE activity, 2) the value they ascribe to their experience, and 3) the connection of PE with their lives outside of school (Fletcher & Ní Chróinín, 2021).
Miseducative experiences	Experiences that shut down growth and motivation (Dewey, 1938); desire for less of these experiences.
Motivation	The willingness to pursue an activity or knowledge for its own sake (Csikszentmihalyi, 2014).
Physical activity (PA)	Including but not limited to fundamental movement skills used in combinations for the purposes of exercise, recreation, and sport.
Physical education (PE)	From an Alberta context - curriculum-based content delivered in an educational setting in the five domains of dance, gymnastics, games, individual activities, and alternative environments.
Reciprocity	Actions and experiences that must somehow benefit all those who are connected through the relationship (Weber-Pillwax, 1999).
Relational	Demonstrating respect and reciprocity between individuals (Steinhauer, 2002); the commitment to establish and maintain a relationship in which no being is more important than the other

	and the acknowledgement that we are all connected - the cosmos, animals, plants, the earth, spirit, and each other (Wilson, 2001); no one single person owns the idea (Wilson, 2001) because the idea is built upon the foundation of relationships.
Relevant	The quantity and quality of influence an experience will have on future experiences; in accord with the principle of continuity (Dewey, 1938).
Respect	"A Cree Elder says 'Respect means you listen intently to others' ideas, that you do not insist that your idea prevails. By listening intently, you show honor, consider the well-being of others, and treat others with kindness and courtesy'" (as cited in Steinhauer, 2001, p. 173).
Whole Child Education	"…an education for whole persons — must address social, emotional, and ethical issues, as well as academic" (Noddings, 2006, p. 238)

Acronyms

COVID-19 - Coronavirus disease of 2019

CM - Concept Mapping

GCM - Group Concept Mapping

GW - GroupWisdom

HCA - Hierarchical Cluster Analysis

IRM – Indigenous Research Methodology

IRP – Indigenous Research Paradigm

LAMPE- Learning About Meaningful Physical Education

MDS - Multidimensional Scaling

Meaningful PE- Meaningful physical education

PA - Physical activity

PE - Physical education

Sportfit – Sport Fitness class

Chapter 1 – Introduction

Background

Physical Education (PE) became a part of who I am because I found joy in movement both indoors and out. Without physical activity (PA), my day is not complete. It provides me concentrated time with my husband and kids as we carve down a mountain side in the winter or paddle down a river in the summer. It also provides a space where I can sweat out the everyday stresses of a busy family and student life. When my muscles are moving, my heart and mind are joyful. I have always hoped that every individual can find joy in movement which led me to a career in physical education.

Unfortunately, my love for teaching became distant as the demands for being a coach-teacher increased. I found myself with less and less time to plan and prepare for meaningful physical education experiences as I spent more and more time running practices and coaching athletic teams. As our children were born, time became even more sacred. The expectations of a physical educator continued to grow more into the realm of intramurals and athletics. It felt as though the education part of my job was missing from the profession. This prompted a break from teaching in Alberta schools and a return to the University of Alberta for graduate studies.

During the first year of my studies, I had the inspiring and humbling opportunity to experience an Indigenous Research Methodology course with both Dr. Patricia Steinhauer and Dr. Evelyn Steinhauer. Their course will forever influence my axiological view of research. Through conversations, meals, readings, prayer, presentations, ceremony, laughter and tears, a true purpose of research was shared with me.

Research is political, spiritual, and personal (E. Steinhauer, personal communication, 2018). Whichever topic you chose, your chosen methods, and your fundamental research paradigm speaks a political message you will share with the world. In this research

conversation, I acknowledge that I am a non-Indigenous researcher living an Indigenous paradigm in my work. Not because it is in the Alberta Teaching Quality Standards (Alberta Education, 2020); not only as a response to the Truth and Reconciliation Commission of Canada: Calls to Action (2015); but mainly, because it speaks to the spirit of service through research.

> You are not just gaining information from people; you are sharing your information. You are analyzing and you are building ideas and relationships as well. Research is not just something that's out there: it's something that you're building for yourself and for your community" (Wilson, 2001, p. 179).

Research Vision

Physical education is a subject area of great personal interest to me as an educator, a mother, a researcher, and as a human being born to move. It is my hope that through meaningful physical education experiences all humans will (re)connect with delight and joy in movement. It is this personal hope that requires me to do research in a relational[1], respectful[2] and, reciprocal[3] way. An Indigenous paradigm embodies knowledge as relational (Wilson, 2001). "Knowledge is shared with all of creation. It is not just the interpersonal relationships, with the research [participants] I may be working with, but it is a relationship with all of creation. It is with the cosmos, it is with the animals, with the plants, with the earth, that we share this knowledge. It goes beyond the idea of individual knowledge to the concept of relational knowledge" (Wilson,

[1] demonstrating respect and reciprocity between individuals (Steinhauer, 2002); the commitment to establish and maintain a relationship in which no being is more important than the other and the acknowledgement that we are all connected - the cosmos, animals, plants, the earth, spirit, and each other (Wilson, 2001; no one single person owns the idea (Wilson, 2001) because the idea is built upon the foundation of relationships.

[2] "A Cree Elder says 'Respect means you listen intently to others' ideas, that you do not insist that your idea prevails. By listening intently, you show honor, consider the well being of others, and treat others with kindness and courtesy'" (as cited in Steinhauer, 2001, p. 173).

[3] actions and experiences that must somehow benefit those all those who are connected through the relationship (Weber-Pillwax, 1999).

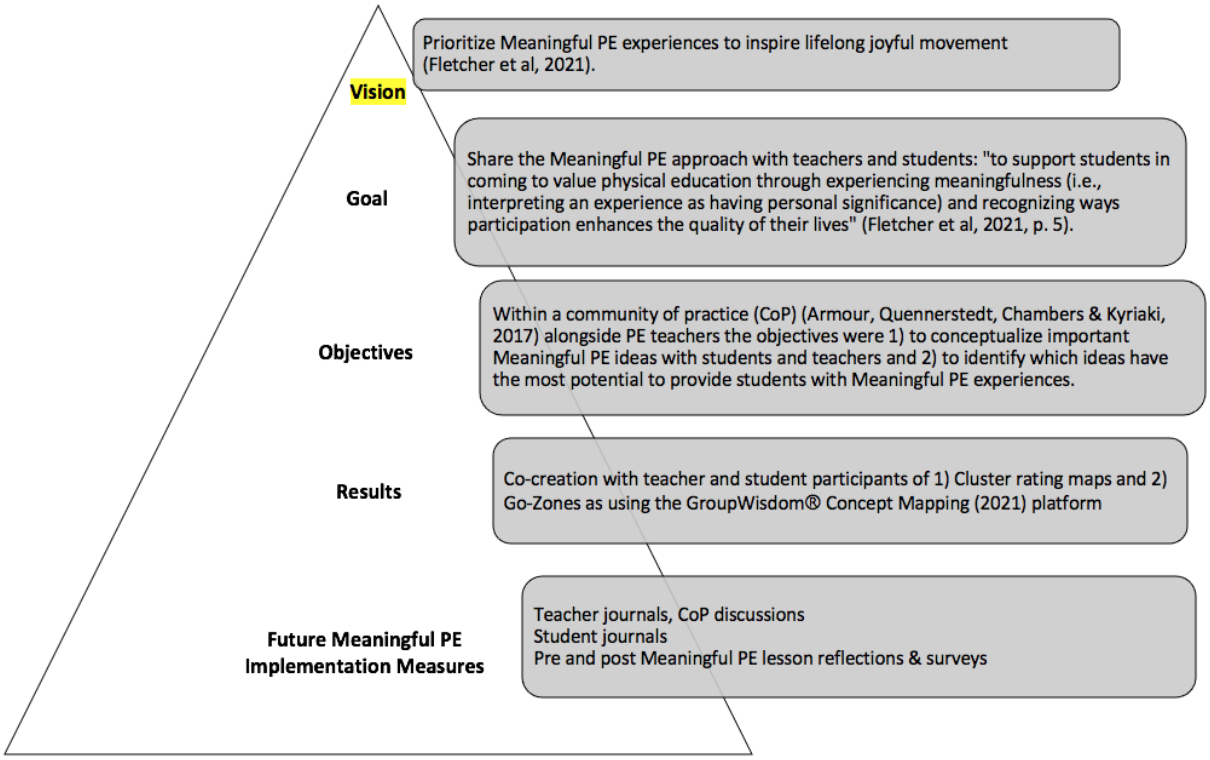
2001, p. 177). When conceptualizing Meaningful PE with students, we are not simply naming it, we are establishing relationships with the concept of Meaningful PE and our relationship with it as students, teachers, and researchers. The resultant ideas are not owned by the researcher (Wilson, 2001). They are co-created ideas to be shared with all. It is the relationships and experiences between the participants (encompassing all that they are as human beings) and the researcher (an equally complex human being) that co-create the knowledge to be shared with the world. The knowledge within this document now also belongs to you, the reader. It is relational knowledge. Respectful research honours the researcher and participants as human beings who come with their own lived experiences. All experiences and stories are a welcome part of the research conversations and relationship.

> According to Cree Elders, showing respect- *kihceyihtowin* —is a basic law of life. 'Respect regulates how we treat mother earth, the plants, the animals and our brothers and sisters of all races' (Blue Quills First Nations College, 2001, p. 86 as cited in Steinhauer, 2001). This manual quotes a Cree Elder who says, 'Respect means you listen intently to others' ideas, that you do not insist that your idea prevails. By listening intently, you show honor, consider the well-being of others, and treat others with kindness and courtesy' (Steinhauer, 2001, p. 73).

It is these Cree teachings that were a large part of our weekly gatherings with Dr. Evelyn Steinhauer and Dr. Patricia Steinhauer. These teachings are a part of the Indigenous Research Paradigm (IRP) that guides my personal life and academic work. Reciprocal research requires that the research must "somehow benefit those *othe*r people who are connected to the research process" (Weber-Pillwax, 1999, p. 36). The research data gathered was absolutely critical for the completion of my doctoral studies. More importantly though, I envision this research contributing to the growing literature that prioritizes Meaningful PE experiences to inspire lifelong joyful movement (Fletcher et al, 2021) (Figure 1) for all.

Figure 1

Meaningful PE Research - Vision



Research Problem & Goal

> If [students] do not have their health - much is lost. Their education, their projects, their very hopes and dreams hang in the balance. Poor health habits among [youth] restrict lifetime opportunities when the whole point of education is to expand them (Kretchmar, 2008, p. 162).

We are all born to move, we want to move (Dyson, 2006; Kretchmar, 2008). Youth typically want to be involved in physical education and physical activity at school and in their communities (Bengoechea et al., 2004; Bengoechea & Strean, 2007; Carlson, 1995; Champagne, 2006; Dyson, 2006; Halas, 2011; Lodewyk & Pybus, 2012), it is through miseducative experiences that youth may lose the motivation to be active. Miseducative experiences are those that hinder growth and motivation (Dewey, 1938). These

experiences include but are not limited to instances of discrimination, low expectations, segregation, sexism, and programming that does not reflect student voice and choice (Carlson, 1995; Champagne, 2006; Cothran & Ennis, 1999; Dyson, 2006; Walseth, Engebretsen, & Elvebakk, 2018). Educators do not purposefully plan for miseducative experiences, typically these situations arise when teachers lose focus of the lived experiences of their students and do not make the time to connect with students and critically reflect upon the history and assumptions of their pedagogy (Champagne, 2006; Cothran & Ennis, 1999; Dyson, 2006; Fletcher & Ovens, 2015). An effective teacher "is one who believes in what he or she does to the point of identifying with it" (Csikszentmihalyi, 2014, p. 173) and education is successful if it instills in students to "a willingness to pursue knowledge for its own sake" (Csikszentmihalyi, 2014, p. 173).

This willingness to pursue an activity or knowledge for its own sake is *motivation.* Student motivation in PE is more likely to arise when teachers model a love of physical education and movement (Csikszentmihalyi, 2014) through meaningful experiences with students. Educative experiences create a desire for similar experiences (Dewey 1938): as students and teachers alike begin to see movement as delightful, adventurous, achievable, and relevant, their desires for more movement will increase (Harris, 2005). We hope students will see movement as meaningful and as such, provide a vision for physical education planning (Beni, Ní Chróinín, & Fletcher, 2019; Ní Chróinín, Fletcher, & O'Sullivan, 2018; Ní Chróinín, Beni, Fletcher, Griffin, & Price, 2019).

Students who witness a sense of commitment to activity and feel included among their teachers and peers, may be motivated to pursue future experiences of the same educative nature. Using John Dewey's theory of experiential education and his concepts of

continuity and interaction (1938) one of the research objectives is to inquire into the common and uncommon threads of meaningful experiences that exist for individual learners. To understand the nature of PE experiences we must consider how these experiences (interactions) will affect students' ascription of meaningful experiences and consequently, their motivation to participate in lifelong physical activity (continuity).

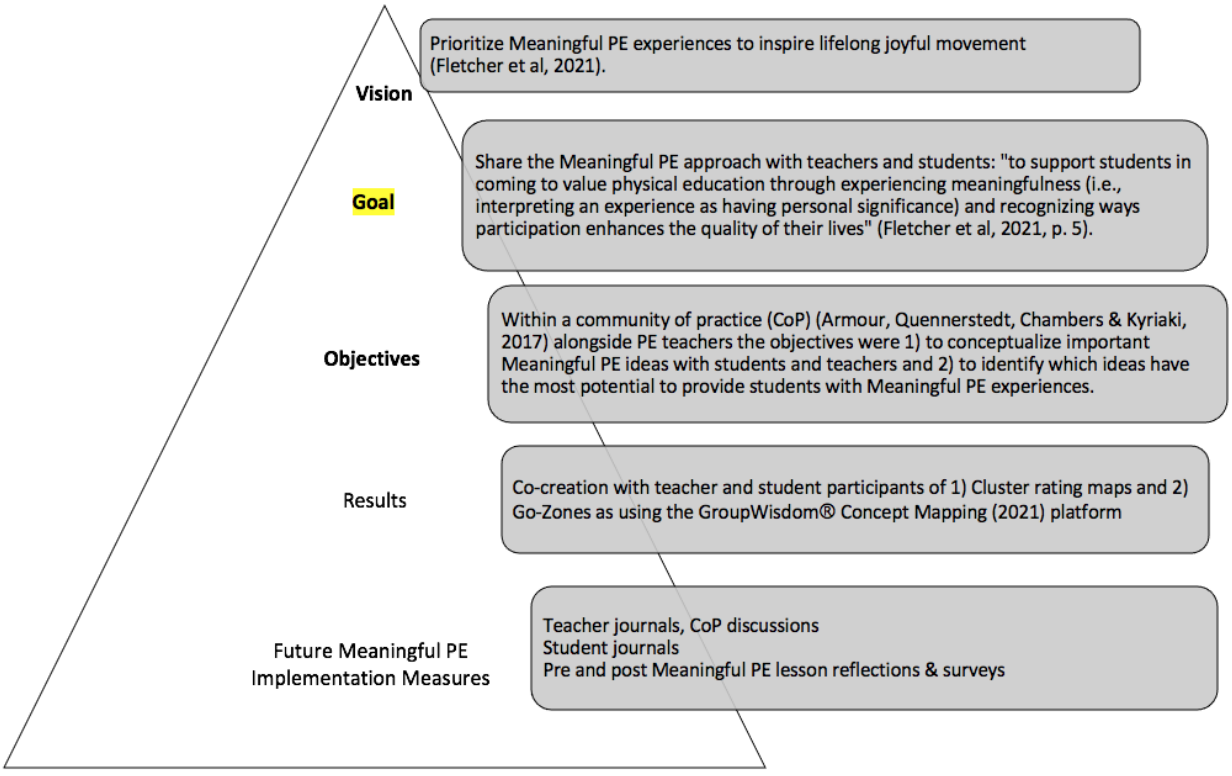
Although meaningfulness is individually constructed (Beni, Fletcher & Ní Chróinín , 2017; Chen, 1998; Thorburn & Stolz, 2017) educators can find Meaningful PE commonalities within their classes in order to provide motivation for youth to commit to lifelong physical activity (Beni et al., 2019; Fletcher & Ní Chróinín, 2021; Ní Chróinín et al., 2019). As a methodology, group concept mapping is coherent with constructionism and an Indigenous Research Paradigm (IRP) and recognizes the fluidity of realities specific to each individual, the physical environment, and social-historical context, making it an appropriate choice for this research (Kane & Trochim, 2007; Stuart, 2002; Visek, 2015). Student perceptions and conceptualizations of Meaningful PE are central to avoiding over-generalized and stereotypical views of physical education

In this study, three PE teachers and I closely listen, read, and respond to students' conceptualization of Meaningful PE (Fletcher et al., 2021). The teachers play an important role in their contributions to the conceptualization of Meaningful PE, because they bring to the research their teacher pretexts. "Pretexts are the values, beliefs, and experiences that shape [teachers'] notions of what should occur in a classroom environment" (Oliver & Oesterreich, 2013). To varying degrees, teacher pretexts have significantly affected what is taught in PE and is a reflection of their personal dispositions towards PE (Green, 2000, 2002, 2003). Teacher pretexts and student voice were taken into consideration during this research to conceptualize Meaningful PE. Thus, the research goal was to share the vision of Meaningful

PE with teachers and students: "to support students in coming to value physical education through experiencing meaningfulness (i.e., interpreting an experience as having personal significance) and recognizing ways participation enhances the quality of their lives" (Fletcher et al, 2021, p. 5) (Figure 2). A secondary interest throughout the study was to determine students' competency in group concept mapping research. There is limited use of concept mapping in the field of education with student participants (Nowicki, Brown & Stepien, 2014), therefore I was addressing this apparent gap in research practice and literature.

Figure 2

Meaningful PE Research – Goal



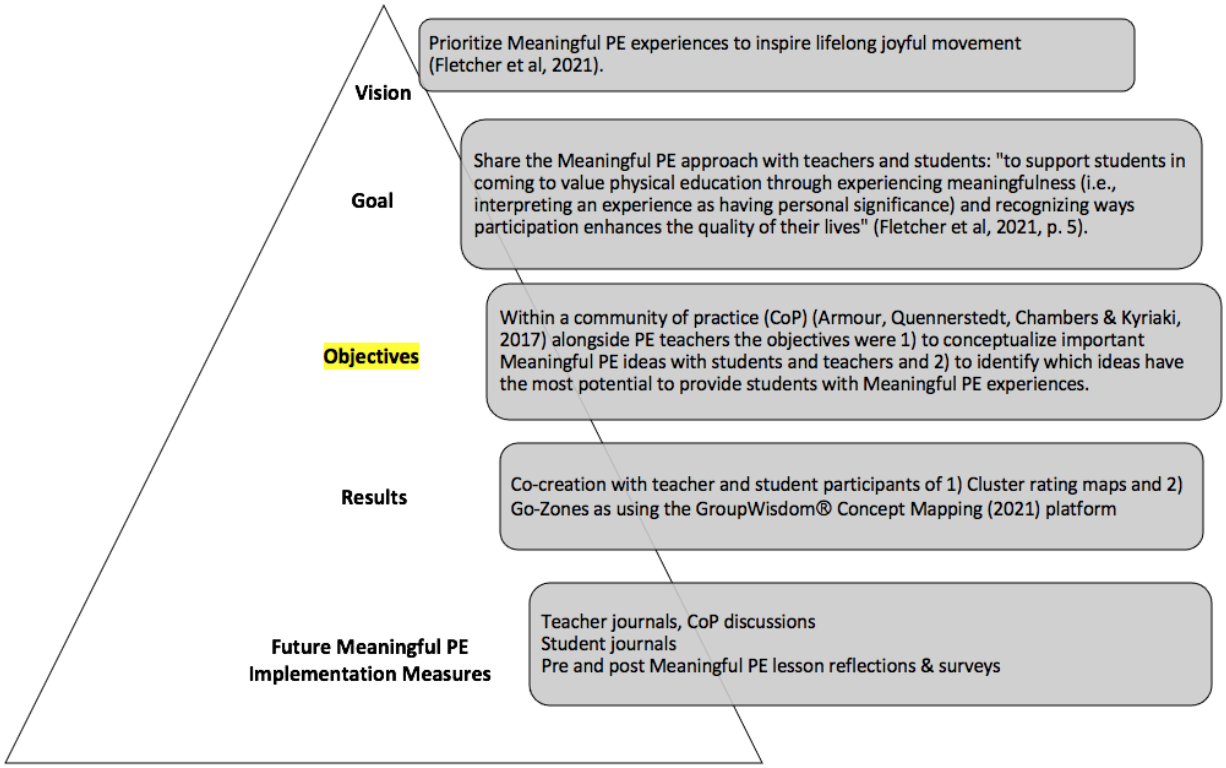
Research Objectives and Questions

The research objectives within a community of practice (CoP) (Armour, Quennerstedt, Chambers & Kyriaki, 2017) were to 1) identify the concepts of Meaningful PE that the

students found to be most important and 2) distinguish which concepts have the most potential to provide students with Meaningful PE (Meaningful PE) (Beni et al., 2017; Fletcher et al., 2021) experiences: translating research into practice in an urban secondary school in Alberta (Figure 3). In order to achieve these objectives, I asked: What are the conceptualizations of Meaningful PE according to secondary PE teachers and students at Sports Academy Secondary School (SASS)[4]?

Figure 3

Meaningful PE Research - Objectives



[4] Sports Academy Secondary School (SASS) is the pseudonym used for the participating school.

Significance and Rationale

I do not naturally look for gaps, I look to celebrate successes. The requirements of academia for a deficit-based review of literature that justifies the *need* for my research and locates it within the broader world of '*reliable and valid academic*' work lacks inspiration. Instead, I looked to Dr. Tricia McGuire-Adams' (2017) article about physical activity and confronting the settler colonial deficit analysis, and I thought, why not challenge the deficit lens approach to research justification? Below you will find limited examples of the pathologizing of health and the resultant need for physical activity in our lives. Some students claimed their PE programs lacked personal meaning and were detached from their lived realities due to a misplaced emphasis on obesity reduction, fitness outcomes, and a limited range of sport techniques (Champagne, 2006; Kretchmar, 2008; Le Masurier & Corbin, 2006; United Nations Educational, Scientific and Cultural Organization, 2015; World Health Organization, 2010). Regrettably, some students have had miseducative experiences in PE (Bengoechea & Strean, 2007; Champagne, 2006; Dyson, 2006; Gleddie & Schaefer, 2014) restricting their motivation to be active beyond formal schooling years. Physical education classes can be ripe with a culture of hierarchies: skilled vs. unskilled; boys vs. girls; fit vs. unfit; privileged vs. othered (Brooks & Magnusson, 2006; Champagne, 2006; Halas, 2011). For some youth, a competitive and sport based PE culture can creates a space where they cannot experience movement as meaningful, they do not fit in, and they do not see themselves (Brooks & Magnusson, 2006; Halas, 2011; Ladwig et al., 2018). There is an abundance of deficit statistical analyses of health and physical activity (American Academy of Pediatrics, 2000; Kretchmar, 2008; Le Masurier & Corbin, 2006; ParticipACTION, 2020; United Nations Educational, Scientific and Cultural Organization (UNESCO), 2015; World Health Organization (WHO), 2018), however I am choosing to

highlight how physical education is changing, thereby providing a transformative rationale for this work.

Fortunately, the majority of youth typically want to be involved in PE and movement activities at school and in their communities (Bengoechea et al., 2004; Bengoechea & Strean, 2007; Champagne, 2006; Dyson, 2006; Halas, 2011). The most qualified to walk alongside us as we establish practical guides and best practices are the students and teachers themselves in their communities (Dyson, 2006; Howley & Tannehill, 2014; Kretchmar, 2008; Walseth et al., 2018). What follows is a celebration of literature that honours the physical, emotional, mental, and spiritual elements of a whole person[5] that are crucial when considering meaningful and motivating experiences. Literature that shares human voices and stories that inspire us all to take action.

Let us begin with educating the whole person in a relational way. In honouring the whole person, no part of the being enjoys independence (Kretchmar, 2007; Noddings, 2005; Rink, 2010; Wall & Murray, 1994). Whole child education does not separate the person into mind and body. Relationality, in congruence with Dewey's principle of interaction, requires both the whole individual and the environment to co-create the learning situation (1938). I would infer that the teacher is also an integral part of that environment. The relationship between all three (student, teacher, & environment) creates the educational experience. Whole child educators know that pedagogical "acts of telling, showing, and introducing are not sufficient to get under the skin of those who, deep in their hearts, want to be changed or turned, not just acquainted or informed" (Kretchmar, 2013, p.36). Meaningful educators, like Scott Kretchmar (2013), inspire us to know our content, respect it, and enjoy spending time engaging with it and then walk,

[5] To honour researchers from multiple worldviews, I use whole person/child and four-part person interchangeably.

wheel, skip, or hop alongside our students to help them discover, uncover, or rediscover meaningful activities.

Student Voice in Meaningful PE

The promotion of meaningfulness has been identified as an essential element to enable transformative and positive experiences for learners in 21st century PE classes (Ennis, 2017). Students' and teachers' experiences of Meaningful PE could contribute significantly to curricular reform in hopes of reducing negative feelings towards physical education (Beni et al., 2019; Oliver & Oesterreich, 2013) and add to the growth of physical education research literature informing practice. Fletcher and Ní Chróinín (2021) position Meaningful PE research as an opportunity to consider democratic and reflective PE principles with students and teachers. A curricular and cultural reform driven by the pluralistic nature of students and school contexts honours inclusivity and the autonomy of the whole student (Chen, 1998; O'Connor, 2019; Oliver & Oesterreich, 2013). This research honours the context of the school setting and contributes to research done *with* students and teachers. Choosing to research *with* students and teachers using Dewey's philosophy of experience (1938) as a lens for analysis, enables the highlighting of the diverse experiences of youth. Students were encouraged to articulate and conceptualize their own ideas of meaningful physical education. "Students possess unique knowledge and perspectives about their school experiences that adults cannot fully replicate" (Dyson et al., 2020, p.2). When conducting democratic research, student voice is imperative if the target audience for implementation is students.

The notion of student voice is one that positions students to "speak and act alongside credentialed educators as critics and creators of educational practice" (Cook-Sather, 2018, p. 17). The co-creation of teaching and learning that draws equally on student and staff voices offers

students opportunities through which they contribute their conceptualizations of the *what* and *how* of meaningful & educative PE experiences. When students are provided with the autonomous opportunity to direct their learning, they are more likely to participate (Howley & Tannehill, 2014). When all voices are heard, we collectively contribute to PE classes that will be interactions involving the many dimensions of wellbeing and will attend to learners as a whole person (McGuire-Adams, 2017). "The primary goal of the curriculum, then, should be reconceptualized as many processes in which teachers help students uncover, interpret, and internalize [meaningful] content" (Chen, 1998, p.304). Research that makes space for student voice, places students alongside teachers and decision makers to voice their experiences, opinions, and beliefs (Gonzalez et al., 2017) with the intent to inform practice. With the intent to inform practice, student voice from a researcher's perspective would involve speaking *with* students rather than *for* students (Fielding, 2004).

When we put the whole child first, PE has the potential to positively influence quality of life through: "increased physical activity levels, improved self-concept, increased self-efficacy, improved motor skills, increased enjoyment, increased motivation, reduced sedentary behaviors following graduation from high school, and increased physical activity over the long term" (Le Masurier & Corbin, 2006, p. 44). Unfortunately, some PE programs, especially secondary, have not changed since World War II (Dyson, 2006; Ladwig et al., 2018). Archaic programming does not consider a whole child approach to physical education and consequently some students are left feeling unfulfilled in their physical education journey (Dyson & Strachan, 2004; Dyson, 2006; Dyson, 1995). Recent research *with* students identified features of Meaningful PE and sport experiences as being fun, including social interaction, choice, and personally relevant learning (Beni et al., 2017; Fletcher & Ní Chróinín, 2021; Ní Chróinín, Fletcher, & Griffin, 2018;

Smith & Parr, 2007). Students highlighted the opportunity to be with friends while they engaged in activities they enjoyed and furthermore, they appreciated the opportunity to choose activities that meant something to them. They expressed increased motivation when they had autonomy in activity choices: "if you're not happy, you're not going to give your best" (Smith & Parr, 2007, p. 48). These youth appreciated the freedom to participate in activities they enjoyed. A student's experience directly impacts their motivation because their reflections upon the experiences influence their (un)desire for similar experiences (Dewey,1938; Fletcher & Ní Chróinín, 2021; Oliver & Oesterreich, 2013).

> Perhaps the greatest of all pedagogical fallacies is the notion that a person learns only the particular thing [they are] studying at the time. Collateral learning in the way of formation of enduring attitudes, likes and dislikes, may be and often is much more important than the spelling lesson or lesson in geography or history that is learned. For these attitudes are fundamentally what counts in the future. The most important attitude that can be formed is that of desire to go on learning (Dewey, 1938, p. 48).

Conceptualizing Meaningful PE alongside students and their teachers acknowledges the need to consider collateral learning, past and present relationships with PE, and its educative relevancy for the future (Fletcher & Ní Chróinín, 2021). The past and present situations of the students directly affect their future behaviours (Dewey, 1938). It is the responsibility of teachers and researchers to extract *with* students "the full meaning of each present experience" (Dewey, 1938, p.49) so that it may positively affect the future. A student's experience directly impacts their motivation because their reflections upon the experiences influence their (un)desire for similar experiences (Dewey,1938; Fletcher & Ní Chróinín, 2021; Oliver & Oesterreich, 2013). When intrinsic motivation takes over, when movement resonates with the individual's identity (O'Connor, 2019) and is intertwined with the four-part person as described *by* the student, that moment *is* meaningful movement, teaching (and research). With an aim to transform students' perceptions of PE and lifelong physical activity from movement as duty (Kretchmar, 2008) as in

'I have to move' or 'I have to be physically active' to movement as a fulfilling part of my identity: 'I *am* a mover' and/or 'I *am* physically active', this research seeks out student voice to conceptualize experiences that are meaningful. The collective conceptualizations of Meaningful PE *with* students and teachers are significant and provide more than an adequate rationale for this relational, innovative, and transformative research.

Chapter 2 - Literature Review

The Purpose of Physical Education

The *idea* of physical education (Kirk, 2010) is akin to the idea of "the child as being in a continuous process of becoming" (Quennerstedt, 2019, p.614). Physical education is a shifting idea whose purpose is steadily becoming and transforming over time – from PE as colonial and utilitarian (Green, 1998; Kirk, 1992) to PE as a democratic transformative experience (Fletcher et al., 2021; Fletcher & Ní Chróinín, 2021). These are not 'either or' concepts, but rather spheres and cycles of influence that shape the purpose of PE in a range of school contexts. John Dewey insightfully articulates that it is difficult to define or develop a purpose or "philosophy of education, the moment tradition and custom are departed from" (1938, p. 5).

Thus, with a progressive swipe of my iPad screen, I turn to the memetic perspective of Richard Tinning (2012) to assist in conveying the evolution of the purpose of physical education. Both Tinning (2012) and Kirk (2010) explore the paradoxically glacial and frenetic pace in which PE changes. Kirk (2010) contends that the purpose of PE has had only one major paradigm shift in the mid twentieth century – PE *as gymnastics* to PE *as sport-techniques*. While Tinning (2012) plays with notion that PE is a memeplex of ideas that evolve more frequently based on the hereditary 'best fit' for the current educational, institutional, and physical culture. While not the primary focus of this research project, identifying a contemporary purpose of PE aids in framing physical education as meaningful and sets the context for what might be.

Currently, we are in the midst of profound cultural shifts in Canadian and global educational and institutional culture – anti-racism (Chavez, 2021; Cole, 2020; Kendi, 2019), Reconciliation (Truth and Reconciliation Commission of Canada, 2015; Alberta Education, 2019), and a salutogenic approach to physical education for overall health and wellbeing (Ennis,

2017; Kretchmar, 2008; Lambert, 2020; O'Connor, 2019; Thorburn, 2018). There is a movement away from the historically utilitarian agendas of PE (Kirk, 2011) to physical education that addresses factors such as ableism, geography, poverty, gender, and race (Martinek & Hellison, 2016; Ross, 2001). The overall purpose of physical education is the co-creation of a democratic space in which transformational experiences are continuously occurring (Fletcher et al, 2021) and where "different ways of being in the world as some-body are both possible and encouraged" (Quennerstedt, 2019, p. 612). That is, PE as meaningful - democratic, reflective, and transformative (Ennis, 2017; Fletcher et al, 2021; Fletcher & Ní Chróinín, 2021; Quennerstedt, 2019) - because all students' experiences contribute to the organic and contextually specific cultivation of educative experiences.

In this view, students are not pathologized and exercised to cure the current crisis (i.e., obesity epidemic) (Tinning, 2012). Students are ideologically, politically, and physically honoured for their inherent potential (Quennerstedt, 2019). Therefore, the pedagogy of physical education shifts from viewing students as small, deficient adults (Quennerstedt, 2019) who must be taught to how to move and think for the sake of their future health, towards a child-centered pluralistic pedagogy that emphasizes the value of movement for the joy and delight it brings to our lives (Kretchmar, 2008). A paradigm shift towards meaningfulness -transformative, reflective, and democratic PE has the potential to offer experiences designed to enhance the holistic development of every student.

The Shift Towards Meaningful

Please journey along with me to ponder and consider the concept of 'Meaningful PE' from the 1960s to the present day as we endeavour to comprehend the concept of 'meaningful' within the realm of physical education. We begin with the work of Eleanor Metheny who stated

that the same experience may be meaningful or meaningless to different individuals, an experience is not innately meaningful (1968). The distinction lies in our *interest* in the experience (Metheny, 1968). For example, a table has denotative (symbolic) meaning (Metheny, 1968; Beni et al., 2017) - it can be experienced as a place to serve food and lay objects upon, it can be sat upon, stood upon, or even danced upon. A table becomes connotatively (personally) (Metheny, 1968; Beni et al., 2017) meaningful when we think of our experiences at the table - the place where we've shared laughter and tears with family and friends, the place we danced during a great celebration, or an empty table in the cafeteria where we ate alone. This connotative description of a table provokes a visceral reaction to personal experiences. An experience becomes meaningful when "we seize upon it, take it into ourselves, and become involved with it" (Metheny, 1968, p.5).

Ann Jewett (1974) predicted four futures for physical education: 1) PE will focus on individuals; 2) PE will be a lifelong process; 3) PE instruction will be geared towards voluntary participation; and 4) Physical educators will base their pedagogy on sound research and continued professional development. Of these three futures, the third focuses on meaningful PE experiences.

> School physical education experiences will be meaningful enough so that physical activity experiences will be sought directly in post-school years. Participation will be sufficiently satisfying so that the typical consumer will be willing to make future efforts, even simple sacrifices, to put time, energy, and modest amounts of money into maintaining active recreational pursuits and into seeking new activities to replace these when circumstances and interests change (Jewett, 1974, p. 70).

She goes on to say that meaningful physical educators will offer a variety of options in a variety of learning environments and "make ourselves accountable for positive experiences for all who participate in our programs" (Jewett, 1974, p. 70). Ultimately, Ann Jewett (1974) predicted that meaningful physical education experiences would be personal and self-directed.

Peter Jarvis additionally authored texts about the concept of meaningful and meaningless learning experiences (1987). In congruence with Metheny, Jarvis (1987) synthesized that "experiences occur in socio-cultural-temporal situations and no situation has meaning in itself. Only when people give meaning to their experiences in a situation does it actually have meaning" (p. 166). That being said, interpretations of meaningful vary from person to person through their process of reflection (Jarvis, 1987). In Jarvis' assessment, the reflection process is essential for the transfer of meaning, "people have to think about it, reflect upon it, and maybe, seek other opinions about it" (1987, p. 168).

Allow me to share an embodied example of Ang Chen's (1998) further clarification of the nuances of the term 'meaningful'. As a scholar I have the desire to learn and to practice relational research within the health and physical education (HPE) community. I have internalized the *purpose* of a doctoral degree into a *goal that is personally significant*, thereby satisfying Chen's (1998) first element of meaningfulness: purpose. As a result, I am willing to complete the course work and this dissertation, so long as the *effort* (the second element of meaningfulness) (Chen,1998) I exert is moving me towards learning and practicing relational research. Thirdly, this effort and striving requires an important *connection* between the actions of a degree completion and my personal goals. It is the connection between the two that makes the course work meaningful (Chen, 1998). In my example, meaningful requirements are fulfilled when the degree requirements I complete *optimize my efforts* towards relational research. That being said, my experience of meaningful action is unlikely to be the exact same for my graduate student colleagues.

Perceptions of meaningful learning may vary person to person (Beni, Fletcher & Ní Chróinín, 2017; Chen, 1998; Kretchmar, 2007; Thorburn & Stolz, 2017). Both Chen (1998) and

Kretchmar (2007) ascertain- that 'meaning' and 'meaningful' require separate definitions. Meaningful is not the same as meaning. Meaning, as described by Scott Kretchmar is: "... all emotions, perceptions, hopes, dreams, and other cognitions—in short, the full range of human experience" (2007, p. 382). The concept of 'meaningful' necessitates a greater emphasis on the *quality of an experience* (Kretchmar, 2008; Ní Chróinín et al., 2019). Fletcher and Ní Chróinín recently extrapolated from the work of Chen (1998), Leontiev (2017), and Martela & Steger, (2016) that the conceptualization of meaningful in a PE context

> involves attention to the purpose and goals of movement for an individual, personal judgements related to the significance of the emotional value of the experience, and a sense of coherence where physical education can be connected to other life experiences (2021, p. 3).

To maintain clarity and consistency, meaning and meaningful are not interchangeable. The term Meaningful PE in this research context relates to the adjective meaningful, describing physical experiences which require reflection *with students* who then assess the *quality of the experience* based on 1) their perceived purposes of the PE activity, 2) the value they ascribe to their experience, and 3) the connection of PE with their lives outside of school (Fletcher & Ní Chróinín, 2021).

Meaningful Physical Education

Meaningful PE is a teaching philosophy that places greater emphasis on the quality of experience in order to increase student participation in and their commitment to lifelong physical activity (Fletcher et al, 2021; Kretchmar, 2008; Ní Chróinín et al., 2019). "The primary theme of Meaningful PE is to *support students in coming to value physical education through experiencing meaningfulness (i.e., interpreting an experience as having personal significance) and recognizing ways participation enhances the quality of their lives*" (Fletcher et al, 2021, p. 4). To strive for meaningfulness in a practical sense, means to democratically co-plan and

deliver lessons that students find relevant and educative to their lives (Beni, Fletcher, & Ní Chróinín, 2017; Fletcher & Ní Chróinín, 2021; Gibbons, 2009; Gibbons & Gaul, 2004; Harris, 2005). When physical educators focus on meaningful experiences, physical education becomes education of the whole person (Kretchmar, 2008). The whole student learns best under the influence of delight rather than duty (Kretchmar, 2008).

Meaningful PE programs consider the context, culture, stories, traditions, values, and interests of the students (Chen, 1998; Dyson 2006; National Academies of Sciences, Engineering, and Medicine, 2018). According to Chen, "educators should acknowledge students' pluralistic interpretations and internalizations" (1998, p. 304) of what is meaningful. Physical educators cultivate intrinsic motivation by planning for a wide range of student differences (Dyson, 2006). Specific reflection and discussion about the PE activities and its meaningfulness to the students aids in the students' internalizations of the value of PE (Beni et al., 2019; Ní Chróinín et al., 2019) and can inform the teachers implementation decisions to maximize the quality of PE experiences.

Initial Features of Meaningful PE

Beni et al., (2017) identified six features of Meaningful PE and youth sport through a meta-analysis of 50 empirical peer reviewed articles from 1987 to 2015 – all articles came after the research monograph on the Process – Product Curriculum Framework (PPCF) in the *Journal of Teaching in Physical Education*. Each of the articles involved small scale research approaches with youth participants. The articles were read and coded independently by the three authors Stephanie Beni, Tim Fletcher and Dierdre Ní Chróinín. The synthesized categories were then compared with Scott Kretchmar's (2006) meaningful experience criteria. The features identified were social interaction, personally relevant learning, improved motor competence, challenge,

fun, and delight (2017). What follows are short descriptions of the each of the features identified through their meta-analysis.

Social interactions via connections with peers and teachers were identified as the primary factor contributing to meaningfulness for students (Azzarito & Ennis, 2003). Overall social elements were viewed positively by students (Smith & Parr, 2007) who engaged in small group learning (Beni et al., 2017; Ní Chróinín et al., 2018) and peer assessments. Further review of the literature showed that students' social agendas needed to be congruent with the teacher's learning activities (Carlson & Hastie, 1997). This included teacher-student interactions that enabled teachers to hear students' voices, perspectives, and goals for PE (Dyson, 2006). Ultimately, relationships enabled planning for personally relevant experiences (Ní Chróinín et al., 2018).

Teachers who know their students well can provide guidance and scaffolding so that students become active agents in their learning (Ní Chróinín et al., 2018) which leads to personally relevant learning in elementary through secondary schooling. Co-planning physical education experiences with students based on their interests and cultural backgrounds makes explicit the connections between the PE content and students' wider context (Beni et al., 2017; Chen, 1998; Ní Chróinín et al., 2018; Oliver & Oesterreich, 2013). A 2020 study with primary school students (Ní Chróinín, Coulter, & Parker, 2020) highlighted the value of photo-diaries as a pedagogical tool for students to actively engage in their learning and as a method to inform teachers about their students learning experiences.

In another elementary school study, Ní Chróinín et al., (2018) found that students were engaged in the learning through goal setting and reflection. Cognitive and purposeful reflection using the common head (cognitive), heart (affective), and hands (physical) language reinforced

personal relevance as students took the time to consider their own areas for improvement (Ní Chróinín et al., 2018; Fletcher, Ní Chróinín, Gleddie, & Beni, 2021). Goals in the physical domain included but were not limited to "executing game skills and understanding their performance relative to others in the class" (Beni et al., 2017, p. 302). When the choice of activities provided the opportunity for students to improve their motor competence based on their current level of ability and their interests outside of PE, the learning became personally relevant and held their interest longer, leading to improved motor competence (Ní Chróinín et al., 2018). Through facilitated discussion and reflection, students are likely be able to identify the relevant and right level of challenge for themselves (Ní Chróinín et al., 2018).

The 'just right level of challenge' has the lure of success and accomplishment over time (Ní Chróinín et al., 2018; Kretchmar, 2007). Students are more likely to persist in the activity when their challenge is manageable and when they see it has value or personal relevance (National Academies of Sciences, Engineering, and Medicine, 2018).

> We have found that when students can find the 'just right' challenge, everything else falls into place. By finding the 'just right challenge', it is very relevant to them as it is an entry point to their learning that they have autonomy over (Vasily., Fletcher., Gleddie., & Ní Chróinín., 2020, p.5).

The right level of challenge is attuned to the cognitive, affective, and physical domains of the child, and goals can be related to all three (Ní Chróinín et al., 2018).

Fun is the fifth feature of Meaningful PE. Fun is likely to occur from a mixture of the features (Beni et al., 2017). Secondary students identified fun as a variety of activities, building relationships with their teachers, and improving their skills (Davison, Schmalz, & Downs, 2010; Lorusso, Pavlovich, & Lu, 2013; Portman, 2003; Teixeira et al., 2012) which are elements of social interaction and improved motor competence. Elementary students described experiences as fun when they were learning through games at an appropriate level of challenge (Beni et al.,

2017) and being with friends while learning new games and skills of their choice (Ní Chróinín et al., 2018).

Delightful experiences are memorable moments that lead to sustained pleasure through engagement and commitment (Ní Chróinín et al., 2018). Individuals will experience delight in their own way, delight lives in our hearts and "fun usually lives on our skin" (Kretchmar, 2005, p. 205). Due to a lack of sufficient evidence in the meta-analysis review, delight was not included as one of the initial Meaningful PE features (Beni et al., 2017). Delight is a philosophical concept that Scott Kretchmar listed as one of "Ten More Reasons for Quality Physical Education" (2006). He reminds us that if we are aiming only for fun, we are aiming too low (Kretchmar, 2006). Delight "supports a perspective that physical education can promote 'temporary and special affective states that are memorable in their own right but are also motivators for additional delights at higher levels of skill, knowledge and understanding'" (Kretchmar, 2005, p. 205). Delight, though more durable and sustaining, is difficult for students to articulate and demands a more in-depth research study. Delightful and relevant movement experiences can be lived cradle to grave, at any stage along our physical literacy journey, and will likely motivate us to move. It is not always a guarantee, but as teachers prioritize meaningful experiences overall, we can teach towards delight.

Support for Further Meaningful PE research

> A meaningful physical education or youth sport experience is not necessarily dependent upon all criteria being present in an experience or reliant on any *one* of these criteria, but rather on the way they combine, intersect, are layered, and are interpreted by learners and teachers alike. (Beni et al., 2017, p. 306)

Adjusting the emphasis of the aforementioned features and identifying meaningful experiences in a specific context is part of the art and science of teaching physical education. The science of teaching is choosing the best method of instruction for the intended curricular outcome

(Marzano, 2007). The art of teaching is knowing when to use which instructional method, which of the Meaningful PE features to dial up or down, and how to adjust based on our students (Marzano, 2007; Quennerstedt, 2019). Alex Beckey (2021) described each of the Meaningful PE features as being adjustable keys on a sound equalizer that can move up and down. Equalizers provide the opportunity for adjustment before, during, and after lessons.

> When teaching we need to tune into what is happening and consider the meaningfulness of the experience, not just to the class but also the individual. This requires stepping back and observing from a distance - allowing us to see the bigger picture. Most times we are so focused on the techniques and the details we forget what it looks like as a whole. To use the Equalizer metaphor, in order to make our lessons more meaningful to the children we teach, they require us to strengthen or weaken one or a number of the features. (Beckey, 2021 p.55)

The Meaningful PE approach is not intended as a panacea for all miseducative PE experiences. More research is needed into the commonalities of meaningful experiences that exist for individual learners (Champagne, 2006; Pringle, 2010; Thorburn & MacAllister, 2013; Walseth et al, 2018). Within this research students were asked what is meaningful to them and how can physical educators plan for more meaningful lessons? Ní Chróinín, Fletcher, O'Sullivan (2018), Beni et al. (2017) and Fletcher & Ní Chróinín (2021) call us to further develop pedagogies and principles that support Meaningful PE and establish practical guides for *how* to facilitate Meaningful PE. This research in an urban-secondary Alberta school will contribute to the democratic and reflective Meaningful PE implementation principles by engaging in group concept mapping with students to identify conceptualizations of Meaningful PE that are most important to them.

Chapter 3 Theoretical Framework

Axiological: Researching in the Right Way - Relational Accountability

Ready - Body

Manulani Aluli-Meyer's "Changing the Culture of Research: An introduction to the Triangulation of Meaning" (2006) has been instrumental in articulating my values as a researcher. She describes research in a physical way that I can directly relate to. Our body is one of the points of triangulation of wholeness, it is the "Ready". It collects the information, it hears and sees, it knows based on the facts and ideas that float around us (Aluli-Meyer, 2006). It is the first of the three points that lead us to purpose and wholeness (Aluli-Meyer, 2006). We need our body so that we can gather ideas, have conversations, and build relationships. This first phase is a critical step on the pathway to knowledge and understanding.

Sit - Mind

Sitting with the readings and thoughts from the group discussions and the GCM analysis, I made time for deep reflection with the "knowing mind - [my] mind - and how it has helped shape [my] thoughts will make [me] honest and help [me] write truthfully …." (Aluli-Meyer, 2006, p. 272). Weber-Pillwax (1999) shares that living an Indigenous research paradigm increases the possibility that research "will be a source of enrichment to [participants] lives" (p. 38). She also shares that using this type of research axiology and methodology would "move scholars toward a stronger sense of professional and ethical accountability" (p. 38).

This is where tensions arose for me. How did I ethically balance the COVID-19 pandemic situation and the desire to complete my research project? The less I could be with students and teachers, the less it felt like research as ceremony. We were unsure when we could

be back together, and I had to also consider my family, career, and finances. Graduate student life is fantastic, but I could not sit there forever.

I delayed the research project in the spring of 2020, as I felt that was the respectful and relational thing to do for the teacher and student participants. By the fall of 2020, we were beginning to realize that this "new normal" (Dr. Deena Hinshaw, Alberta's Chief Medical Officer, 2020, ad nauseam) was likely to be here for many more months. The powerful experience of realizing this, prompted me to re-read, to draw out and articulate a critical path to do reciprocal research, during a pandemic, and in an appropriate amount of time.

Research is truly humbling. In fact, the more courses I took, the more I read and listened, the more I realized how little I know. This is both exhilarating and exhausting. Shawn Wilson described the experience of "[research as] a ceremony for improving your relationship with an idea" (Wilson, 2008, p. 110). The experience of reflecting continues to develop my research thoughts and ideas. "We are being asked to *think* now, to develop truth in our bias, to speak our common sense, to deepen what intelligence *really* means" (Aluli-Meyer, 2006, p. 272).

Slow - Spirit

In the pursuit of understanding and articulating Meaningful PE, I looked to the third point of triangulation, spirit, for further guidance. It is an equal part of the whole (Aluli-Meyer, 2006). "Understanding - Aloha is knowing that leads to understanding because you are of service to others" (Aluli-Meyer, 2006). What a beautiful thought. I love providing service to others; the feeling I get when I am helping others is wholeness. I am fulfilled in mind, body, and spirit.

"Spirit as a point in this triangulation is all about seeing what is significant and having the courage to discuss it" (Aluli-Meyer, 2006, p. 274). My goals as a human, mother, researcher, and educator are to be relational, reciprocal, and respectful in all endeavours. In trying to

navigate my ongoing internal desire to learn and improve the pedagogy of physical education, I had to have the courage to question the social and cultural aspects of current practice.

Why did I choose to do my doctoral research in physical education? Did I have social and political biases? What was the main motivation for my research? The answers for me were love and service. My love for teachers and students, for the subject of health and physical education, and the love and appreciation I have of learning and sharing. However, love alone was not enough. Deep self-inquiry helped me to find the second word - service. The weight of the responsibility I felt towards my teacher and student participants was helping to anchor me in place. The reciprocity I strove towards required a concerted effort to articulate the value of the Meaningful PE approach for all educational communities: rural, urban, public, charter, private, and so many more school settings. The relationship with my research ideas demanded both heart and head work (Wilson, 2008).

Head and heart work for respecting all participants and their stories. Head and heart work to recognize the relationality of shared knowledge. Head and heart work for understanding my story and the role it plays in research. Head and heart work for finding the right language to share my thoughts (Wilson, 2008). As a result, you will find unique pseudonyms used in reference to the student and teacher participants. The teacher names are the Cree translations of one of their beloved natural elements or beings (animal or plant). I chose to use Cree names for in acknowledgement of all the knowledge keepers and Elders who came before us on Treaty 6 Territory, and specifically from the homelands of the Papaschase Cree people on whose territory we conducted this research together. Group 1 teacher is called Ms. Nipiy for her love of water. Ms. Osâwikwaniy (Group 2 teacher) for her favourite, the sunflower. The Group 3 teacher is Mrs. Mêkwayâhtik which means among the trees, her favourite relations. The student names

(assigned in no particular order) honour the family, friends, and teachers who have been a part of my learning journey; student one = Aidan (my son), student two = Madeleine (my Mom), student three = Doug (my advisor & friend), and so on.

"The spirit part of triangulating ourselves back to meaning is all about the purpose and reason of our lives. [The spirit] will help [me] think of [my] research as something of value and keeps [me] at the edge of wonder with how it will shape who [I am] becoming" (Aluli-Meyer, 2006, p. 274). Together, these three: body, mind, and spirit, are the triangulation points that helped guide my path of respect, reciprocity, and relationality (Steinhauer, 2002). Before all else, I came from a place of love and service, learning alongside my participants.

Ontological: The Root of What Is Real.

My theoretical framework is rooted in constructionism and an Indigenous Research Paradigm (IRP) as I focused on how the students and PE teachers made sense of their conceptualization of Meaningful PE. From the perspective of an IRP, reality is relational, it is the relationships between all our relations that construct reality. An IRP also recognizes that the reciprocal nature of reality – you cannot have knowledge without relationships (Steinhauer, 2002; Wilson 2001). Constructionism aligns well with the reciprocal and relational formation of reality and knowledge.

Constructionism is also congruent with the group concept mapping (GCM) methodology. Constructionism "is the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world and developed and transmitted within an essentially social context*"* (Crotty, 1998, p. 42). Meaning cannot be discovered, "actual meaning emerges only when consciousness engages with [objects] (Merleau-Ponty as sited in Crotty, 1998, p. 43).

Constructionism suggests that humans build knowledge structures through conscious

meaning making and subsequently share their knowledge. Teaching and learning from a constructionist perspective would suggest that "humans together create and sustain all social phenomena through social practices" (Hyde, 2015, p.295). Social phenomena are maintained through three phases:

1) Externalization: People act within their environment, and this creates a practice.
2) Objectivation: Individual acts and environmental factors are consciously provided meaning through social practice.
3) Internalization: The objectivated environmental factors are linked to consciousness, therefore individuals are born and inhabit a world where an idea exists within their society. Ideas are then internalized and understood to be part of their natural environment. (Hyde, 2015)

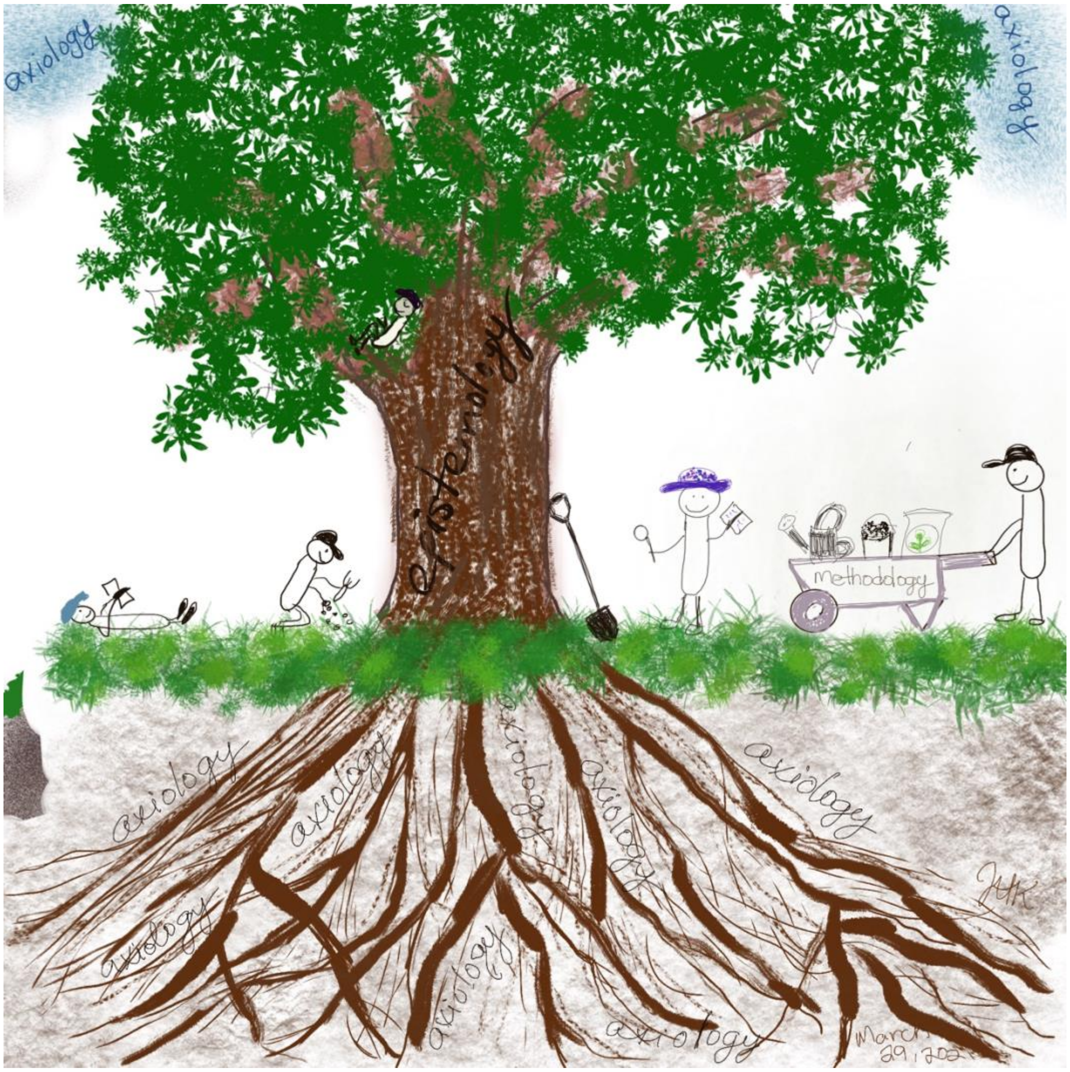
In summary, meaningful reality and experiences are social products of the interaction between an individual, their society, and all our relations.

Axiological: What is a good way to live, learn, and teach?

Figure 4 is a drawing I did on my iPad using ProCreate. I used the drawing to assist me in thinking about and articulating this theoretical framework. At first glance, the drawing is a family tending an apple tree. The tree will eventually bloom and provide apples. The bees attracted to the apple blossoms will pollinate the family garden and will also make honey. The meaning of the tree was constructed as the family discovered the apples, ate the apples, and observed the bees (externalization). The family objectively decided that the tree was a life sustaining organism who should be loved, respected, and cared for (objectivation). The lessons internalized and shared generation to generation are that the apple blossoms are for the bees. The apples are to be collected only once they are ready and the tree should always be provided adequate water and nutrients (internalization). The axiological views of what is worth learning, what is the ethical way to learn and live, and the sharing of knowledge is all around them - in the air, in the clouds, and in the soil.

Figure 4

Theoretical Framework Tree



On a deeper level, the interactions between the family, the tree roots and the soil environment also denote constructionism. Their interactions are both respectful and reciprocal (Steinhauer, 2002), resulting in a dedication to relationality. Relational accountability "requires that we incorporate reciprocity, interdependence, and interrelatedness between individuals in our research methodologies" (Steinhauer, 2001, p. 78). The tree roots need the soil and nutrients to grow, the soil avoids erosion over time due to the presence of the tree roots in that particular space. In addition, "That which the trees exhale, I inhale. That which I exhale, the tree inhales.

We live in a world of many circles; these circles go out into the universe and constitute our identity, our kinship, our relations" (Graveline, 1998, p.57). These interactions over time and generations are consciously constructed and described by the human observer to their peers.

When examining this natural phenomenon, we see the relationality, reciprocity, and the interconnectedness of all our relations – this is axiological – the ethical consideration of how knowledge is gained (Wilson, 2008). The roots provide a home for the soil and all its organisms and elements. This fertile environment supplies sustenance for the tree. The tree then shares nutrients with generations of bees and the human family. The meaning I consciously construct for this theoretical tree comes from my learnings on the land with family, school experiences, and conversations with many teachers of both Indigenous and non-Indigenous worldviews. Subsequent individuals may examine this natural phenomenon through lenses of biology, chemistry, and ecology. They may not speak of all our relational interconnections, but of the cause-and-effect interactions at the chemical and cellular levels. Their meaning is constructed from the social interactions they've experienced as biochemists, ecologists, or perhaps as cellular biologists. Constructionism allows for both. When I ask my participants to conceptualize meaningful physical education, I am open to their lived experiences guiding their conscious meaning making. Constructionism honours participant stories, as do I.

Epistemological: How do I know what is real?

Growing out of the roots is a strong trunk conjoining relational research and participant experiences. Half of the trunk stability is attributed to Shawn Wilson's descriptions of an Indigenous Research Paradigm (IRP) which explores the interrelations between the concepts of axiology, ontology, epistemology, and methodology. He describes a paradigm as "a set of beliefs about the world and about gaining knowledge that goes together to guide your actions as to how you're going to go about doing your research" (Wilson, 2001, p. 175). Indigenous

research ontology and epistemology are founded by relationships. The axiology and methodology maintain relational accountability (Wilson, 2008). An IRP will be used to guide the overall spirit of this research and will be maintained throughout the group concept mapping process.

The complementary half of the tree trunk embodies John Dewey's theory of experiential education. To understand the nature of Meaningful PE experiences we must consider how experiences will affect students' willingness and motivation to participate in lifelong physical activity. Can Meaningful PE experiences inspire growth, a desire for more of the same life sustaining experiences (Dewey, 1938)? Through the lens of Dewey's theory of experience, this research shares the understandings of the teachers', students', and researcher's conceptualizations of meaningful physical education experiences.

Experiential Education

"The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative" (Dewey, 1938, p. 25). Dewey's theory of experience encompasses two main principles: *interaction and continuity.* To live is to interact and take part in interactions between oneself and the environment (Dewey, 1938). According to Dewey (1938) these interactions create a situation. Situations are interactions between two main factors: 1) an individual - a four part being made up of the mental, physical, spiritual, and emotional domains (Latremouille, 2016) and 2) their environment - encompassing all our relations - people, animals, places, and objects (Dewey, 1938). Figure 4 is also a drawing of a situation between the tree, the family, and their environment. For our tree and family, an agreeable situation would provide nutrients based on the tree's and the people's *individual* cellular make-up and needs, and the *environmental factors* would be the soil with proportionate fertilizers, appropriate periods of sunlight and darkness, regular provisions of

water, and the exchange of carbon dioxide and oxygen - elements in the relationship that are personally relevant to the tree and family *and* encourage a desire for continued similar interactions. These are reciprocal interactions.

If the interactions were less agreeable, miseducative, the tree may wither and would be less likely to influence later growth. The volume of apple blossoms, apples, branches, and leaves would visibly demonstrate the spectrum of the agreeableness of the situation. A fuller tree with plenty of apples represents educative experiences, those leading to growth and a desire for more of similar experiences (Dewey, 1938). A withering tree with yellowed leaves and fewer apple blossoms & apples would represent miseducative experiences that shut down growth and result in a desire for less of the same experience.

In the context of Meaningful PE, a physical educator takes into consideration the individual students and plans for their social domains by considering groupings of students, a competitive or collaborative culture, and acceptable ways of treating each other. The teacher can also envisage which physical equipment and materials to use during lessons and which location will be best suited for learning in physically, mentally, spiritually, and socially safe ways. The lesson activities and learning environment are tailored to respect the needs of the students. And finally, upon student and teacher co-reflection, an experience can be deemed more or less educative when the whole picture is considered: individuals, the external conditions and its influence on future behaviours.

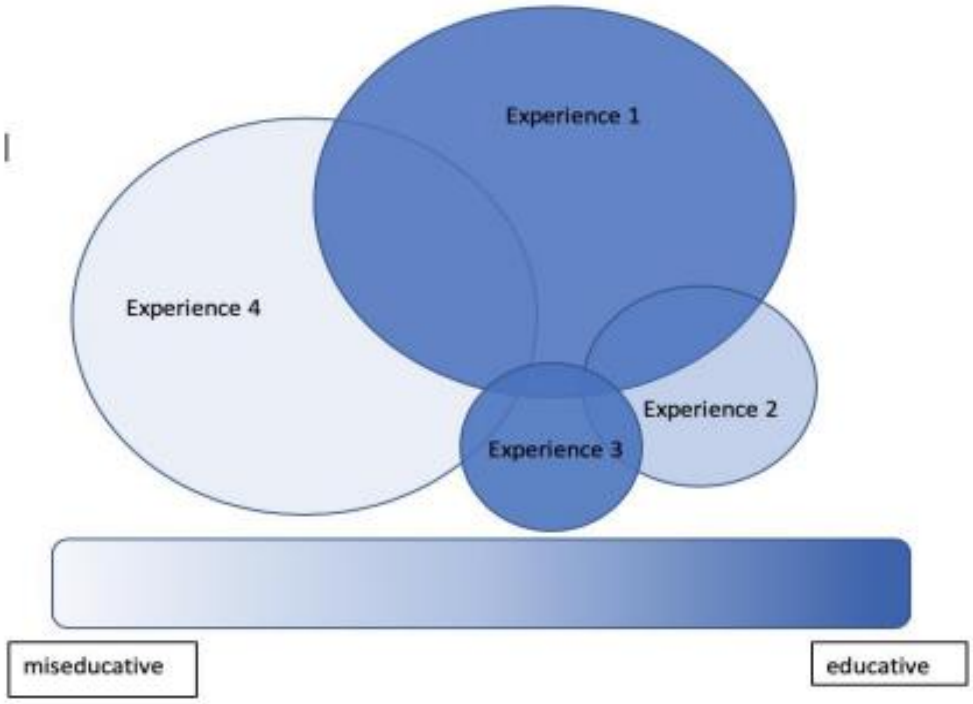
"The principle of interaction makes it clear that failure of adaptation of material to needs and capacities of individuals may cause an experience to be non-educative quite as much as failure of an individual to adapt [themselves] to the material" (Dewey, 1938, p. 47). To avoid failure of adaptation, Dewey makes it very clear that context counts. Teachers must be aware of the historical, social, political, cultural, and institutional factors that are shaping the situations in

which they teach and then utilize these factors as educative resources (Dewey, 1938). To recap, the individual is a given, they come as they are. Objective factors are those that can be changed to accommodate the individuals to co-create educative experiences. Together, they form an interaction - the first of two principles that can be used to discriminate between educative and miseducative experiences. The second principle for discernment is continuity.

Continuity, akin to a natural ecosystem, can be demonstrated denotatively by the health and growth of the tree. The leaves and the appearance of apples represent the *influence* of the interactions. Continuity, with the root word of contain, encourages us to think about how things are held together, contained, or connected. Dewey's principle of continuity demonstrates the assessment of lived experiences. In living an experience, a being will evaluate their past experiences and take them into consideration during the present experiences. Upon reflection, they will then connect the experience with new knowledge and prior wisdom which will influence the next lived experience. "This information processing forms a constant loop in which new information is interpreted in the context of existing information, and revisions to the state of knowledge concerning a particular phenomenon are made when necessary" (Castellano, 2000, p. 23). This is not a linear process; it is organic and relational.

Figure 5

Continuity: Spheres of Influence



As I've attempted to illustrate in Figure 5, "every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after" (Dewey, 1938, p. 35). The sphere of influence will expand or contract depending on the nature of the experience. If an individual assessed the experience as influential, the sphere's continuity influence will expand to other spheres. If the experience was not relevant, that circle may contract and will be less likely to influence later experiences. The more relevant the experience, the more influence it will have on future experiences, as is shown with sphere of a larger diameter overlapping into other experiences.

The shade of the sphere shows the spectrum of educative experiences. A darker shade represents educative experiences, those leading to growth and a desire for more of similar experiences (Dewey, 1938). Lighter shades represent miseducative experiences that shut down

growth and result in a desire for less of the same experience. An experience, therefore, can be miseducative and influential (experience 4 - large diameter and a lighter shade) or educative and irrelevant (experience 3 - small diameter and a darker shade). Continuity, or the sphere of influence, can therefore be demonstrated denotatively by the diameter of the circle while the shade of the circle represents the agreeableness of the experience.

Relational Interaction & Continuity

When used together, interaction & continuity, can be used to evaluate the nature of an educational experience (Dewey, 1938). Similarly, they can be used to compare Meaningful PE experiences with the major aim of providing students with lessons that will motivate them to be active for life. Some current PE programming may be creating miseducative and highly influential experiences for students, as visible in experience 4 (Figure 5). Individual and environmental interactions might have included inequity, favoritism, unfairness, intolerance, and programming that was not reflective of the student population (Champagne, 2006; Cothran & Ennis, 1999; Dyson, 2006). These interactions are not relational, their influence hinders growth, and unfortunately leads to future avoidance of participation in lifelong physical activity (Dewey, 1938). These students would not qualify their PE experiences as meaningful.

Now, imagine a PE program that considers the individual students as four-part peoples with stories and experiences that influence their participation in learning. The students' lived experiences are then connected with appropriate environmental factors such as a variety of physical activities, a learning community of kindness and joy, and instruction that aligns with the shared beliefs, values, and interests of the student body. The result is more likely to be a Meaningful PE experience.

Methodological: How do I learn more about what is real?

The wheelbarrow in the drawing (Figure 4) is labelled methodology. It contains some of the tools and materials needed to maintain the health of the tree's ecosystem. The creation and use of the tools are also shared from generation to generation as knowledge emerges. The tools and materials are a part of the social practice (externalization) of taking care of the tree (Hyde, 2015). As each person learns, the meaning of the tools is constructed (objectivation) and shared socially (internalization) (Hyde, 2015). The wheelbarrow and materials assist in practicing reciprocity, relationality, and respect.

Group Concept Mapping (GCM) (Kane & Trochim, 2007) as a methodology is ontologically neutral which lends itself well to research as ceremony and service (Wilson, 2008). The methodology is open to conceptualizations from multiple paradigms and worldviews and serves to build relationships with the ideas both qualitatively and quantitatively.

> For realists, [group concept mapping] provides an empirically replicable way to describe the constructs that presumably have their existence in the unconstructed world outside our minds. To constructivists, it maps the collective constructions and provides a means to engage each other with them (Kane & Trochim, 2007, p. 176).

Following an axiology of ceremony and service, the methodology must adhere to the three R's: reciprocity, relationality, and respect (Weber-Pillwax, 2001; Wilson, 2008). Group Concept Mapping (GCM) allows for the building of respectful relationships between the participants and I, as well as their ideas of Meaningful PE. There was no hypothesis to be proven or disproved. I was not aiming to confirm any pre-existing notions of their experiences with Meaningful PE. In this study students' qualitative data was used to develop Meaningful PE concepts to support, challenge, and transform pedagogical assumptions held prior to data collection (Merriam, 1998). My responsibility as the researcher using GCM alongside the participants was to provide a synthesis of the data that would benefit both the students and teachers. The end product of the

methodology is a co-created rich description of the participants' expressions of Meaningful PE examined through Dewey's concepts of continuity and interaction (1938) and honours the axiology of an Indigenous Research Paradigm. Constructionism also supports this research methodology because the researcher, teachers, and students are all learners collaborating to construct a conceptualization of Meaningful PE that will be shared (Ackerman, 2001; Papert & Harel, 1991; Rob & Rob, 2018).

The following design description was a flexible plan, as I stayed awake to the changing conditions of the COVID-19 pandemic, the school context and adjusted the research process as needed (Merriam, 1998). Data was collected through the GroupWisdom® Concept Mapping (2021) platform and Google Meet interviews. The intention was to use GCM to gain a deep understanding of the conceptualization of Meaningful PE in an urban secondary sports academy school in Alberta.

As an integrative qualitative and quantitative method, GCM provided the process to represent qualitative information quantitatively and the quantitative outputs were founded solely on qualitative statements provided by the participants (Kane & Trochim, 2007). The interrelatedness of the qualitative and quantitative data demonstrates relationality and reciprocity. Neither one can exist without the other in GCM. Much like the quantitative data depends on the qualitative data, researchers depend on participants. Reciprocity is demonstrated though GCM because the researcher focuses on the experiences and learning preferences of the teacher and student participants. When they brainstorm statements based on a prompt that plans to affect educational implementation, the clusters (and statements within them) become the features of that educational implementation. The student and teacher participants become change agents for ensuring more meaningful and educative experiences, the researcher assists in articulating the results for implementation. Therefore, in the evolution of physical education, and

education as a whole, “concept mapping can play an important role as a methodology that helps encourage learning, creativity, and adaptation” (Kane & Trochim, 2007, p. 177).

GCM is much like teaching. Both require scientific and artistic thought (Marzano, 2007). Teaching is both interdisciplinary and transdisciplinary, quality teachers take into consideration jurisdictional mandates, school context, students' needs and interests, and competency-based learning (Alberta Education, 2020). The balanced blending of curricular content, assessment, and relationship development requires organizational thought and systemic thinking, alongside the art of preparation, delivery, and evaluation. Ultimately, GCM is unique in that it can be aligned with both qualitative and quantitative traditions and it is also comfortable being integrated in a variety of settings.

As the researcher, it was my responsibility to ensure the relationships with the participants and conceptualized ideas were maintained and articulated in the results. It was also my responsibility to establish collaborative and respectful relationships with the student and teacher participants so that the results implemented in their classes fulfilled their educational interests. As both a methodology and a series of methods, GCM was successfully used to generate qualitative and quantitative conceptualizations of the students’ thoughts about Meaningful physical education in a respectful and democratic way.

Chapter 4 – Methodology

The following chapter provides an overview of the Conceptualizing Meaningful PE Group Concept Mapping (GCM) research project study design. Group concept mapping is a mixed method methodology that begins with structured phases for collecting qualitative data from participants. That data then undergoes quantitative, multivariate analysis to produce visual representations of the conceptualization of the topic of interest. I used GCM to brainstorm with junior high students their conceptions of 'Meaningful PE' and then had the participants rate the Meaningful PE statements for importance and possibility. Together, the Meaningful PE Maps – including the point map, the point rating map, the cluster map, and the cluster rating map – provided a visual conceptualization of Meaningful PE in an urban Alberta secondary school setting. (Chapter five will provide a detailed and technical explanation of the GCM process).

Teacher participants were recruited based on their interest in implementing the Meaningful PE approach (Fletcher et al., 2021). The student participants were members of the PE classes the teacher participants taught. Student participants were critical for the research project because the vision of the research project was to prioritize Meaningful PE experiences to inspire lifelong joyful movement for the students and teachers (Fletcher et al, 2021). Ethical protocols included approval from the University of Alberta Research Information Services (ARISE). Teachers provided informed consent (Appendix A). Student participants also provided assent (Appendix B) with support from their families via parental/guardian consent (Appendix C).

An Overview of the Meaningful PE Group Concept Mapping Research Project

There are 7 sequential multi-step phases within the GCM methodology. These include 1) project preparation; 2) generation of ideas; 3) idea synthesis; 4) structuring of ideas; 5)

representation of ideas – which includes the statistical data analysis methods; 6) interpretation; and 7) utilization (Kane & Trochim, 2007). This section explains each of the seven phases in detail as they were applied to the conceptualization of Meaningful PE (Table 1).

The following tables provide an overview of the concept mapping process (Table 2) and each of the activities in which participants participated prior to the COVID-19 virus arriving in Alberta (Table 3). After a short pause, we resumed our research project in the fall of 2020, table 3 details these research activities.

Table 1

Overview of the Concept Mapping Process

GCM Phases		Related Activities		Resultant Outputs
1) Project Preparation		• Participant identification & selection • Collection of consent and ethical considerations • Develop the focus prompt • Develop the rating criteria		• Participant list • Collection of consent • Focus prompt • Rating Criteria
2) Generation of Ideas		• Participants provide personal demographic information (as appropriate) • Participants meet to generate ideas		• Demographic information • List of brainstormed ideas
3) Idea Synthesis		• Researcher synthesizes participant generated statements		• Synthesized list of clear, unique, relevant, and manageable statements for participants to sort
4) Structuring of Ideas		• Participants sort the statements into conceptual piles • Participants rate the statements according to rating criteria		• Sorting results for each participant • Rating results for each participant

5) Representation of Ideas (Statistical Data Analysis Methods)		• Create a similarity matrix from the sort data • Multidimensional scaling (MDS) of similarity matrix to locate each statement as a point on a two-dimensional (X,Y) map – the point map • Hierarchical cluster analysis (HCA)		• Similarity matrix • Point map • Cluster listings • Cluster map • Point Rating Map • Cluster Rating Map • Pattern Matches • Go-Zones
6) Interpretation		• Identify and name the clusters • Examine the cluster map, point rating map, and cluster rating map • Examine pattern matches • Examine Go-Zones • Participant interpretation		• Participant and researcher agreement on Cluster Names • Participant requested pattern matches and go-zones
7) Utilization		• Apply the results		• Use GCM results to inform practice

Table 2

Overview of the participants and research activities prior to the COVID 19 pause

RESEARCH ACTIVITY	PARTICIPANTS	MATERIALS
SASS PE Staff Introduction & Orientation	Supervisor – Dr. Douglas Gleddie to present the MPE Research proposal to SASS PE Staff	Meaningful Physical Education: An Approach for Secondary Curriculum + Pedagogy Slides (Appendix D)
SASS PE Staff **Community of Practice (CoP) 1** meeting: Establish timelines & next steps for the research. Jodi to work with 3 female PE teachers.	Dr. Gleddie (supervisor) Jodi (researcher) SASS PE Staff	Teacher Consent forms supplied, signed, and collected
Weekly Emails to SASS PE Staff (n = 7)		Weekly emails to share MPE literature and provide journal prompts (Appendix E)
First COVID -19 case reported in Alberta		

Alberta students move to online learning
Email communication: SASS Meaningful PE research will **resume in the fall**. All further CoP meetings are cancelled for the 2019/2020 school year.
Email communication: SASS Meaningful PE research to begin using online Group Concept Mapping. Community of Practice meetings to be held virtually via Google Meets.

Table 3

Overview of the participants and research activities beginning in the fall of 2020

RESEARCH ACTIVITY[6]	PARTICIPANTS	MATERIALS
Student assent & parent consent forms to teacher participants to be distributed and signed.	Student Group 1 (n = 22) Student Group 2 (n = 8) Student Group 3 (n = 25) TOTAL STUDENTS = 55	Parent Consent & Student Assent Forms
Jodi gathered all signed forms	Students (n = 55)	
Google Meet 1 Introduction to Meaningful PE Research Project; Explanation of activities 1 & 2	Students (n = 54) Teachers (n = 3)	Script (Appendix F)
Activities 1 & 2 Completion	Students (n = 54) Teachers (n = 3)	GroupWisdom® Concept Mapping (2021) platform – Activities 1 (Appendix G & 2 (Appendix H)
Jodi to synthesize the 196 brainstormed statements	Researcher (n = 1)	196 brainstormed statements (Appendix I) & synthesis (Appendix J)
CoP 2 virtual meeting to present synthesized statements and explain activities 3 & 4	Teachers (n = 3) Researcher (n=1)	44 synthesized statements (Appendix K) and instructions for activities 3 & 4 (Appendices L & M)
Google Meet 2 - Present synthesized statements and explain Activities 3 & 4	Students (n = unknown as I did not take attendance) Teachers (n = 3)	44 synthesized statements (Appendix K) and instructions for activities 3 & 4 (Appendices L & M)
RESEARCH ACTIVITY	**PARTICIPANTS**	**MATERIALS**

[6] All research activities were conducted virtually using Google Meet and the online GroupWisdom® Concept Mapping (2021) platform.

Completion of Activities 3 & 4	70% student completion (n = 38/54[7]) Teachers (n = 3)	44 Synthesized statements on the platform
Researcher to review and approve the sorting and rating data on the GroupWisdom® Concept Mapping (2021) platform	Researcher (n = 1)	A quality review and approval criteria can be found in Appendix N.
CoP 3 to present possible cluster solutions to teachers & discuss presentation process for the student presentation	Teachers (n = 3) Researcher (n = 1)	Cluster solution presentation (Appendix O) & Teacher Interview Questions (Appendix P)
Google Meet 3 to present & discuss 3, 4, 5, 6, and 7, cluster solutions to students	Students (n = 33) Teachers (n = 2)	Cluster solution presentation (Appendix O) & Student Interview Questions (Appendix Q)
CoP 4 to present & discuss final SASS cluster solution and results & discuss presentation process for the student presentation	Teachers (n = 3) Researcher (n = 1)	Results slides (Appendix R) & Teacher Interview Questions (Appendix P)
Google Meet 4 to present & discuss final SASS Meaningful PE cluster solution with students	Student Group 1 (n = 22) Student Group 2 (n = 6) Student Group 3 (n = 25) TOTAL (n = 53/58) 91% Students Teachers (n = 3)	Results slides (Appendix R) & Student Interview Questions (Appendix Q)

This research was exploratory in that it sought to conceptualize Meaningful PE with secondary teachers and students and examine the viability using GCM with secondary students. Specifically, the study sought 1) identify the concepts of Meaningful PE that students found to be most important and 2) distinguish which concepts have the most potential

[7] The reduction in participation is likely due to the students being able to complete the activities virtually on their own time as opposed to during a second block of PE with the teacher and researcher (Rosas & Kane, 2011). However, the number of sorters (n = 38) is well over the recommended number of 15 (Jackson & Trochim, 2002) and just above the 30-sorter threshold recommended by Rosas & Kane (2011). Furthermore, the 38 student participants are representative of the secondary students participating in PE as SASS (Wood & Wood, 2008).

to provide students with Meaningful PE (Meaningful PE). The study used Group Concept Mapping (GCM) as both a methodology and set of methods (Cooper, 2008; Kane & Trochim, 2007; Stuart, 2002; Vaughn, Jacquez, & McLinden, 2013; Visek, Achrati, Manning, McDonnell, Harris, & DiPietro, 2015; & Visek, Mannix, Chandran, McDonnell & DiPietro, 2020) to investigate the research question. GCM as a methodology is a structured process capable of yielding a conceptual approach that can inform program planning and reflective practice (Kane & Trochim, 2007). The qualitative GCM processes are "founded on the assumption that understanding is gleaned through direct interaction with those individuals who have experienced the phenomenon of interest" (Stuart, 2002, p. 46). In this research these individuals included the PE student and PE teacher participants.

Furthermore, GCM as a methodology is in alignment with constructionist research as the methodology allows for the study of conceptualizations as they are defined and described by the participants (Stuart, 2002). It is also congruent with relational and ethical research as researchers "obtain a relatively unconstrained description of a phenomenon, free of a priori formulations, experienced within a particular population" (Stuart, 2002, p. 47). Researcher bias is further reduced as the qualitative data is analysed quantitively via the GroupWisdom® Concept Mapping (2021) platform as opposed to qualitative data being coded by individual researchers (Stuart, 2002). Participants are collaboratively involved in the methodology via four distinct data gathering processes. The data gathering processes include: activity 1 - participant questionnaire; activity 2 – brainstorming; activity 3 – sorting; and activity 4 - rating.

Group "concept mapping is an applied social research method that begins with a qualitative and structured group data collection process and then applies quantitative,

multivariate analytic tools in order to produce visual maps displaying group-specific conceptualization of a phenomenon of interest" (Visek et al., 2015). The process asks participants to generate statements (activity 2) in response to a focus prompt. For example, the student participants may be presented with the following prompt: One thing that Teacher XYZ could do to encourage me in PE is…. The participants would then generate statements identifying specific actions that Teacher XYZ could do to improve their experiences in PE. Once the participants have brainstormed the statements, the researcher synthesizes the statements into a manageable list for sorting and rating.

GCM encourages all individuals to speak for themselves. Using the mixed methodology, the students, teachers, & I brainstormed and mapped out the participants conceptualizations of the most important Meaningful PE ideas. We then reviewed the ideas, using semi-structured interviews, to highlight which ideas had the most potential for providing students with Meaningful PE experiences. The teacher participants and I also engaged in Community of Practice (CoP) (Armour, Quennerstedt, Chambers & Kyriaki, 2017) meetings to look at the findings prior to sharing them with the students. This was done so that the teachers and I assented to our roles during the discussions. Teachers were to act as moderators, rather than influencers. I also conducted a semi-structured interviews with open ended questions to gather feedback from the teacher (Appendix P) and student participants (Appendix Q).

Phase 1: Project Preparation

The first steps of the planning process involve identifying and recruiting participants. In this specific project, the teacher participants were chosen based on their interest in learning alongside researchers about the Meaningful PE approach. Consent from the teacher participants was collected.

The second step during the preparation phase was to develop a focus prompt. This served to guide the GCM sessions and the outcomes of the project (Cooper, 2008; Kane & Trochim, 2007; Visek et al., 2015). To address the research question *What are secondary teachers' and students' conceptualizations of Meaningful PE?* I used the focus prompt: When I think of Meaningful PE, one thing that matters to me is….

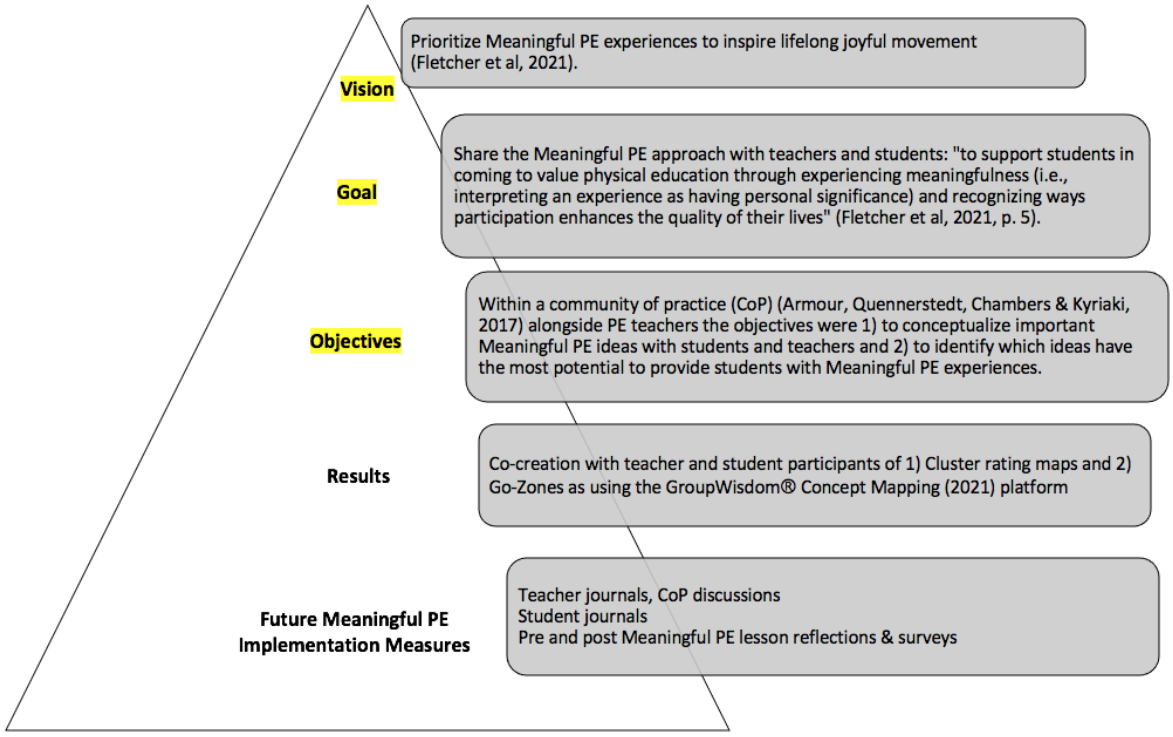
The final step in the preparation phase was to create the rating criteria for the incoming participant brainstorming statements. Rating criteria typically includes at least one rating for importance (Cooper 2008; Kane & Trochim, 2007; Visek et al., 2015). The research objective was to 1) to conceptualize important Meaningful PE ideas with teachers and student and 2) to identify which ideas have the most potential to provide students with Meaningful PE experiences. With these foci in mind, student and teacher participants would be asked to rate each of the synthesized statements were for importance, frequency, and possibility (Appendix M (Visek et al., 2015) on a 4-point Likert scale. The choice to use of a 4-point Likert scale was made in accordance with the examples demonstrated during the Fall Concept Systems Incorporated Group Concept Mapping Design and Practice Training (Kane, 2020). A conscious choice was made to have balanced choices – 2 positive and 2 negative statements (Cohen, Manion & Morrison, 2017).

Teacher Participants

The teacher participants were chosen based on their interest in learning alongside researchers about the Meaningful PE approach. The project began in the late fall of 2019 with an initial community of practice (CoP) meeting (Armour, Quennerstedt, Chambers & Kyriaki, 2017) with all the secondary SASS PE staff. My supervisor presented the SASS staff with an introduction to the Meaningful PE approach (Appendix D). Those who were interested in participating in a CoP and research project were then invited to a second meeting on January 16, 2020. It was during this second SASS CoP meeting that I shared the vision, goals, and objectives for this Meaningful PE research project (Figure 6) and collected teacher consent forms. The SASS PE staff were thenceforth divided into 2 distinct CoP groups: three PE teachers would work alongside me, and the other PE staff would work alongside my supervisor, Dr. Gleddie, in their own CoP.

Figure 6

Meaningful PE Research Vision, Goals & Objectives



Our CoP included three teacher participants (n = 3) who were PE specialists at Sport Academy Secondary School[8] (SASS), a grade 7 to 12 urban sports academy. The SASS academy programs include baseball, softball, hockey, dance, lacrosse, soccer, ringette, sport fitness & recreation (sportfit), and outdoor pursuits. The activity-focused campus offers sports, dance, and outdoor pursuits programs within a small academic community. Student achievement is equal to, and often superior to, that of larger schools. A full complement of high school courses along with numerous high calibre athletic teams and clubs are offered at the school. The timetable for SASS students in junior high (grades 7, 8, and 9) includes Day A and Day B (Table 4). Day A students attend PE during blocks 2 and 3. Day B students attend sport specific training with their PE teacher and outside coaches during blocks 2 and 3. When meeting with teachers and students, the researcher emphasized regularly that all questions and discussions were regarding PE as a subject area, *not* their sport specific training based on their program enrollment.

Table 4

SASS Sample Schedule

	Day A	**Day B**
Block 1 8:20 – 9:40 am (80 mins)	CORE SUBJECT	CORE SUBJECT
Block 2 9:45 am – 11:00 am (75 mins)	PE	Sport Specific Training
Block 3 11:05 am – 12:20 pm (75 mins)	PE	Sport Specific Training
LUNCH 12:20 pm – 12:55 pm (35 mins)	LUNCH	LUNCH
Block 4 12:55 pm – 2:10 pm (75 mins)	CORE SUBJECT	CORE SUBJECT
Block 5 2:15 pm – 3:30 pm (75 mins)	OPTION COURSE	OPTION COURSE

[8] Sports Academy Secondary School (SASS) is the pseudonym used for the participating school.

After our second CoP meeting, I began to send weekly emails (Appendix E) to all SASS PE staff. The emails included readings and journal prompts which correlated with our research goal of sharing the Meaningful PE approach. Subsequently, Ms. Nipiy (Group 1 teacher), Ms. Osâwikwaniy (Group 2 teacher), and Group 3 teacher, Mrs. Mêkwayâhtik, met with me for two more face to face CoP meetings.

The agenda for the CoP meeting included a review the first two email journal prompts and to discuss research study design going forward. The CoP meeting questions and responses were audio recorded and transcribed. All three teachers would be working with their own PE class (each taught only 1 PE class per year) however, they were very unsure of where to begin implementing the Meaningful PE approach (CoP Meeting 1). As a result, we reviewed the initial Meaningful PE features (Beni et al, 2017) together.

Our third CoP meeting included a discussion of their thoughts regarding the initial Meaningful PE features (Beni et al, 2017) and how they could potentially implement them in their PE classes. We also reviewed Pedagogical Case #4 – Using metaphors to think about the features of meaningful experiences (Appendix S) from the Learning About Meaningful Physical Education (LAMPE, 2021) website. This provided some guidance to the PE teachers; however, they requested a more concrete research and implementation plan from me (CoP 3 Meeting Notes). I proposed that we invite the students to articulate their thoughts about Meaningful PE via Group Concept Mapping and then discuss the conceptualizations using semi-structured interviews with the student ideas to generate implementation inspiration.

Student Participants

The student participants were from three different PE classes: Group 1 – students enrolled in a soccer program (n=22), Group 2 – students enrolled in a ringette program (n=8),

and Group 3 – students enrolled in a sport fitness & recreation program (n = 25) taught by the teacher participants. The total number of teacher (n = 3) and student participants (n = 55) was 58. Because of difficulties in scheduling during online learning, student attendance was not always perfect, therefore the number of students who completed each of the 4 activities (questionnaire, brainstorming, sorting & rating) varied. According to Kane & Trochim (2007), it is not imperative for all participants to take part in all the activities. It is desirable for those who do participate to be from the same pool of participants. In this research, all participants throughout all activities were three teachers and students from their respective PE classes. In total we began with 58 participants; 58 completed the participant questionnaire; between 20 and 58 participants submitted at least 2 ideas to the brainstorming activity; 38 participants completed the sorting activity; and rating scales for importance, frequency, and possibility were completed by 41, 31, and 29 participants respectively. Each activity completion rate was above the 40% participation recommended (Kane & Trochim, 2007; Rosas & Kane, 2012) resulting in the project consistently having sufficient participants for data collection.

Demographic groups. All participants responded to a demographic questionnaire (activity 1) regarding four areas: 1) grade; 2) program; 3) gender self-identification; and 4) self-identified ethnicity. The following pie charts and tables (Figures 7 - 8) provide an overview of the participant demographics. The graphic for gender self-identification was not included as it is not pertinent to the results of the study at this time. The graphic for self-identified ethnicity was also not included in the presentation of demographic groups as there were no specific data requests pertaining to this grouping. Students also pointed out to me that my question was missing several categories – Sikh, Muslim, and Filipino were three specific examples provided

(participant questionnaire results, 2021). To maintain relational accountability, I chose to honour their feedback and remove the data sets.

Figure 7

Grade level of participants

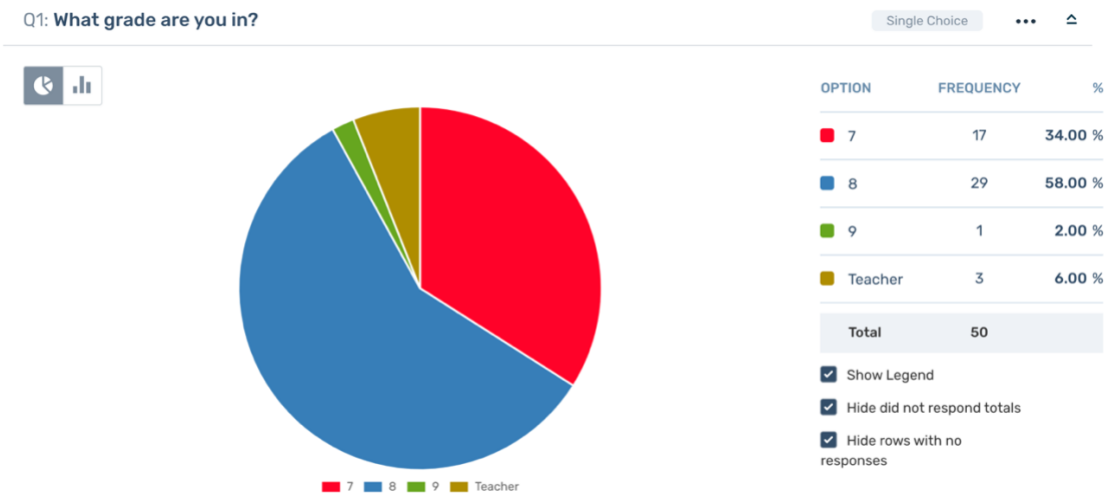
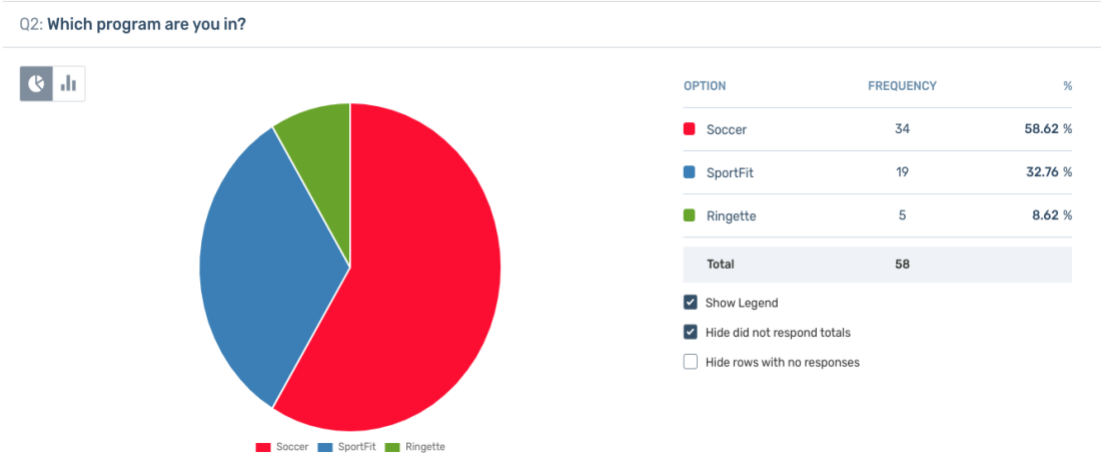


Figure 8

Sport Academy Program Enrollment



Researcher as Participant.

The third participant is me, the researcher, as I articulate my teacher-researcher experience of a relational study with PE teachers and their students. As the primary researcher, I played an active role in creating the focus prompt, synthesizing the brainstormed statements, and in developing the rating criteria. It was imperative that I was aware of and articulated any bias or pre-existing notions that I brought into the research setting. It was equally important that I did not allow these notions to influence the data collection and analysis with the teacher and students during our Google Meets. As a result, I chose not to complete the GCM activities with the participants. This 'role of researcher' was congruent with the constructionist theoretical framework that recognizes that meaning is constructed by the individual influenced by their social surroundings. Furthermore, having previously engaged with Meaningful PE literature and research, it required a conscious effort on my part to not filter the synthesis of the statements only through the initial six features of Meaningful PE (Beni et al, 2017). The initial features were shared with the PE teachers during our CoP meetings however, we chose not to share these features with the students to avoid influencing their conceptualizations of Meaningful PE. Flexibility and openness to other emerging patterns was essential. GCM provided detailed results and an analysis of the students' conceptualizations of Meaningful PE.

Using the demographic survey and research notes from both teacher-researcher meetings and student-teacher-researcher meetings, the historical, sociological, and cultural contexts that inform meaning in this particular school setting were considered. As I journeyed alongside the teachers and students, I kept a reflective journal. These notes contributed to the variety of data generated.

Relational and Ethical Research

To maintain relational accountability, it is necessary that as the researcher participant I summarize my underlying research assumptions (Proctor & University of Alberta, 2001):

- The conceptualizations of Meaningful PE experiences are best described by the students who are direct learners in their PE lessons.
- The research data is collected with and in community.
- The goal is not generalizable results but an understanding of the students' and teachers' experiences within the research context.
- Ethical relationships are maintained by conducting all phases of the research in relational, reciprocal, and responsible ways.

Research can make visible the experiences of teachers, students, and researchers. Dewey would encourage research experiences to pragmatically alter future teaching pedagogies (1938). To fully explore and share the experiences of all participants, a degree of flexibility and openness within the Indigenous Research Paradigm (IRP) is acknowledged: "For researchers to be accountable to all our relations, we must make careful choices in our selection of topics, methods of data collection, forms of analysis and finally in the way we present information" (Wilson, 2008, abstract). Prior to entry into a research community, as the ideas for the research project are percolating, researchers need to consider: "What is ethical to do in order to gain this knowledge? And what will this knowledge be used for?" (Wilson, 2008, p. 34) And to whom are we accountable?

The ethical responsibilities for educational researchers are fourfold: 1) to their participants and their learning community, 2) to the audience, 3) to themselves, and 4) to the academic institution (Casey, Fletcher, Schaefer, & Gleddie, 2018). If researchers, ask themselves "Am I being a good human being?" (Casey et al., 2018, p. 132) then they ought to be meeting

their ethical responsibilities to all four parties involved. Tim Fletcher (Casey et al., 2018) described this as:

> I am sort of thinking of it as Ethics (big E ethics) for the type that we need to do in order to get things published or funded or what have you. And ethics (little e ethics), which is being conscious of the rights of your participants or your students or the people that you're working with, so they have the right to feel that they are not being coerced into saying or doing something that they don't want to, they are feeling like they can opt out of certain things if they want to (p. 132).

I would respectfully challenge this. To me Ethics (as in big E ethics) are first and foremost to our fellow human beings - our participants, their communities, the audience, and ourselves. Putting people first would maintain relational accountability and acknowledge the need for reciprocal and responsible research. Institutional ethics would be little e ethics. Publications and funding criteria, are simply boxes to be completed and checked off, these will inherently be met if we are being good human beings and researching in a good way.

To meet little e ethical requirements, this research project was reviewed by the Alberta Research Information Services (ARISE) System members. Research *with* youth and educators will only be relational if time is taken to build rapport and genuine interest (Ellis, 2006). Using Google Meets and Group Concept Mapping (GCM) students and teachers were provided the opportunity to express their own perspectives, values, emotions, and experiences.

As the researcher truly listens and demonstrates genuine care and interest during research activities, relationality continues. Final research texts from all participants must adhere to relational accountability which takes into account "consent, confidentiality and transparency at all stages of the research process" (Casey et al., 2018). Each of these three are big E Ethical considerations. Consensual accounts and connections are rigorous and reliable when the researcher and participants are in agreement of what the analysis and interpretation describes.

Confidentiality was a personal choice of the participants however, not one participant chose to use their real names. To adhere to their confidentiality choice, pseudonyms were used. Freedom of choice in terms of confidentiality links consent and transparency. As the interim and results were shared and evaluated with the participant community, transparency was ensured. As all the connections are made, the final texts become Ethically sound examples of research done in a good way (Wilson, 2008).

Phase 2: Generation of Ideas (Data Collection 1)

After the preparation phase is complete, the project advances to the 2nd phase, the generation of ideas which includes activities 1) a participant questionnaire & 2) brainstorming. Activity 1, the participant questionnaire (Appendix G), was completed to gather demographic information about the participants. Activity 2, the brainstorming activity (Appendix H), was completed in response to the focus prompt: 'When I think of Meaningful PE, one thing that matters to me is…' Teachers and student participants were asked to brainstorm statements in response to the focus prompt. "This approach to data collection does not necessitate each participant's involvement in every task" (Visek et al., 2015, p. 3). In our study there was participant attrition as we moved from activities 1 to 4, which is common in many GCM projects (Rosas & Kane, 2012) however, this did not detract from the reliability nor the validity of our data (see Appendix N for further details).

Phase 3: Idea Synthesis

Idea synthesis occurs after the generation of ideas and prior to the structuring of ideas. Participant statements were read and synthesized for the following purposes:

1) To obtain a list of unique ideas, with only one idea represented in each statement
2) To ensure that each statement is relevant to the focus of the project
3) To reduce the statements to a manageable number for the stakeholders to sort and rate

> 4) To edit statements for clarity and comprehension across the entire stakeholder group
> (Kane & Trochim, 2007, p. 59)

The process of idea synthesis is NOT to prioritize NOR remove ideas. Idea synthesis is used to generate a manageable number of clear, understandable, and relevant statements for the sorting and rating phases. GCM recommends the number of statements for sorting and rating be between 25 to 50 statements (Cooper 2008; Kane & Trochim, 2007) to a maximum of 100 (Rosas & Kane, 2012). Statement synthesis followed three steps, 1) identifying keywords within the original statement set, 2) coding the keywords for the reduction purposes, and 3) writing and editing for clarity (Appendix J).

Phase 4: Structuring of Ideas (Data Collection 2)

The fourth phase, the structuring of ideas, is the second round of data collection and includes activity 3: sorting and activity 4: rating. Participants were asked to sort and rate the 44 synthesized statements independently. Detailed instructions for sorting were provided to the participants (Appendix L). The platform automatically saved all the sorting piles that the participants generated. Activity 3, sorting, could be completed during class time and on their own time via the online GroupWisdom® Concept Mapping (2021) platform if more time was needed.

The fourth activity, rating, included rating each of the 44 synthesized statements using a 1 to 4 Likert-type scale. Each of the 44 statements were rated according to the participant's thoughts about the statement's importance, frequency, and possibility. Detailed instructions were provided during the Google Meet using the screenshare feature to project the GroupWisdom® Concept Mapping (2021) platform (Appendix M). Combined the three rating scales would be analysed using multidimensional scaling (MDS) to create conceptual maps.

Phase 5: Representation of Ideas (Statistical Analysis Methods)

The fifth phase in the GCM process uses MDS followed by hierarchical cluster analysis (HCA) to identify conceptual features or clusters (Cooper, 2008; Kane & Trochim, 2007; Visek et al., 2015). The data from the sorting phase can be analyzed by hand or by the GroupWisdom® Concept Mapping (2021) platform.

Multidimensional Scaling (MDS)

The sorted data piles were "first analysed with multi-dimensional scaling to determine the spatial relationship between statements" (Nowicki et al, 2013, p.350). This first step creates a single binary square similarity matrix for each participant who completed the sorting activity (Appendix T). A total square similarity matrix was created by the GroupWisdom® Concept Mapping (2021) platform (Appendix U) by adding all the individual matrices together. The total square similarity matrix is then used by the GroupWisdom® Concept Mapping (2021) platform to conduct a *two-dimensional nonmetric multidimensional scaling* (Visek et al., 2015) (Appendix V). The points are plotted based on the total similarity matrix and the multi-dimensional scaling algorithm. The resultant output is a map that represents similarity using *two dimensions* (X, Y). The point map (Figure 9) provides us with a picture depicting conceptual similarities.

Each point on the map represents one of the synthesized statements from the brainstorming activity. "The location of each point's placement on the map is an indicator of relationship to all other points" (Visek et al., 2015, p. 5). In concept mapping, researchers are interested in the point and cluster maps for their visual representation of relationality (Kane & Trochim, 2007).

Figure 9

Point Map

The point map is an interpretable result of the sorting activity of the participants. This quantification of the qualitative statements can be diagnosed as being statistically reliable using the stress index (Cooper, 2008; Kane & Trochim, 2007; Visek et al., 2015). “Stress measures the degree to which the distances on the map are *discrepant from* the values in the input similarity matrix” (Kane & Trochim, 2007, p.97). A low stress value suggests a good fit and the map does represent the data well (Kane & Trochim, 2007; Visek et al., 2015). A high stress value would indicate that there is a larger discrepancy between the input data and the two-dimensional map displayed. A pooled analysis from 69 group concept mapping studies found an average stress value of .28, with a range from .17 to .34 (Rosas & Kane, 2012). Kane & Trochim (2007) found that across a broad range of concept mapping projects, stress values range between 0.205 and 0.365.

Hierarchical cluster analysis (HCA)

Hierarchical cluster analysis (HCA) (Appendix W) is the third quantitative method used by the GroupWisdom® Concept Mapping (2021) platform to create cluster maps of similar concepts (Felx., Kane., Corbière., & Lesage, 2020; Kane, 2020; Kane & Trochim, 2007; Trochim, 1989). In developing the GroupWisdom® Concept Mapping (2021) platform Kane & Trochim (2007) sought an analysis approach that "groups or *partitions* the statements on the map as they were placed by multidimensional scaling; that is statements that were placed in the same cluster would be in contiguous areas of the map" (p. 99) implying that the statements are conceptually similar. The cluster map is the last of the outputs from the sorting activity.

Cluster Selection

There is no single 'correct' number of clusters, it is entirely dependent on the research team (Kane & Trochim, 2007). The cluster map consists of clusters that represent the overall concept being investigated (Davis, 2003). The cluster solutions are selected for further review using GCM guidelines (Appendix W). Upon completing the cluster reduction & selection process (Appendix W), a final cluster map solution is generated.

Phase 6: Interpretation

The sixth phase of the GCM methodology, interpretation, includes several steps: 1) identifying and naming the clusters; 2) examining the cluster map, point rating map, and cluster rating map; 3) examining pattern matching; and 4) examining Go-Zones (Cooper, 2008; Kane & Trochim, 2007).

Step 1: Cluster Listings and Names

The GroupWisdom® Concept Mapping (2021) software does suggest a label for each cluster based on the titles participants provided during the sorting activity (Cooper, 2008; Kane & Trochim, 2007). Each cluster is composed of a group of statements which share conceptual commonalities. The "software examines each of the individual piles generated during the sorting process and identifies the individual pile that has the best statistical fit with the cluster. The [participant generated] label from this pile is then applied to the cluster" (Cooper, 2008, p. 89). The software will also provide 10 more label suggestions, allowing the researcher and participants to choose the most appropriate label for the cluster (Cooper, 2008). The participants and researcher also have the option to create an entirely new label name if required.

Step 2: Point Rating Maps, Cluster Maps, & Cluster Rating Maps

The point rating map and cluster rating maps are created from the statistical analysis of the rating activity. The point rating map is the original point map with average statement ratings overlaid. The length of the tail on the point indicates the average relative importance for each of the statements according to the participants who completed the rating activity.

Step 3: Pattern Matches

Pattern matches and Go-Zones can be also generated using GroupWisdom® Concept Mapping (2021). Pattern matching shows the average rating for each cluster and can compare different rating scales or demographic variations for the same rating scale (Kane & Trochim, 2007). Pattern matches can also assess consensus between two groups of participants, for examples students and teachers. Pattern matches are depicted using a ladder graph and the connecting lines visibly demonstrate the overall strength of correlation between two rating patterns. Pattern matches assist in understanding the common and uncommon conceptualizations

between participant groupings. Pattern match comparisons are made using the Pearson product-moment correlation, *r* value (Cooper, 2008; Kane & Trochim, 2007) (Appendix X).

Step 4: Go-Zones

Go-Zones as the name implies, presents the most actionable items (Kane & Trochim, 2007). They may provide further discussion prompts or visual cues for implementation priorities (Appendix Y). "The term go-zone springs from the fact that the upper-right quadrant displays statements from a specific cluster that were rated above average on both variables" (Kane & Trochim, 2007, p. 22). The go-zone graphs, once shared and interpreted with the participants, can assist in providing a framework for implementation and utilisation.

Relational Accountability within GCM

Teachers, students, and researchers are social and physical beings. We all come to our school spaces with our own experiences and stories. We all have ways of being and language to describe experiences. As a relational researcher I wanted to ensure the findings would be useful to the students and their teachers (Ellis, 2006). This dedication to respect invited the participants to share their "own sense-making and ways of proceeding that [informed my] understanding of the significance of the conditions in which [the students live and learn]" (Ellis, 2006, p. 111). To best interpret the concept mapping data, I attempted to continue to build relationships with students and their teachers using virtual Google Meets.

The physical 'world' travel that typically creates a path to understanding the historical, social, and cultural experiences of the community (Lugones, 1987) was no longer possible. Attaining a holistic view of who the teachers and students were, what their daily lives were like, and where meaningful physical education might fit into their 'world' (Ellis, 2006; Lugones, 1987) did not go as I'd hoped. All their regular school routines and schedules completely

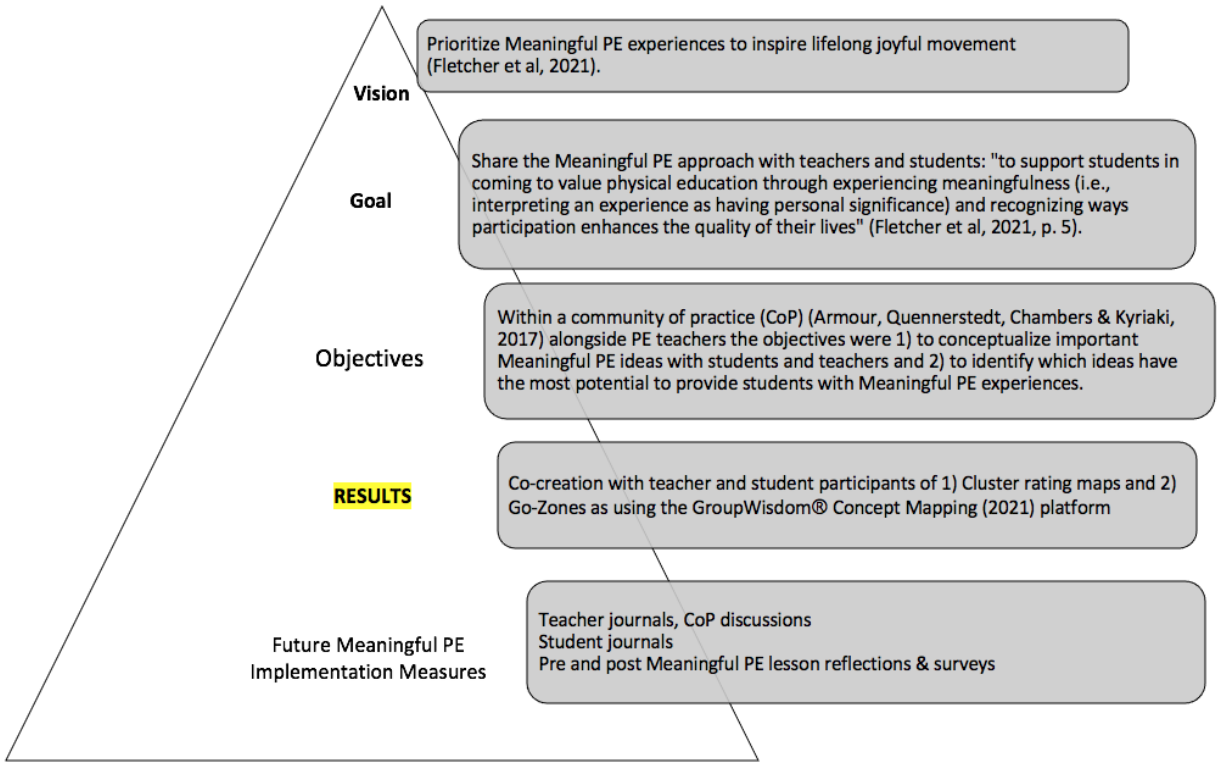
evaporated as COVID-19 restrictions required everyone to learn, teach, and work from home. Students were required to check in with their teachers at regular intervals, however, these meetings were not always at the same time on the same days for all the students. Therefore, I was unable to physically live their PE experiences alongside them in their 'world' (Lugones, 1987). Our researcher-teacher-student relationships sadly were not as rich as I'd hoped. However, I am grateful for the time and conversations we were able to have together. The results are presented in two mixed method forms: the quantitative results from the GroupWisdom® Concept Mapping (2021) platform (Chapter 5) and a qualitative telling of the participant interviews about the results (Chapter 6).

Chapter 5 – Group Concept Mapping Results

The objectives of this study were the co-creation of 1) cluster rating maps and 2) go-zones using the GroupWisdom® Concept Mapping (2021) platform with teachers and students in a secondary urban setting (Figure 10).

Figure 10

Meaningful PE Research Pyramid - Results



The quantitative data presented includes the resultant point map, point rating map, the final cluster map, the cluster rating maps, pattern matches and go-zones. All results are presented in the sequential order of the 7 phases of GCM (Table 5).

Table 5

GCM Activities & Results

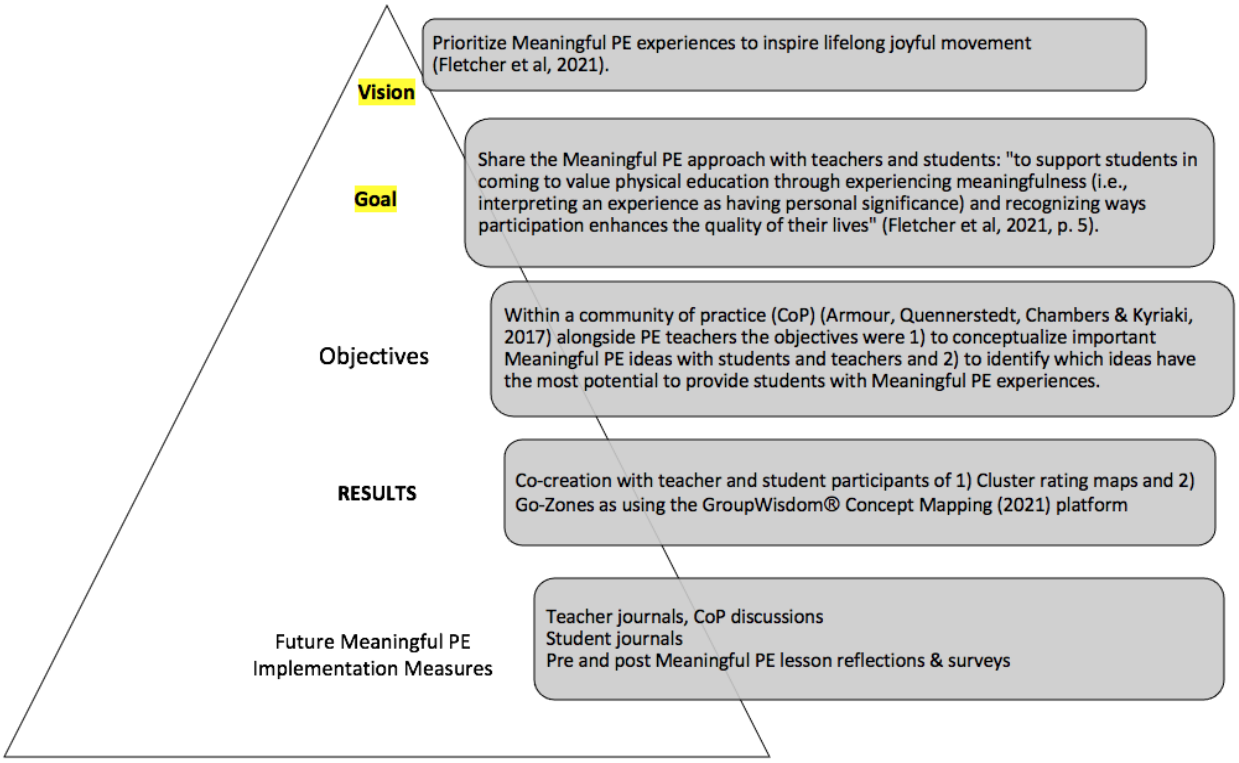
GCM Phases	Activities	Results
1) Project Preparation	• Participant identification & selection • Collection of consent and ethical considerations • Develop the focus prompt • Develop the rating criteria	• Participant details • Collection of consent • Focus prompt • Rating Criteria
2) Generation of Ideas	• Participants provide personal demographic information during activity 1 • Participants (n = 20 to 54) provided at least 2 ideas during the brainstorming activity	• Demographic information • List of brainstormed ideas (n = 196)
3) Idea Synthesis	• Researcher (n = 1) synthesizes participant generated statements	• Synthesized list of 44 statements for the participants to sort
4) Structuring of Ideas	• Participants (n = 38) sorted the statements into conceptual piles • Participants rate the statements according to rating criteria for importance (n = 41), frequency (n = 31), and possibility (n = 29)	• Sorting results for each participant • Rating results for each participant
5) Representation of Ideas (Statistical Data Analysis Methods)	• Create a similarity matrix from the sort data • Multidimensional scaling (MDS) of similarity matrix to locate each statement as a point on a two-dimensional (X, Y) map – the point map • Hierarchical cluster analysis (HCA)	• Similarity matrix • Point map • Cluster listings • Cluster map • Point Rating Map • Cluster Rating Map • Pattern Matches • Go-Zones
6) Interpretation	• Identify and name the clusters • Examine the cluster map, point rating map, and cluster rating map • Examine pattern matches • Examine Go-Zones	• Participant and researcher agreement on Cluster Names • Participant requested pattern matches and go-zones
7) Utilization	• Apply the results (Chapter 6)	• Use GCM results to inform practice

Phase 1: Project Preparation Results

The project began in the late fall of 2019 with in person community of practice (CoP) (Armour, Quennerstedt, Chambers & Kyriaki, 2017) meetings between the three teacher participants and I. The purpose of the CoP was to introduce the teacher participants to the vision and goal of the research project (Figure 11).

Figure 11

Meaningful PE Research Pyramid - Vision & Goal Sharing



Consent forms were collected from the teacher participants, as well as from the parents/guardians of the students (Appendix C). Student assent was also collected (Appendix B).

During the second step of the preparation phase the focus prompt: When I think of Meaningful PE, one thing that matters to me is… was developed to answer the research question: *What are secondary teachers and students' conceptualizations of Meaningful PE?*

This focus prompt was used to guide the brainstorming activity and ultimately the results of the project (Cooper, 2008; Kane & Trochim, 2007; Trochim, 1989; Visek et al., 2015).

The third step in the preparation phase was to create the rating criteria for the incoming participant brainstorming statements. The research objectives were to 1) to conceptualize important Meaningful PE ideas with teachers and students and 2) to identify which ideas have the most potential to provide students with Meaningful PE experiences. Consequently, student and teacher participants were asked to rate each of the synthesized statements for importance, frequency, and possibility (Appendix O) (Kane & Trochim, 2007; Trochim, 1989; Visek et al., 2015).

Phase 2: Results from the Generation of Ideas

This phase included meeting virtually with each teacher and their class. Prior to beginning online activities 1 and 2, the participants and I met via Google Meet synchronously. I also provided an introduction video via YouTube to those who needed asynchronous content. A specific Meaningful PE introduction script (Appendix F) was read to the participants before beginning the activities followed by an explanation of the difference between the words ‘meaning’ and ‘meaningful’:

> This word here meaningful. So, this word meaningful, I want you to take a look at this device here. What is it? What does this mean? Well, it's a cell phone, a smartphone. It holds data. It can take pictures.
>
> You can send text messages, emails, all kinds of different things. And that's pretty much it, it's a communication tool. That's what it means. This cell phone becomes meaningful to me. It becomes a part of my experience, part of my story, important to me when I put on a case that I think is pretty when I put on my little, pop socket, whatever these things are called, from the Health and Physical Education Council of Alberta.
>
> So that's the council that I'm a part of. It becomes meaningful when I fill it with my contacts or when I take pictures of my family. There's my husband and our three children

on a beach in Hawaii, and I'm not sure that we'll ever get back there again. So that's meaningful to me….

Another one water bottle. So, the meaning behind a water bottle, it's an object or a container that can hold liquid. It has a lid that I can open and drink from, and that's the meaning behind my water bottle. This becomes meaningful to me when I think of who picked it out. My girls, who I have a feeling you'll meet shortly.

And every time I take a sip from my water bottle, I recognize, remember, and I'm grateful for the fact that I have fresh clean water…. So, this becomes meaningful to me when I think about the bottle. I don't want to be dehydrated. Right? But when I think about the fact that our family is blessed to live in a place where I have access to fresh drinking water, I can fill this up as many times as I want in a day. And I don't really think twice about it sometimes.

And so, it's important for me to remember that there are some communities in the province and in our country that don't have access to fresh drinking water. So that is why a water bottle is meaningful to me. I think about, yes, my health and staying hydrated, but also the bigger social picture of water, which is something we don't often stop and think about. So, meaning is a container that holds liquid. Meaningful is a container that holds water, which is a precious resource that not all of us have access to.

The last one, everything that my work is on right now is on the table. So, if you think of a cafeteria table, for example, or just a kitchen table, the meaning behind it, is it supports, it's a supportive structure. Things can be placed on it. It bears weight and they [tables] can be inside and outside.

When you think about how a table can become meaningful, you think of maybe your family kitchen table and of all the conversations and laughter and tears and fights and discussions, and homework that's been done at your family kitchen table, perhaps then that table becomes meaningful.

That particular table, if it was put out for a garage sale or trash and treasure, may not be meaningful to someone else until they bring it into their home, bring it into their experience and their stories, and they sit around that table doing homework, visiting, talking, creating art and so on and so forth.

Or if you think of a cafeteria table, the meaning is students go there to eat, it holds their lunch, their phones, whatever else they put on there…. And so that's the meaning behind the cafeteria table. Perhaps that cafeteria table is meaningful to someone else in that that was one of the loneliest places in the school for them….

Maybe that's where they eat lunch every day by themselves for three years. Or six, depending on the school, …. or maybe that table is meaningful because that's where they met their first love - at *that* cafeteria table.

> So, there's the difference between meaning - something that almost everyone shares, like a container that holds liquid can be a drink bottle…. A water bottle becomes meaningful when for me it holds water. That is, a precious resource that we need to respect and honor. So that's the language we're talking about. (Meaningful PE Research Introduction Google Meet video transcription, October 29, 2019).

Following this explanation, activities 1 & 2 were demonstrated via screensharing within the Google Meet platform. Activity 1, the participant questionnaire (Appendix G), was completed to gather demographic information about the participants. Activity 2, the brainstorming activity (Appendix H), was completed in response to the focus prompt: 'When I think of Meaningful PE, one thing that matters to me is…' Using the GroupWisdom® online Concept Mapping (2021) platform participants (n = 20 - 58) generated a combined total of 196 qualitative statements that identified specific aspects of meaningful physical education as it applied to their individual needs and experiences (Appendix I).

Phase 3: Idea Synthesis Results

Phase three has three distinct steps: 1) identify keywords, 2) code the keywords, and 3) write synthesized statements (Kane, 2020; Kane & Trochim, 2007; Trochim 1989). The 196 qualitative statements that the participants identified during phase 2 were copied into a Google Sheet (Appendix J). Each of the 196 statements were then separated into keywords. For example, "meaningful education to me means being with my friends" (brainstormed statement # 7), resulted in the keywords 'being with friends'. Similarly, the statement "being with friends" (brainstormed statement # 166) also resulted in the keywords 'being with friends'. Whereas the statement: "It is not necessarily the activity that is meaningful it is the group that matters and it really helps if you like the activity just a heads up" (brainstormed statement #112), resulted in the keywords 'group' and 'like the activity'.

After keywords had been identified, step 2 required coding the keywords and amalgamating redundant ideas into one statement that would maintain participant vocabulary and detail. For example, all the mentions of a specific sport such as “soccer” (brainstormed statements 53, 70, 75 & 80); “I want to play basketball” (brainstormed statement # 137), or “I want to do sports” (brainstormed statement #138) were all amalgamated under the keyword ‘sports’.

Lastly, during step 3 the coded words were written and edited for clarity. For example, brainstormed statement #4 “being competitive and pushing myself” was broken down into the keywords ‘competitive’ and ‘pushing myself. These keywords were then coded as ‘being competitive’ and ‘trying my hardest (demonstrating effort)’. These coded words were then synthesized into statement 1 ‘trying my hardest (demonstrating effort)’ and statement 10 ‘being competitive’. Appendix J is a series of screenshots taken of the Google sheets I used during phase 3: idea synthesis. It is also important to note that nonsensical statements such as “Cobra Kai” (brainstormed statement #17) and “Fortnite funny” (brainstormed statement #84) were removed entirely. The result was a final list of 44 statements (Appendix K) to then be used in activity 3: sorting, and activity 4: rating.

Phase 4: Structuring of Ideas Results (Data Collection 2 Details)

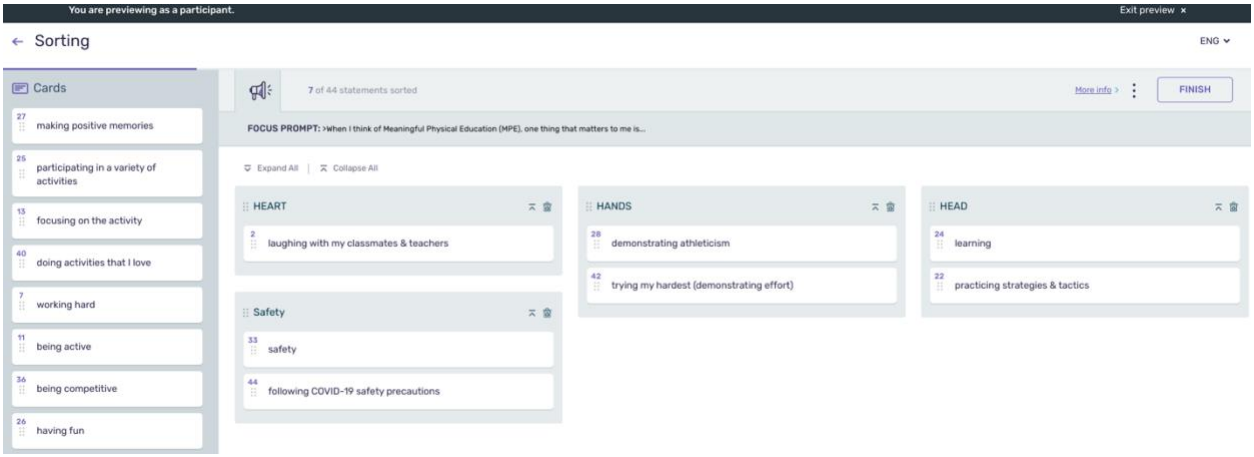
Sorting

Participants were asked to sort and rate the 44 synthesized statements independently. Detailed instructions for sorting were provided to the participants (Appendix L). As the researcher, I used the screenshare feature during Google Meet to demonstrate activities 3 & 4 via the GroupWisdom® Concept Mapping (2021) platform (Appendices L & M). Then I provided an example. I explained that I was sorting the statements into three categories: Head, Hands, and

Heart (Figure 12). Any of the statements on the left that I thought had to do with heart or emotions, I would 'click, drag, & drop' into pile 1: Heart. For example, 'laughing with my classmates and teachers' I considered to be an emotional aspect of PE. Anything that I felt was hands on or physical, I would sort into pile 2: Hands. These included 'demonstrating athleticism' and 'trying my hardest'. My third sorting pile was head or thinking. In this pile I sorted 'learning' and 'practicing strategies & tactics'. I also chose to include a Safety pile as I did not feel that safety would naturally fit within my three other piles.

Figure 12

Participant View - Sorting Example



I did not provide any further sorting examples as I did not want to influence the teacher and student's independent sorting activities. Teachers used the remainder of the lesson time to check in with students (virtually) to ensure they understood the instructions and were able to work independently on the activity.

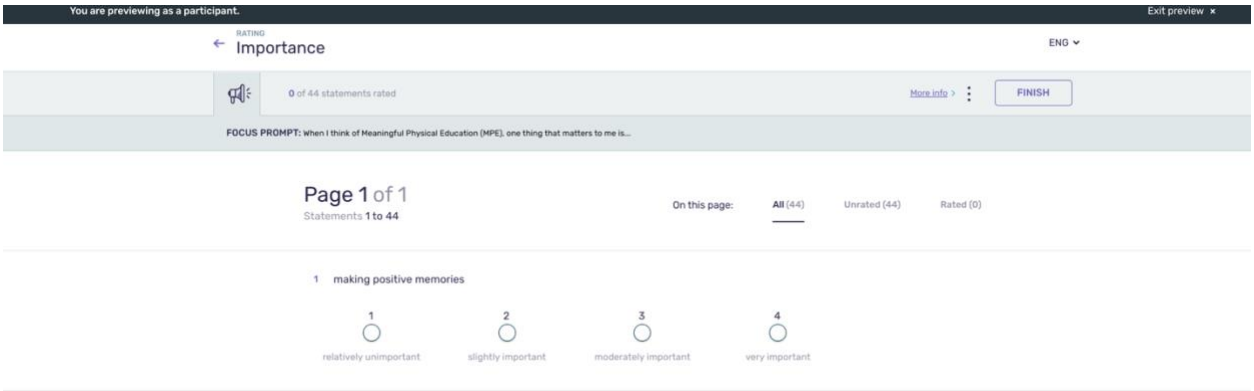
Rating

The following example was provided to the student regarding the statement 'making positive memories'. I asked them on a scale of 1 to 4 with 1 being *relatively unimportant* to 4 being *very important*; how would you rate 'making positive memories'? Based on your opinion,

you would click on the corresponding circle (Figure 13). I then explained that they would rate each of the 44 statements for importance. Importance ratings were used to identify the concepts of Meaningful PE that students identified as most relevant to their learning.

Figure 13

Participant View – Rating Example



The second rating scale the participants used was frequency. This rating scale was asking participants to identify how often they were currently seeing evidence of each statement. For example, ‘making positive memories’ could have been rated 1 (*never see evidence*) of ‘making positive memories’ to 4 (*very often see evidence*) of ‘making positive memories’ during their PE classes. Frequency allowed us to identify any pre-implementation gaps in Meaningful PE programming and recognize current Meaningful PE teaching practices.

The third and final rating scaled used was possibility. I invited participants to rate the possibility of each of the 44 synthesized statements. For example, they could rate the possibility of ‘making positive memories’ in future PE classes from 1 (*almost impossible*) to 4 (*extremely possible*). Possibility gave us insight into what both students and teachers considered to be attainable in Meaningful PE programming. I let the participants know that we would meet virtually again to examine the statistical analysis results and to collect feedback from them (both

teacher and student participants). Specifically, I would be seeking their cluster solution preferences.

Phase 5: Representation of Ideas - Statistical Analysis Results

Using the GroupWisdom® Concept Mapping (2021) platform to perform multidimensional scaling the following maps were generated: 1) the Meaningful PE Point Map, 3) the Meaningful PE Cluster Map, and 4) the Meaningful PE Cluster Rating Map. These maps provided talking points during the initial result presentations, first to the teachers (n = 3) during a virtual CoP and then with student groups.

The Meaningful PE Point Map

The Meaningful PE Point Map (Figure 14) is the first visual demonstration of the participants sorting data. The distance between points depicts how closely related the Meaningful PE ideas are to each other. Statements that were sorted together more frequently by the participants during the sorting activity are closer to each other. Statements that were infrequently placed together by participants are further apart. The proximity between points provides a physical representation of how conceptually similar the Meaningful PE ideas are according to the participants sort data.

Figure 14

The Meaningful PE Point Map

Note: The stress value for the Meaningful PE point map was 0.2304 implying that the underlying concept of meaningful physical education was agreed upon by the participants.

The point map is used as the foundation for the remainder of the findings and analysis. "The underlying foundation of the multidimensional scaling (point map) is accorded more weight than the partitioning of that space into clusters" (Kane & Trochim, 2007, p. 104). The point map is the foundational constant and describes the content within each cluster based on the participants' activities: brainstorming, sorting, and rating.

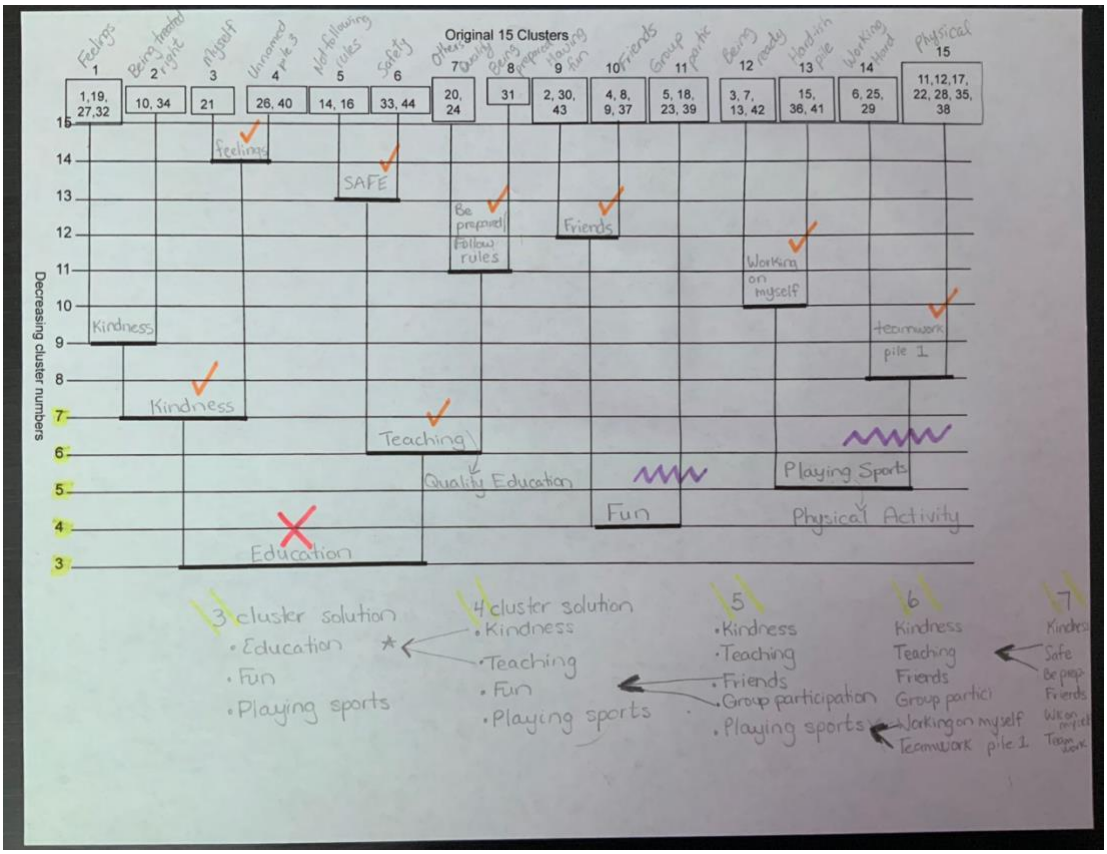
Cluster Decisions –Results

The point map was used to create the cluster solutions along with the participants rating data. The clusters presented to both the teacher and student participants were created using the

following guidelines. Cluster solution selection criteria is simply put ‘stop when your agreements with the cluster merges turn into disagreement’ (Kane, 2020). Figure 15 shows the HCA I did by hand to practice and comprehend the HCA process and to ensure I was very familiar with the data sets. The orange check marks are for mergers that I agreed with. For example, the merging of cluster 12 (being ready) and cluster 13 (hard-ish pile) made sense to me because the resultant cluster would include the statements 3-winning, 7-working hard, 13-focusing on the activity, 15-being challenged, 36-being competitive, 41-competition, and 42-trying my hardest (demonstrating effort). Conceptually these statements all fit with the new cluster title: ‘Working on myself’ (Figure 15).

Figure 15

HCA mergers



The purple jagged lines are for mergers I was curious about and wondered if the participants would agree with. When the 'Working on myself' cluster (Figure 15) was merged with 'Teamwork pile 1', I was not entirely convinced that the 'Working on myself' statements (3-winning, 7-working hard, 13-focusing on the activity, 15-being challenged, 36-being competitive, 41-competition, and 42-trying my hardest) belonged with 'teamwork pile 1' statements (6-trying new activities, 11-being active, 12-being outdoors, 17-exercising, 22-practicing strategies & tactics, 25-participating in a variety of activities, 28-demonstrating athleticism, 29-demonstrating sports-personship, 35-improving my skills, and 38-playing sports). An alternative title presented by the GroupWisdom® Concept Mapping (2021) platform for the 'teamwork pile 1' cluster was 'wellness' (Figure 16) which I thought was an accurate description of the aforementioned statements. When amalgamating these clusters, I felt that cluster coherence and clarity was lost (Brennan, Brownson, Kelly, Ivey & Leviton, 2012) which is why I questioned the merger. I was curious to see if the teacher and student participants would agree with the merger.

Lastly, the red X marked the merger where my agreements turned into a disagreement, thereby solidifying my choice to share the 7-cluster solution down to the 3-cluster solution. When the kindness clusters 1, 2, & 3 were to be merged with the teaching clusters 5, 6, 7 & 8, I did not agree that the statements within these clusters were conceptually similar enough to be in a single cluster. The kindness clusters contained the statements 1-being treated with respect, 10 – equality, 19 – being treated with kindness, 21-practicing leadership, 26-having fun, 27-making positive memories, 32-being happy in class, 40-having my thoughts and opinions heard, and 40-doing activities that I love. The teaching clusters consisted of the statements 14-being taught by quality teachers, 16-using technology in class, 20-paying attention to the instructions, 24-

learning, 31-having the proper equipment, 33-safety, and 44-following COVID-19 safety precautions. In my opinion, it did not make sense to group all these statements into one cluster because they appeared to contain statements about equitable treatment (kindness cluster) and the other focused primarily on quality teaching (teaching cluster). However, ultimately it would be up to the participants to discuss and decide.

During our virtual 'cluster decision' Google Meet I first presented to the teachers (n = 3) several cluster solutions (Appendix O). Then together the teachers and I presented the student participants (n = 33) with the Meaningful PE point map, and several cluster solutions (Appendix O).

Teacher Group. The teacher participants and I met during a virtual CoP meeting (December 14, 2020) to look over the initial point map, point rating map, and cluster solutions using screenshare to project the GroupWisdom® Concept Mapping (2021) platform results. I first presented to the teachers (n = 3) the point map and several cluster solutions. Then together the teachers and I presented the student participants (n = 33) four cluster solutions in Google Slide format (Appendix O) and via the GroupWisdom® Concept Mapping (2021) platform. The teachers understood the intention was to have students recommend the final cluster solution and they agreed to act as moderators during the cluster discussions, rather than influencers. Teachers could answer clarifying questions, assist with calling upon students whose hands were raised indicating they'd like to speak[9], and they would also set up the online technology required (SmartBoard screen and projector). The teachers would also repeat any remarks the students made if I could not hear clearly. The teachers agreed to not suggest a preference for a final

[9] Students were back in the school at this time however, I was joining via Google Meet as only staff and students were allowed in the buildings.

cluster solution. The December 14 CoP meeting was not audio recorded, only researcher notes were taken.

Group 1. Unfortunately, group 1 (n = 22) was unable to meet and provide input into the cluster number decision. This will not affect the results as all the groups' data were being collected en masse to represent the overall junior high student participant population (n = 55) at SASS and group 3 would have the opportunity to provide a vote and input during the final cluster solution selection meetings in January 2021.

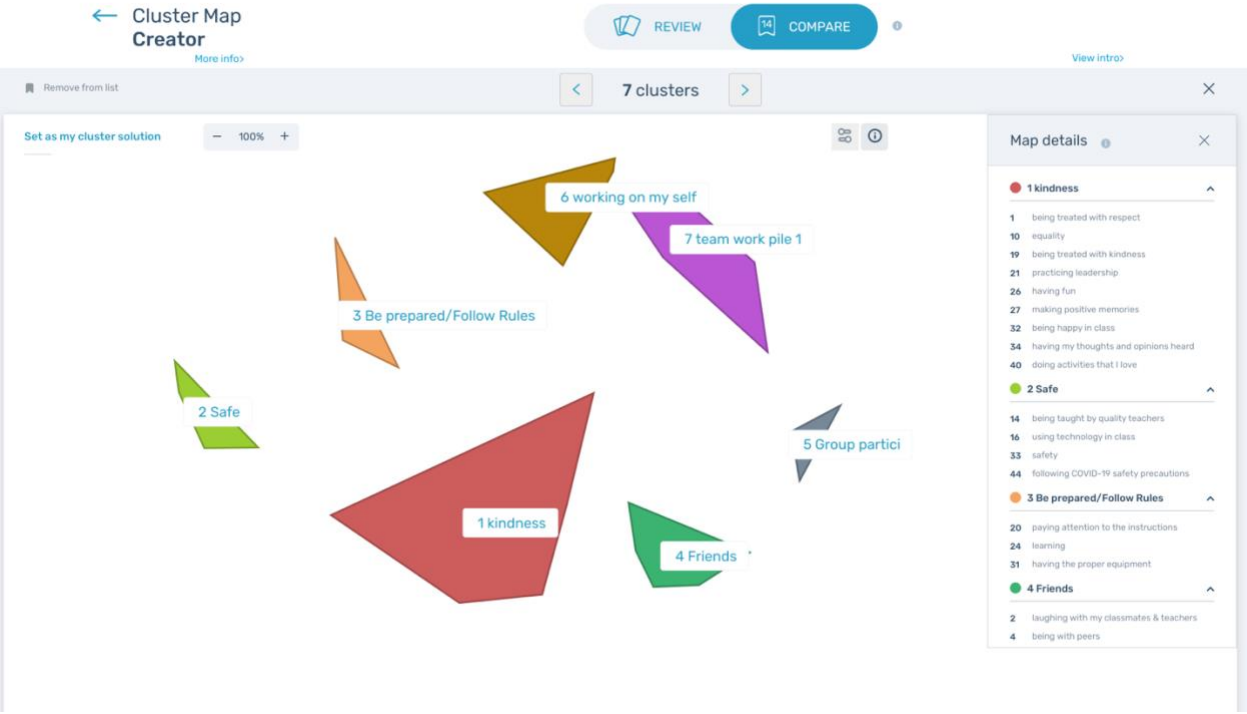
Group 2. Group 2 (n = 8) met with me virtually on December 15, 2020. The virtual meeting was recorded resulting in 42 mins of audio and video material. The audio was then transcribed resulting in a total of 3 pages of transcription. The goal of the meeting was for the group 1 to recommend a cluster that best described them as a group of students from grades 7 to 9. As we looked at the possible cluster solutions, I would repeat the prompt: 'When I think of Meaningful PE, one thing that matters to me is…' to remind them of the overall message of the cluster solution. The criteria for a cluster selection or elimination was, 'stop when your agreements with the cluster merges turn into disagreement' (Appendix O). I explained that their final cluster solution would describe their ideas about meaningful physical education and provide direction for future physical education planning and implementation.

Group 2 recommended the 7- cluster map (Figure 16) as best representing them. During the virtual meeting I was able to screenshare both the Google Slides and the GCM online platform as captured in Figure 16. This enabled us to review the statements within each cluster. The students suggested changing the label of cluster 7 from 'team work pile 1' to 'Physical Activity' which was one of the 10 suggested labels from the GroupWisdom® Concept Mapping

(2021) platform. The students felt that this better represented the statements within the cluster (Group 1 discussion).

Figure 16

Seven Cluster Map



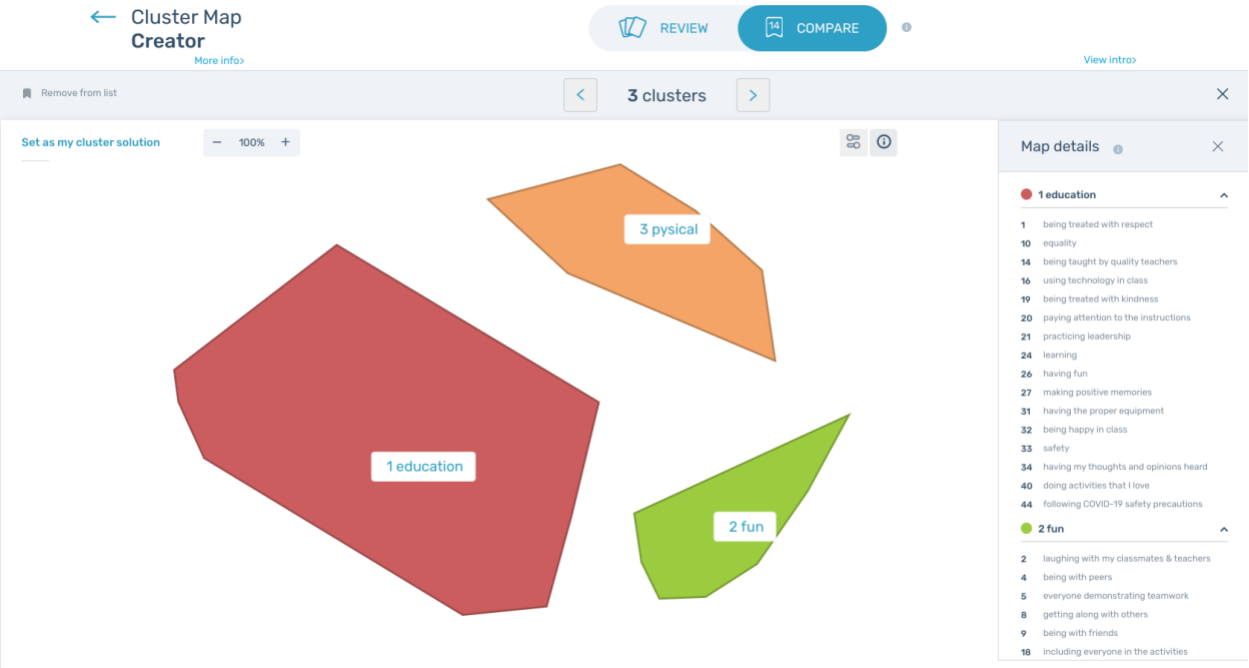
To come to the cluster solution that represented all the members of Group 1, Ms. Osâwikwaniy ensured that the students were voting either for or against each cluster solution and providing reasons for their choices. She did not use any language to influence student decisions.

Group 3. When group 3 (n = 22[10]) met with me, the virtual meeting was recorded and resulted in a 47-minute audio and video recording and 4 pages of transcription. Group 3 chose the three-cluster solution (Figure 17) as best representing them.

[10] The size of Group 2 (n = 22) compared to Group 1 (n = 8) will not affect the results as all the groups' data were being collected en masse to represent the overall junior high student participant population (n = 55) at SASS.

Figure 17

Three Cluster Map



This group also suggested two label changes. The first change was to rename cluster 1: ‘education’ to Quality Education. The reason they chose this title was based on the qualitative statements that articulated ‘quality instructors use & provide proper equipment’, ‘they arrive on time and prepared’ (and expect the same of students), ‘they ensure students are learning’, and the ‘instructors create a safe learning environment’ (Group 3).

The second label change discussed was to change cluster 3: ‘playing sports’ to ‘Physical Activity’. This was a lengthy discussion for the sports academy students however, one student remarked that “‘sports’ was too narrow, and that physical activity opens up the possibility for more than just sports in PE” (Aidan, Group 3). The remaining students agreed and voted with a majority ‘thumbs up’ reaction as moderated by their teacher, Mrs. Mêkwayâhtik.

Merger Discussion Results

The criteria for cluster solution selection provided to the students was ‘stop when your agreements with the cluster merges turn into disagreement’. Figure 18 is a summary of the merger discussions our during google meetings.

Figure 18

HCA Merger Diagram

Seven Cluster Solution		Six Cluster Solution		Five Cluster Solution		Four Cluster Solution		Three Cluster Solution
	merger 1		merger 2		merger 3		merger 4	
Kindness		Kindness		Kindness		Kindness		Education
Safe		Teaching		Teaching		Teaching		
Be Prepared/ Follow Rules								
Friends		Friends		Friends		Fun		Fun
Group Participation		Group Participation		Group Participation				
Working on myself		Working on myself		Playing Sports		Playing Sports		Playing sports
Team work		Team work						

Merger 1. Group 3 supported this merger because safety, being prepared and enforcing rules made sense to put under teaching responsibilities (Group 3 discussion). Group 2 chose to keep the seven - cluster solution as their preferred recommendation (Group 2 discussion).

Merger 2. Group 3 supported this merger. The group agreed with the merger because the ‘working on myself ‘cluster and the ‘team work’ cluster both contained statements pertaining to being physically active and participating in physical education (Group 3 discussion).

Merger 3. Group 3 supported this merger because they described fun as including their friends and classmates. They also re-named 'playing sports' to 'physical activity' and 'teaching' to 'quality education' (Group 3 discussion).

Merger 4. Only Group 3, supported this merger. The teachers and researcher agreed that the kindness cluster and the quality education clusters contained conceptually different statements that could not be reduced to the 'education' cluster however, this was not shared during the group discussions with students.

Phase 6: Interpretation

Final Cluster Solution Quantitative Results

The final Meaningful PE concept map included four clusters, with the smallest cluster, Quality Education, containing seven statements (highest coherence) and the largest, Physical Activity, containing 17 statements (lowest coherence). The four-cluster solution was conceptually clear and described specific statements that could be implemented by teachers.

> The position of each cluster on the map (e.g., top, bottom, right, left) is not meaningful—only the distance or spatial relationship between them. The breadth or tightness (i.e., shape and size) of a cluster generally represents whether it is a broader or narrower conceptual area" (Jackson & Trochim, 2002, p. 321).

The final cluster solution included: 1) Kindness, 2) Quality Education (QE), 3) Fun, and 4) Physical Activity (PA) (Figure 19 & Table 6).

Figure 19

Final Meaningful PE Map

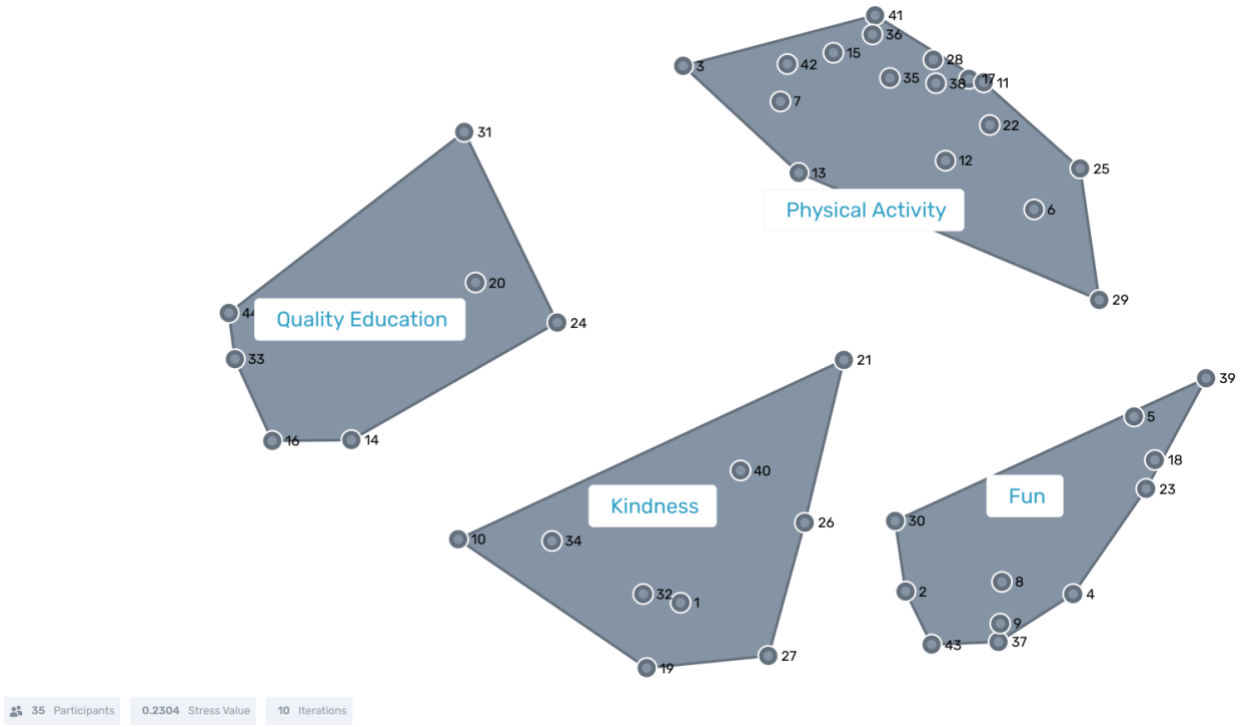


Table 6

Statements in the Meaningful PE Map Clusters

Custer 1: Kindness - Being treated with respect (1); having fun (26); equality (10); being treated with kindness (19); being happy in class (32); having my thoughts and opinions heard (34); doing activities that I love (40); practicing leadership (21); making positive memories (27)
Cluster 2: Physical Activity - Working hard (7); being active (11); exercising (17); demonstrating sports-personship (29); improving my skills (35); trying my hardest (demonstrating effort) (42); playing sports (38); focusing on the activity (13); being challenged (15); participating in a variety of activities (25); practicing strategies & tactics (22); demonstrating athleticism (28); trying new activities (6); competition (41); being competitive (36); being outdoors (12); winning (3)
Cluster 3: Fun - Including everyone in the activities (18); getting along with others (8); showing support for my classmates (30); everyone demonstrating teamwork (5); group participation (39); being with friends (9); working with others (23); laughing with my classmates & teachers (2); being with peers (4); getting to know people (43); making new friends (37)
Cluster 4: Quality Education – following COVID-19 precautions (44); paying attention to the instructions (20); safety (33); being taught by quality teachers (14); having the proper equipment (31); learning (24); using technology in class (16)

Note: Statements are listed in order of importance as per the participants rating data. The statement number follows in brackets.

A four-cluster solution was used as the final Meaningful PE Map based on the data collected from the student cluster suggestions, an examination of the cluster merges, statement & cluster bridging values, and the objectives of the research (Davis, 2004). The four-cluster solution also reflected the average sorting scores as per the participants data. The highest number of piles the students sorted was 7 and the lowest was 3 piles with an average of 4.3 piles. I also completed three further analyses on the four-cluster solution for reliability (Appendix W).

Cluster Labels

The cluster labels originate from the participant brainstorming activities and the synthesis of their statements. Participants recorded pile labels during the sorting activity. Participant

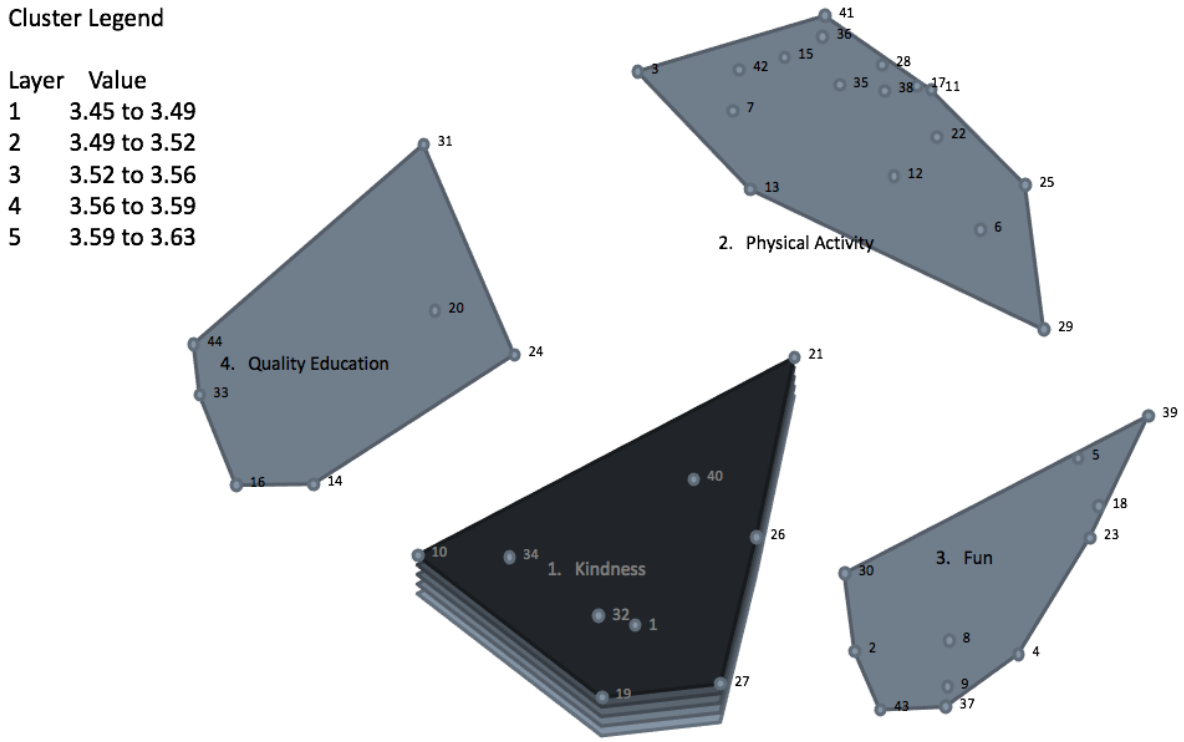
feedback during the virtual Google Meets was based upon the participants examining the contents of each cluster. Participants examined the contents of each cluster, along with the suggested labels and made the final label decisions during our virtual Google Meetings.

Cluster Rating Maps

The cluster rating map is identical to the cluster map, however now we see the layering of clusters which shows the average cluster ratings for importance (Figure 20). The more layers, the higher the overall rating out of 4. Figure 20 offers an overview of the average cluster ratings for importance in numerical and pictorial representations.

Figure 20

Cluster Rating Map for Importance of Meaningful PE concepts



Cluster Ratings[11] for Importance. The cluster rating results show that kindness was the most important Meaningful PE concept to the participants with an average importance rating of 3.63 out of 4 (Table 7 & Appendix Z). Physical activity was the next most important feature with an average importance rating of 3.48, followed by fun and quality education both at 3.45. While the differences between these ratings are not statistically significant, they do give us an overall picture of participant preferences (Table 7).

Resultant final cluster labels match the cluster content well and are significant to the participants (Table 7). The conversations during our virtual semi structured interviews also provided support for the final cluster solution. Thus far, GCM had successfully answered the first of two research questions. The most important Meaningful PE concepts in this school setting are kindness, physical activity, fun, and quality education.

[11] It is important to note that cluster averages are not always an indicator of the rated values of the statements within them. For example, statement 44 - following COVID-19 safety precautions was one of the most important statement, yet it lies within the cluster of Quality Education, which had the lowest average cluster rating for importance. Therefore, in the analysis, it was imperative to go back and forth between the point map, the cluster maps, the videos of our Google Meets, transcripts, and my field notes to ensure that the participant data was synthesized reliably.

Table 7

Final Meaningful PE Clusters with Statements[12]

Cluster & Statement Ratings for Importance					
Cluster 1	**Kindness**	Cluster Avg 3.63	Cluster 2	**Physical Activity**	Cluster Avg 3.48
Statement #			Statement #		
1	being treated with respect	3.85	7	working hard	3.80
26	having fun	3.80	11	being active	3.78
10	equality	3.78	17	exercising	3.76
19	being treated with kindness	3.73	29	demonstrating sports-personship	3.71
32	being happy in class	3.61	35	improving my skills	3.71
34	having my thoughts and opinion	3.53	42	trying my hardest (demonstrating effort)	3.70
40	doing activities that I love	3.51	38	playing sports	3.68
21	practicing leadership	3.46	13	focusing on the activity	3.63
27	making positive memories	3.39	15	being challenged	3.45
			25	participating in a variety of activities	3.43
			22	practicing strategies & tactics	3.40
			28	demonstrating athleticism	3.38
			6	trying new activities	3.37
			41	competition	3.25
			36	being competitive	3.15
			12	being outdoors	3.08
			3	winning	2.83
Cluster 3	**Fun**	Cluster Avg 3.45	Cluster 4	**Quality Education**	Cluster Avg 3.45
Statement #			Statement #		
18	including everyone in the activities	3.73	44	following COVID-19 safety precautions	3.83
8	getting along with others	3.65	20	paying attention to the instructi	3.76
30	showing support for my classma	3.64	33	safety	3.73
5	everyone demonstrating teamw	3.61	14	being taught by quality teacher:	3.63
39	group participation	3.60	31	having the proper equipment	3.53
9	being with friends	3.44	24	learning	3.46
23	working with others	3.41	16	using technology in class	2.24
2	laughing with my classmates & teachers	3.27			
4	being with peers	3.27			
43	getting to know people	3.23			
37	making new friends	3.17			

Pattern Matches & Go-Zones

A fourth set of Google Meet interviews were used to gain a deeper understanding of what

[12] Statements within each cluster are in order of importance based on their average importance ratings. Clusters are listed in order of importance based on the cluster rating map data.

direction the GCM data could provide for students and teachers. The schedule for the fourth round of interviews was as follows:

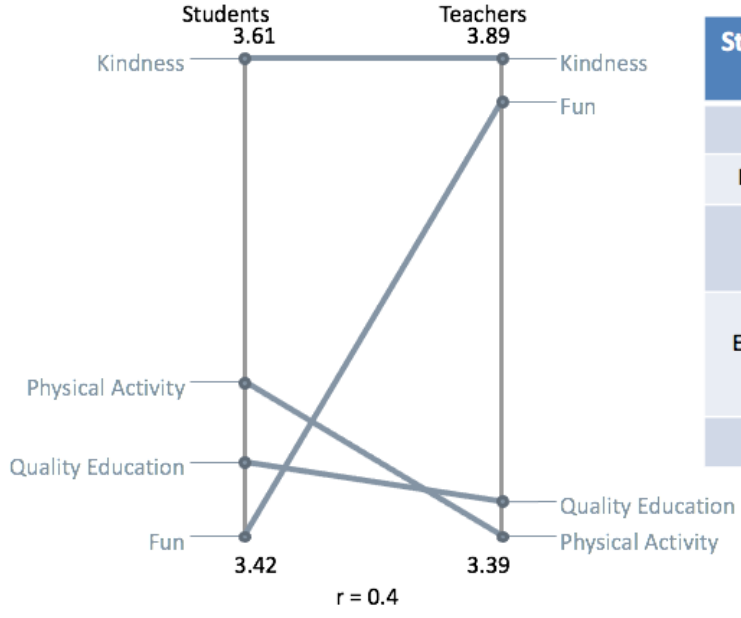
Teacher Participants	(n = 3)	January 7, 2021
Sportfit students & Mrs. Mêkwayâhtik	(n = 26)	January 21, 2021
Ringette students & Ms. Osâwikwaniy	(n = 7)	January 25, 2021
Soccer students & Ms. Nipiy	(n = 23)	February 4, 2021

Cluster rating data has the potential to refine the concepts of Meaningful PE by answering the second research question: Which ideas have the most potential to provide students with Meaningful PE experiences? These questions were best addressed by spending time with students as they examined and discussed two additional visual representations: pattern matching and go-zones.

Students and Teachers Pattern Match for Importance. The pattern match (Figure 21) compares the importance of each Meaningful PE concept for both students and teachers.

Figure 21

Pattern Matching Display for Students and Teachers Importance[13] Ratings



Student – Teacher Pattern Match for Importance

	Students	Teachers
Kindness	3.61	3.89
Physical Activity	3.42	3.84
Quality Education	3.48	3.39
Fun	3.42	3.39

[13] A quantitative analysis shows that the r value for this pattern match was 0.57, indicating a limited relationship between teacher and student importance ratings. While this value is above 0, it does not necessarily mean that as students' importance rates go up, the teachers' importance rates will also increase.

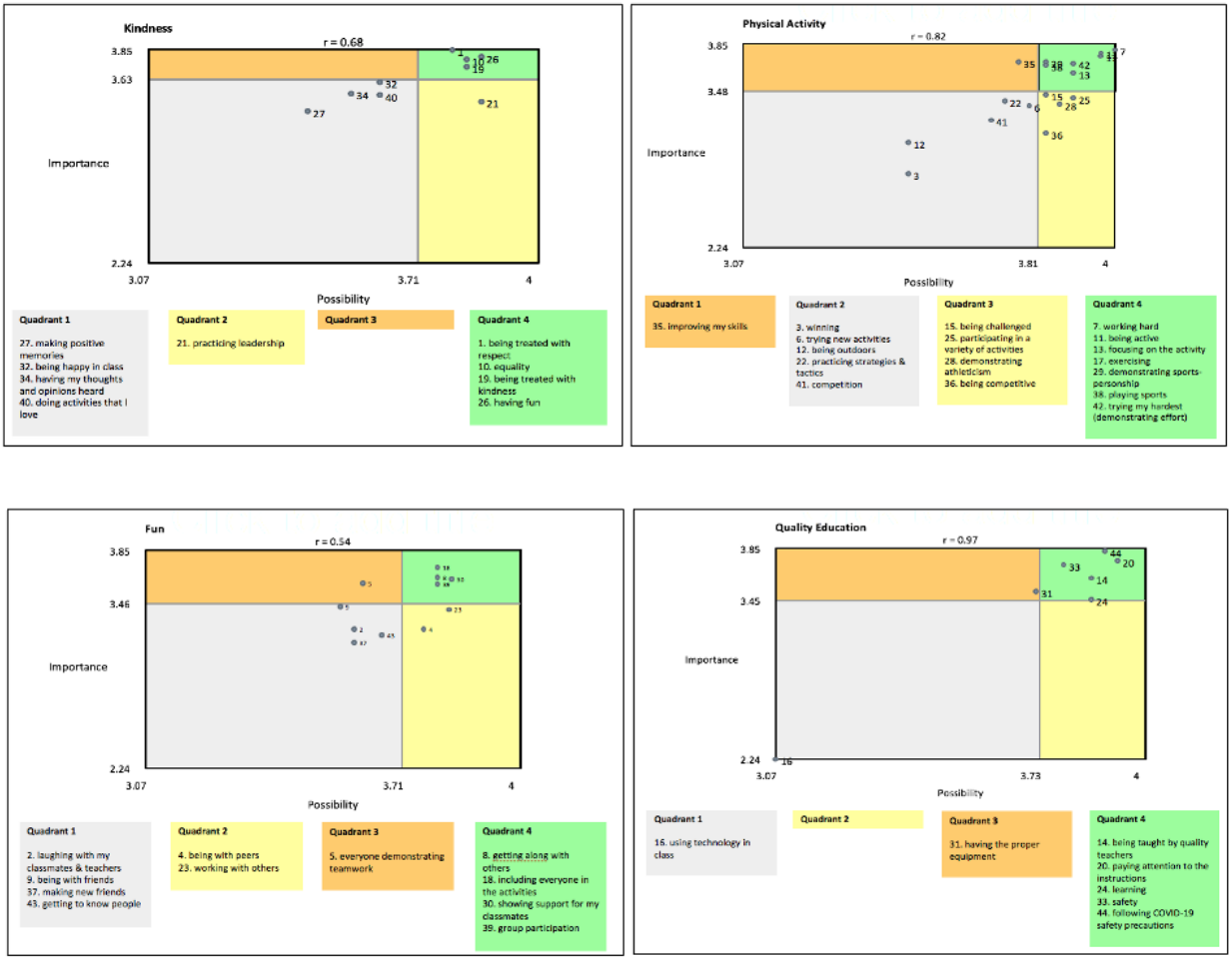
Kindness was the most important concept for both students and teachers. Students placed each of the four clusters in the following order of importance: kindness, physical activity, quality education, and fun (Figure 21). Of surprising note, was that students considered fun to be the least important as compared to the teachers who placed it second. The teachers placed the importance of the four Meaningful PE clusters as follows: kindness, fun, quality education, and physical activity (Figure 21). The quantitative measure that is important to note is the average ratings for students and teachers. The numerical discrepancy was not statistically significant between the importance ratings of the two groups however the interviews provided significant details for the differences.

Go-Zones

Go-Zones, as the name implies, present the most actionable items (Kane & Trochim, 2007). Go-Zones were presented to both students and teacher participants to ensure that they agreed with the implementation of the Meaningful PE concepts they co-created (Appendix R). Each go-zone highlights the degree to which the statements are important and possible (Figure 22).

Figure 22

Meaningful PE Go-Zones



Final Results - Teacher Reactions

During the CoP Meeting #4, I shared with the educators the results of the GCM analysis beginning with importance. CoP #4 was 50 mins and resulted in 7 pages of transcription. The teachers had identified the most important features of Meaningful PE as 1) kindness, 2) fun; 3) quality education, and 4) physical activity (Figure 21). Students had identified the most important features of Meaningful PE as 1) kindness; 2) physical activity; 3) fun; and 4) quality

education (Figure 21). When asked about their initial reactions to the results Ms. Nipiy responded,

> I think kindness being number one surprises me. I love that it was number one. I think that's great. And I think if you had asked me what my students would have chosen between those four, I don't think I would have said they would have rated kindness number one. But I think that's awesome. And for winning to be so low, that is surprising to me too (Ms. Nipiy, CoP Meeting #4).

Ms. Osâwikwaniy shared,

> I assumed that even fun would have been higher in a sense because when I think about everything they say, they're always like, 'oh I just like to have fun. I like to have fun with my friends'. But I also agree that the fact that it, kindness is number one, brings the tears to your eyes. It's nice to know they value that. My guess would have been fun, physical activity, kindness, and quality education (Ms. Osâwikwaniy, CoP Meeting #4).

As we discussed the go-zone results, the 'physical activity' cluster and in particular, the statement #7 – working hard was placed as the most important. Following very closely was statement #11 being active. Ms. Osâwikwaniy shared

> I guess we're just so fortunate, like very rarely are you dealing with students not participating in a sense. Like my crew, it's not a question of them, like participating. Sometimes I know they can do more, but they're still there and going. Where like when I did my first practicum and it was all phys ed, half the battle was just getting the kids in the actual game itself (CoP Meeting #4).

All three teachers felt that the results were encouraging. Mrs. Mêkwayâhtik emphasized,

> talking about the results with the kids and just discussing them with them and seeing what they think about the results because these were all done in isolation, right. They didn't know what each other way saying. So, to have that common thread, that they all thought being kind was important. Like, lots of them saying being kind was important. That's a really big deal (CoP Meeting #4)!

Our next step was to present the findings to each of the three groups during their class time, with both the teacher and researcher facilitating the discussion. It was established that we would act as a common voice while respecting the pre-established teacher-student relationships that exist (CoP Meeting #4). The teachers also recognized that we would all need to think carefully about

how we facilitated the discussion so as not to lead them to certain answers (CoP Meeting #4). Specifically, the teachers were looking for ideas about how their own teaching could be improved and how to continuously move towards Meaningful PE experiences. For example, the results showed that the students were getting lots of physical activity, which was important to them. However, Ms. Osâwikwaniy wanted to know "how do you generate more kindness alongside physical activity" (CoP Meeting #4)? As the researcher, I would present the findings and the teachers would facilitate the question & answer portion, ensuring that all those who wanted to speak had the opportunity.

The final results were shared during our fourth Google Meet. The meets were recorded and transcribed, resulting in 2 hours:28 mins of audio recordings and 18 pages of transcription. While sharing the results with the students and asking for their thoughts, I used open ended questions such as 'what surprised you', 'why do you agree or disagree with the results', 'what are your thoughts about the results' (Appendix Q). After asking these questions, I would count to 10 in my head to ensure that I was providing wait and think time to the participants. Teachers helped to ensure that one student spoke at a time so that the audio was clear and that each students' ideas were included. The research objectives were to understand 1) Which ideas were most important and frequent? and 2) Which ideas have the most potential to provide students with Meaningful PE experiences?

The quantitative results were presented to the students to confirm that they were in agreement as "we should always be ready to consider the judgement and sense of the participants to refine and revise the cluster analysis results" (Kane & Trochim, 2007, p. 104). I feel that overall, the final Meaningful PE maps and interpretations were supported by the students based on our final research conversations, as shared in Chapter 6: overall findings and discussion.

Chapter 6: Overall Findings & Discussion

The purpose of this study was to 1) conceptualize the student and teacher participants' most important Meaningful PE ideas and 2) identify which of these concepts have the most potential to provide students with Meaningful PE experiences. Interconnected findings indicate that secondary students can effectively participate in GCM to conceptualize ideas that are important for Meaningful PE experiences. Secondary students were able to identify *what* is important for meaningful experiences in PE and *how* their fellow students, teachers, and they-themselves, can facilitate Meaningful PE experiences. Student and teacher participants identified important concepts for Meaningful PE as a combination of statements within the clusters of kindness, physical activity, fun, and quality education. When examining the clusters and statements, the major tenet of Meaningful PE was relationships. More specifically, relationships that support the pedagogical principles of autonomy and inclusivity (Fletcher & Ní Chróinín, 2021). These principles were articulated between self and the subject of PE, relationships between peers, and relationships between students and teachers (Table 8). Relationships between students, teachers and the school context provide a framework for what students would like to do and how they would like to feel during PE.

Conceptualizing Meaningful PE Through Relational & Educative Research

In true constructionist spirit, it is important to note that "there is *no* true or valid interpretation" (Crotty, 1998, p. 47) of Meaningful PE. Constructionism, within an Indigenous Research Paradigm, is open to the world in a curious, reciprocal, and respectful way (Wilson, 2008). This research shares the experiences of myself, as the researcher - participant, and the teachers and students, as participants in their specific school space. In this project we conceptualized Meaningful PE using the methodology and methods of Group Concept Mapping

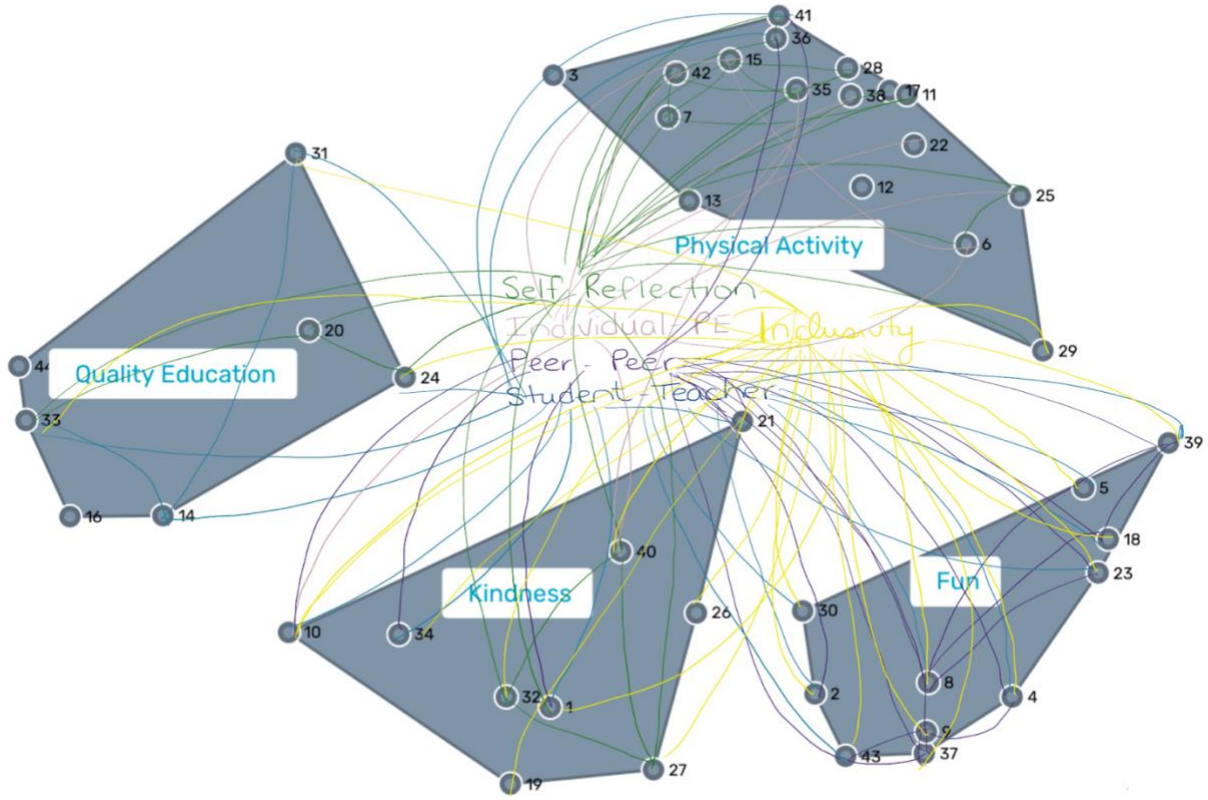
(Kane & Trochim, 2007). Rather than looking at each of the individual concepts within the individual clusters, this discussion looks at the entire project, zooming in and out on the go-zones and pattern matches.

> To break any piece of the topic away from the rest will destroy the relationships that the piece holds with the rest of the topic…. The data and analysis are like a circular fishing net. You could try to examine each of the knots in the net to see what holds it together, but it's the strings between the knots that have to work in conjunction in order for the net to function. So, any analysis must examine all of the relationships or strings between particular events or knots of data as a whole before it will make any sense (Wilson, 2008, p. 120).

The intuitive logic shared by Sean Wilson resonated with the teacher in me. I looked at these results and thought, we teachers knew that relationships were key all along. The researcher role is so new to me, that I found it difficult to pick out the specific data sets that supported my overall findings. However, without this controlled and detailed study design, I had no way of knowing if relationships were the major tenet of co-creating Meaningful PE experiences. While I do attempt follow a linear outline in this chapter, each of relationships are connected to the overall findings and so the stories and words circulate in each of the discussion areas. The discussion articulates how the Meaningful PE data provided by the participants weaves a web of interconnections between individuals, peers, teachers, and the subject of PE and how these interconnections have potential to provide students with Meaningful PE experiences (Figure 23).

Figure 23

Interconnections of Meaningful PE Concepts



Note: This cluster image was downloaded to my iPad from the GroupWisdom platform, and I used the ProCreate app to add the interconnecting lines to demonstrate the relationships within the research data.

Meaningful PE Content

The 'what' or Meaningful PE content in this school context can be described as the democratic relationship (Fletcher & Ní Chróinín, 2021) between students, their teachers, and the subject area of PE. Students articulated their desire for autonomy as PE participants by identifying what they like to do in PE: playing sports (statement 38), being outdoors (statement 12), participating in a variety of activities (statement 25), being challenged (statement 15), trying new activities (statement 6), practicing strategies & tactics (statement 22), doing activities they love (statement 40), competing (statements 41 & 36), and having fun (statement 26) (Table 8). These findings are supported by researchers who have also worked with secondary students to

identify the purpose of PE (Lyngstad, Bjerke, & Lagestad, 2019; Mikalsen & Lagestad, 2019; O'Connor, 2019; Redelius & Hay, 2012). GCM provided the methodology and methods for these particular students to arrive at a collective agreement for *what* Meaningful PE experiences include.

Table 8

Relationships & Interconnections within Meaningful PE

THE WHAT	Autonomy	Inclusivity
Collection of Individuals' Autonomous Meaningful PE concepts	Doing activities I love (statement 40); Improving my skills (35); Trying hard/demonstrating effort (42); Trying new activities (6); Being challenged (15); Participating in a variety of activities (25); Practicing strategies & tactics (22); Playing sports (38)	
THE HOW	**Autonomy**	**Inclusivity**
Individual	Being happy in class (32); Doing activities I love (40); Making positive memories (27); Improving my skills (35); Trying hard/demonstrating effort) (42); Trying new activities (6); Working hard (7); Being active (11); Exercising (17); Focusing on the activity (13); Being challenged (15); Participating in a variety of activities (25); Demonstrating athleticism (28); Competing (41/36); Paying attention to the instructions (20); Safety (33); Learning (24)	Demonstrating sports-personship (29); Including everyone in activities (18); Getting along with others (8); Showing support for my classmates (30); Working with others (23); Laughing with classmates & teachers (2); Being with peers (4); Getting to know people (43); Making new friends (37)
Student - Student Relationships	Practicing leadership (21); Competing (41/36)	Having my thoughts & opinions heard (34); Being treated with respect (1); Demonstrating sports-personship (29); Including everyone in activities (18); Getting along with others (8); Showing support for my classmates (30); Everyone demonstrating teamwork (5); Safety (33); Group participation (39); Being with friends (9); Working with others (23); Laughing with classmates & teachers (2); Being with peers (4);

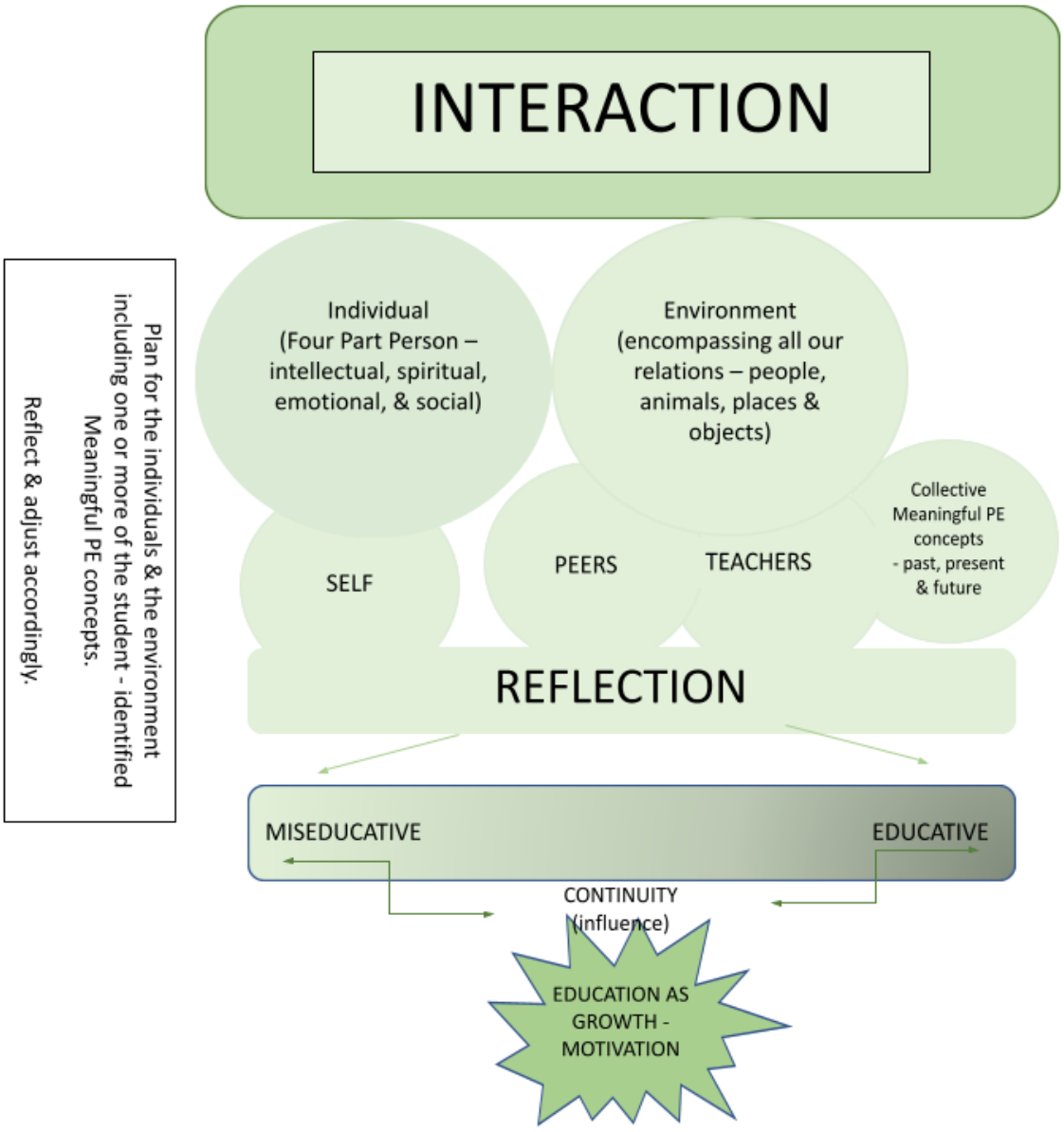
		Getting to know people (43); Making new friends (37)
Student - Teacher Relationships	Practicing leadership (21); Competing (41/36); Learning (24);	Having my thoughts & opinions heard (34); Being treated with respect (1); Including everyone in activities (18); Getting along with others (8); Group participation (39); Working with others (23); Laughing with my classmates & teachers (2); Being with peers (4); Getting to know people (43); Safety (33); Group participation (39); Showing support for my classmates (30); Everyone demonstrating teamwork (5); Being taught by quality teachers (14); Proper equipment (31)
THE CONTEXT	**Autonomy**	**Inclusivity**
Inclusive - also described by participants as fun, having fun & kindness		Being treated with respect (1); Including everyone in activities (18); Getting along with others (8); Showing support for my classmates (30); Everyone demonstrating teamwork (5); Group participation (39); Being with friends (9); Working with others (23); Laughing with classmates & teachers (2); Being with peers (4); Getting to know people (43); Making new friends (37); Demonstrating sports-personship (PA - 29); Safety (QE - 33)

The participants also articulated that they want to feel included in PE experiences. ‘Fun’, ‘having fun’, and ‘kindness’ describe a learning environment that values the concepts such as including everyone in the activities (statement 18), getting to know people (statement 43), group participation (statement 39), equality (statement 10), having my thoughts and opinions heard (statement 34), and being treated with respect (statement 1). The importance of inclusion and positive social interactions as identified by the SASS students are in alignment with several researchers in PE (Beni et al., 2017; George & Curtner-Smith., 2016; Lagestad., 2017; O’Connor, 2019; Redelius et al., 2015; Smith & Parr, 2007; Walseth et al., 2018). The remainder of the chapter presents three interconnections of the quantitative and qualitative data regarding peer-to-peer relationships, student-teacher relationships, and self-reflection & identity within PE.

It is important to note that each of these relationships are interconnected and overlap within the context of PE (Figure 24).

Figure 24

Interaction Interconnections



Peer to Peer Relationships

Kindness

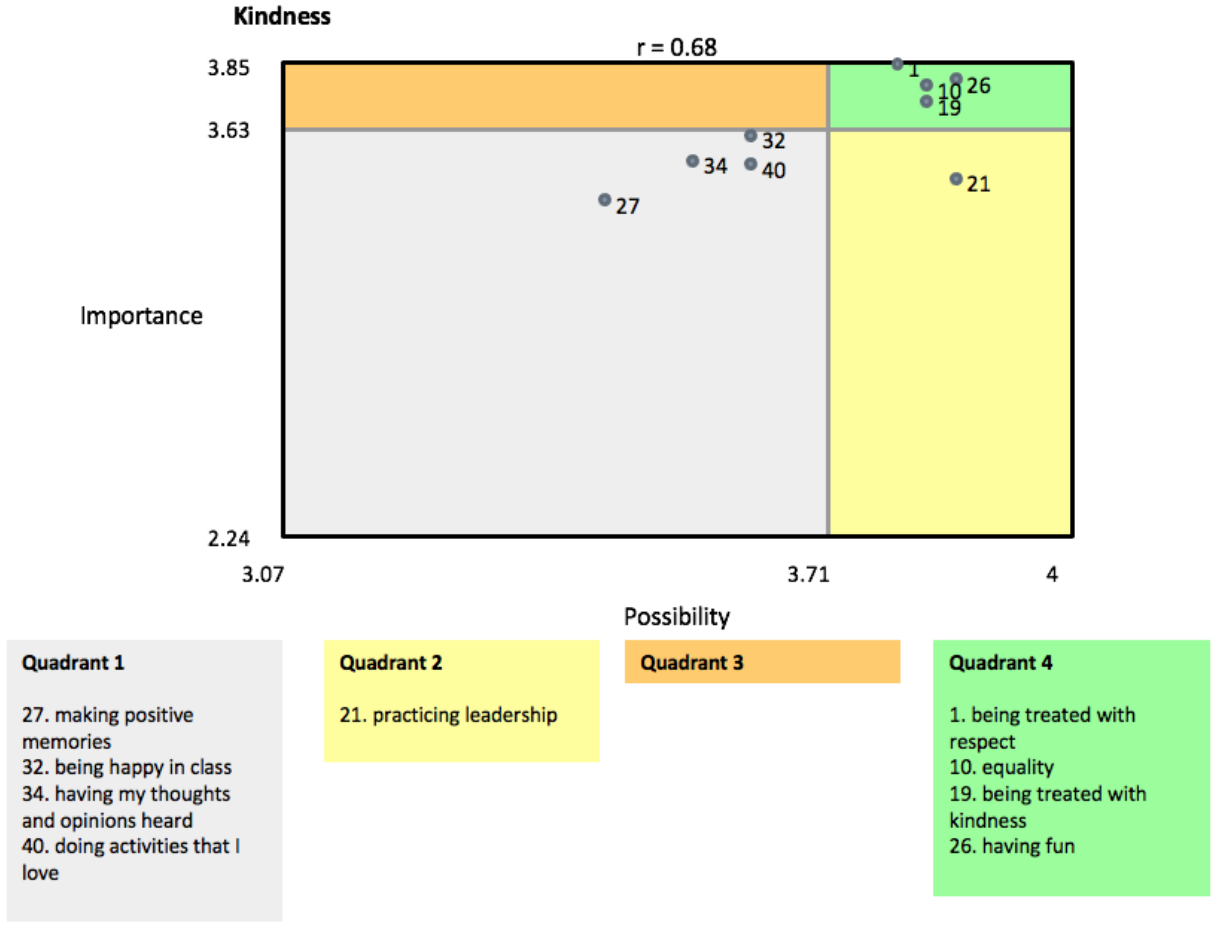
SASS students and teachers expressed an expectation of equity and a commitment to treating others well. Kindness was experienced when students felt included and were expected to be inclusive. These expectations are in alignment with Carlson (1995), O'Connor (2019), and Walseth et al.'s (2018) work which described isolation as opposed to inclusion as one of several factors contributing to alienation from PE. At the centre of kindness is relationships or social interactions which are important to consider in a learning context (Beni et al., 2017).

> Thus, while social interaction was regularly cited as an important factor in contributing to young people's meaningful engagement in physical education, it does so in different ways. As such, teachers and coaches should carefully consider the ways in which opportunities for social interaction are organized and structured based on the needs and desires of learners" (Beni et at., 2017, p. 299).

The specific title of the cluster, kindness, is less important than the specific conceptualized ideas of Meaningful PE enacted through democratic and autonomous principles (Fletcher & Ní Chróinín, 2021). In our fourth Google Meet interviews we used the kindness go-zone (Figure 25) as the initial figure with which to prompt students to reflect upon and share their thoughts for *how* to bring about Meaningful PE experiences.

Figure 25

Kindness Go-Zones



Quadrant 4 represents the statements which are most important (Y axis) and most possible (X axis). In this school setting students want to be treated with respect, experience equality, be treated with kindness, and have fun (Figure 25). The rating activity data analysis described these statements as being the most important and very possible. Teegan explained that kindness encompasses being treated with respect, equality, and being treated with kindness; however, she felt that equality should have been the highest. “Being treated equal makes everything better because if one person is being treated differently it, like, you think like, there’s something wrong with you or how you played the game” (Teegan, Group 2

Google Meet #4 discussion). Evelyn added "you can treat everyone with respect but like, how you respect them is different" (Group 2 Google Meet #4 discussion). Teegan provided an example of a current inequality,

> with like the high schoolers and stuff they are, sometimes I feel they don't treat us equally because they think they're better. And they like go, and don't involve some of us in their game. They're still totally still nice to us but it's not as fun if they're not treating you equally as their friends or other high schoolers (Group 2 Google Meet #4 discussion).

Aidan was "not surprised that kindness was rated number one because sometimes the class can get a bit intense and competitive, which is ok, but kindness needs to be overarching all of it" (Group 3 Google Meet #4 discussion). In response, Doug remarked "if you're not having fun, you're not going to be kind" (Group 3 Google Meet #4 discussion).

During the interview, Deirdre remarked that "I know physical activity is important but if there is no kindness what's the fun of it" (Group 2 Google Meet #4 discussion). In agreement, Evelyn replied "if you're not kind to each other then you don't want to be there" (Group 2 Google Meet #4 discussion). "Kindness doesn't belong in competition, like for another team" retorted Trudy (Group 2 Google Meet #4 discussion). Evelyn clarified "when it comes to PE and being in class together, kindness is important for mental health and for wanting to be there as a group" (Group 2 Google Meet #4 discussion). Teegan went on to say that perhaps mental health would have been a better choice of words for this cluster. In the end however, they were all in agreement that kindness is important for mental health, but the current cluster title, kindness, and descriptions were appropriate.

Group 1 (n = 26) was surprised that kindness was rated as the most important feature of Meaningful PE. Several students provided honest feedback such as "I'm not that kind" (Richard, Group 1 Google Meet #4 discussion) and that "not everyone in here is kind" (Mike, Group 1 Google Meet #4 discussion). To their surprise, Ms. Nipiy described the group as being very

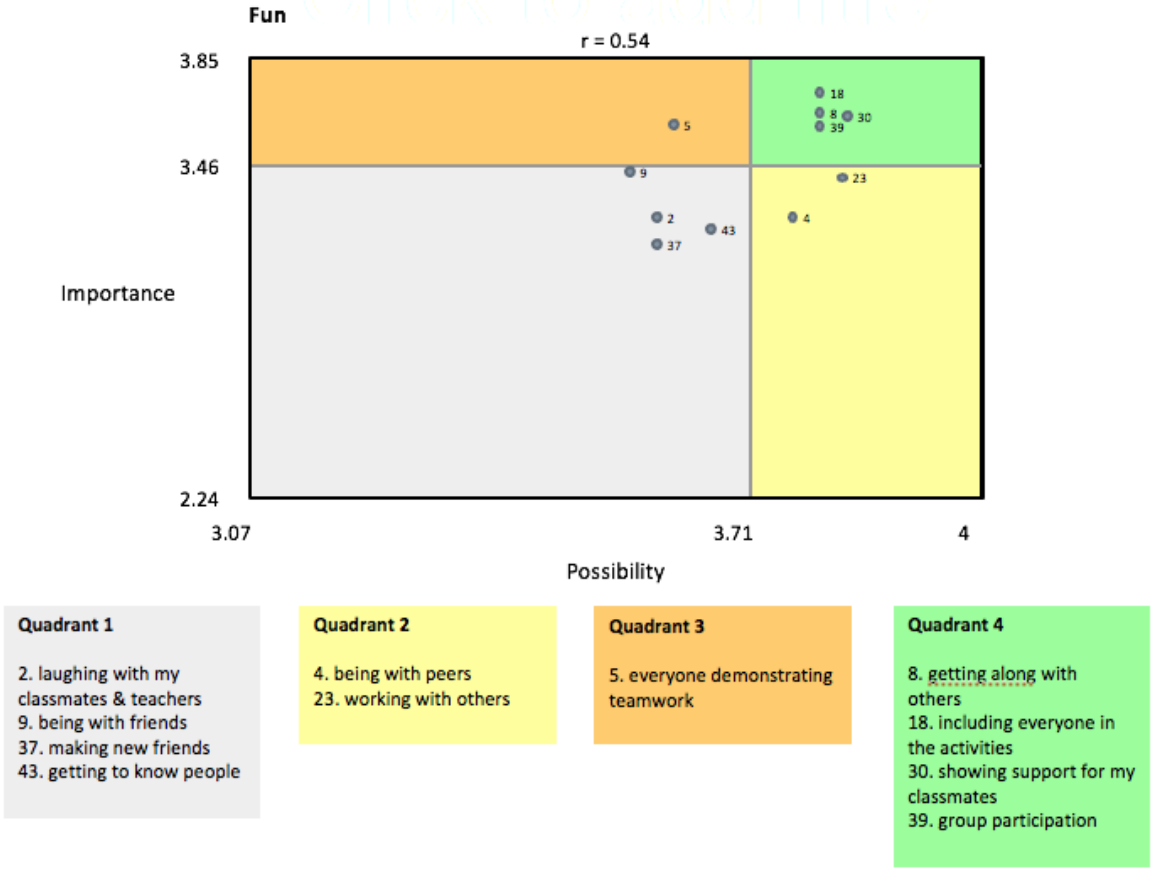
respectful. In response, Sean added that "sometimes we are not really nice to each other but at the end of the day we know that it's a joke, we are kind, but we also like to trash talk and stuff like that" (Group 1 Google Meet #4 discussion). Overall, they agreed that as a group they are respectful and kind but still love to compete, joke, and have fun.

Fun

Student participants were consistently vocalizing their desire to have fun. Through GCM, secondary students identified the most important and possible characteristics of fun as getting along with others, including everyone, showing support for classmates, and group participation (Figure 26).

Figure 26

Fun Go-Zones[14]



Several students mentioned that they thought fun and competitiveness (which falls under physical activity) would have been higher. Fun received a third-place finish for importance. When asked to list words or examples of fun students listed "dodgeball, competition, games that everyone knows how to play, games that everyone likes, playing games, being in large open spaces where you can move, and doing things you enjoy" (Google Meet #4 discussions). These descriptions of 'fun' are similar to those found by O'Connor (2019), Visek (2015), and Beni et al (2017).

[14] The Pearson r value for fun was 0.54 indicating a moderate positive correlation between the importance and possibility of fun in a PE setting

When prompted to dig a little deeper into the meaning of fun, so that teachers could plan and implement fun in their PE classes students added "being on the same team as a friend, being competitive at a certain level, playing against a friend, laughing, and teachers participating" (Google Meet #4 discussions). The conversation evolved into who controls fun:

> If you're doing something you don't like, you're less likely to have fun doing it. You don't put as much effort into the game if you don't like it. But if it's something you like, you wanna play it (Karlin, Group 2 Google Meet #4 discussion).

In response, Evelyn refuted "When I put in the effort sometimes it's fun because the game is competitive. If I don't like the game it makes it makes me feel better when it gets competitive" (Group 2 discussion, Google Meet #4 discussion). The group agreed that being included is fun and being excluded is not fun. "I think every game we play is fun. But when you're not included on your team or something, that's what makes it not fun. But when they do include you, you try harder" (Trudy, Group 2 discussion Google Meet #4 discussion). Students also described fun as being an 'in the moment physical experience'. Teegan gave the following example:

> Let's say you're in a ringette game, fun is when your position actually gets to do something, say you're on defence and the ring comes towards the defense zone and you just shoot it all the way across the ice, that's fun. But then, joy is when you get your very first goal in your first year. That's joy. Joy is long lasting (Group 2 Google Meet #4 discussion).

Joy was described as a long-lasting emotion; it was the reason *why* they participated in PE and sport. In summary, students described fun as being "all of the statements listed within the [fun] cluster" (Fern, Group 2 Google Meet #4 discussion); "fun games and games that we all enjoy" (Mike, Group 2 Google Meet #4 discussion); "when everyone is focused and engaged" (Steven, Group 2 discussion Google Meet #4 discussion); and when "no one is getting mad or complaining" (Lee, Group 2 Google Meet #4 discussion). Round of applause.

Physical Activity

Physical activity as a Meaningful PE cluster described roles for both students and teachers. Students centred roles within the PA cluster were working hard, being active, exercising, demonstrating sports-personship, trying their hardest, focusing on the activity, and being challenged. Teacher roles were planning for the opportunity to play sports and games, which students identified as important to them and offering choice and varying levels of challenge through the modification of sports, games, equipment, and activities. The importance of both student and teacher contributions cannot be understated. Students wanted their teachers to provide a variety of novel and familiar activities both indoors and outdoors in PE and they wanted their peers to be included and participate thus, demonstrating similar results to those found by O'Connor (2019) and Walseth et al. (2018).

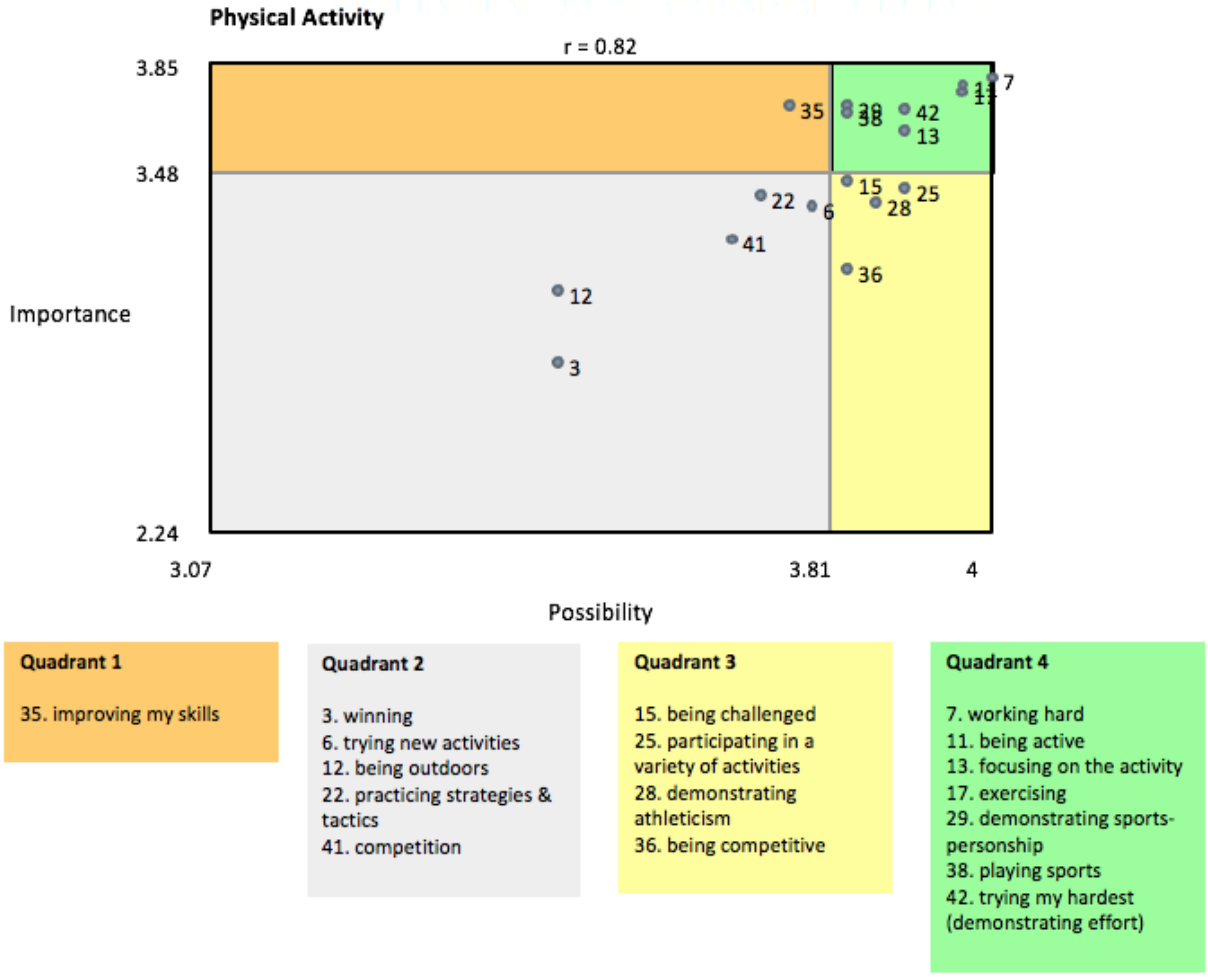
The physical activity cluster as conceptualized by participants aligns with the "democratic and transformative purposes of physical education in which knowledge is socially constructed based on a reflective analysis of previous experiences, and is mediated with others, symbols and environments" (Fletcher & Ní Chróinín, 2021, p.4). The students in this school setting are highly motivated to move and be active, this is a critical part of the social construction of their school and PE program.

Group discussions and conceptual data showed how much these sport academy students valued physical activity and students agreed with the rankings of the statements within the physical activity cluster. The physical activity go-zone (Figure 27) demonstrated a high correlation between statement importance and possibility (r =0.82). This is an encouraging trend as it provides a strong direction for implementation: as importance increased, so did possibility. The fourth quadrant provides a strong focus for the physical activity cluster and is congruent

with the Meaningful PE features of just right challenge, improved motor competence, and personal relevance (Beni et al., 2017). Students in this school setting want to work hard, be active, focus on the activity, exercise, improve their skills, be challenged, demonstrate sports-personship, play sports & games, and demonstrate effort. Once again, the statements are actionable by both teachers and students.

Figure 27

Physical Activity Go-Zones



When teachers provide PE opportunities to be active, exercise, and play sports & games students have an increased possibility for Meaningful PE experiences within this school context. Students are also more likely to have meaningful experiences when they individually &

collectively work hard, are active, exercise, demonstrate effort, focus on the activity, and demonstrate sports-personship. The students were also keen to discuss why winning was last in a physical education setting, “winning is not the most important thing in a PE class, we come here to practice so we can win” (Teegan, Group 2 Google Meet #4 discussion). In response Dierdre said

> I was surprised it was last but like I can see it being last cuz you don’t have to win to have fun and it shouldn’t be the most important and the only thing you’re striving to do, you should mostly be trying to improve (Group 2 Google Meet #4 discussion).

In agreement, Evelyn replied “I think it’s surprising because I think everyone like wants to win and it would be higher, but I know that it isn't the most important thing in class” (Group 2 Google Meet #4 discussion). One student articulated that they could afford to lose at school because it was a safer and kinder space and if they lost at school, it would push them to try harder next time (Dierdre, Group 2 Google Meet #4 discussion).

Group 3 made it clear that they enjoyed working hard and exercising but winning was not their priority because it was not solely in their control. Hayley explained, “you can still be working hard and not winning. You can end up on a crappy team and be the hardest working person and still not win” (Group 3 Google Meet #4 discussion). Lauren added that she chose the sport and recreational fitness courses because “winning is just something that happens, and it isn’t that important. We do lots of activities that are not about winning” (Group 3 Google Meet #4 discussion).

Group 1, who are a very competitive bunch, were surprised that winning was rated so low because “everyone likes to win, no one likes to lose” (Ed, Group 1 Google Meet #4 discussion). Fern countered with

> I feel like winning will not always shape you as a person in your sport, I feel you have to

> lose in order to be better at a sport cuz you learn more when you lose than when you win (Group 1 Google Meet #4 discussion).

Mike added that

> it's like working hard is the first one [#1 statement within the physical activity cluster] and winning is the last one. I, they, just like, want it to be a competitive game, not boring. Like I think that's why winning is so low (Group 1 Google Meet #4 discussion).

Further discussion revealed that some people may only want to "have fun once in a while" (Frank, Group 1 Google Meet #4 discussion) or that perhaps "some people could be hiding behind not caring when they lose, but they do care a lot" (Lee, Group 1 Google Meet #4 discussion). Fern mentioned that "when you're on your team versus at school…, if this was when I was on my team, I would want to win but at school it's ok" (Group 1 Google Meet #4 discussion). Sean concluded with

> when you're in phys ed if you're winning and you are way better than everyone it's not fun because no one is as good as you. But when you're playing with your club, you're playing in the same tier as everyone so they're all as good as you, so winning is more appreciated (Group 1 Google Meet #4 discussion).

Another round of applause.

As we looked at the pattern matches and go-zones for suggestions of how to implement Meaningful PE overall, the junior high students recognized that two out of the four features were student centered and controlled by students. Participants agreed that not only does student voice matter but also their actions - paying attention and participating - contribute to meaningful physical education experiences; "it is up to us to contribute, like by working hard and putting in the effort and stuff" (Mike, Group 1 Google Meet #4 discussion). Further actionable implementation ideas included "playing music, having more fun, listening to more student voices, and modeling kindness" (Richard, Group 1 Google Meet #4 discussion). Relationships and the interconnections of all the clusters as described by the

SASS students' peer to peer interactions supports previous research findings (Beni et al, 2017; Kretchmar, 2006; O'Connor, 2019; Walseth et al, 2018) that the class environment is important for participation and involvement. Overall, the students felt the results represented them because they "matched what we think about gym" (Richard, Group 1 Google Meet #4 discussion). Final round of applause and the sound of scraping chairs.

Student - Teacher Relationships

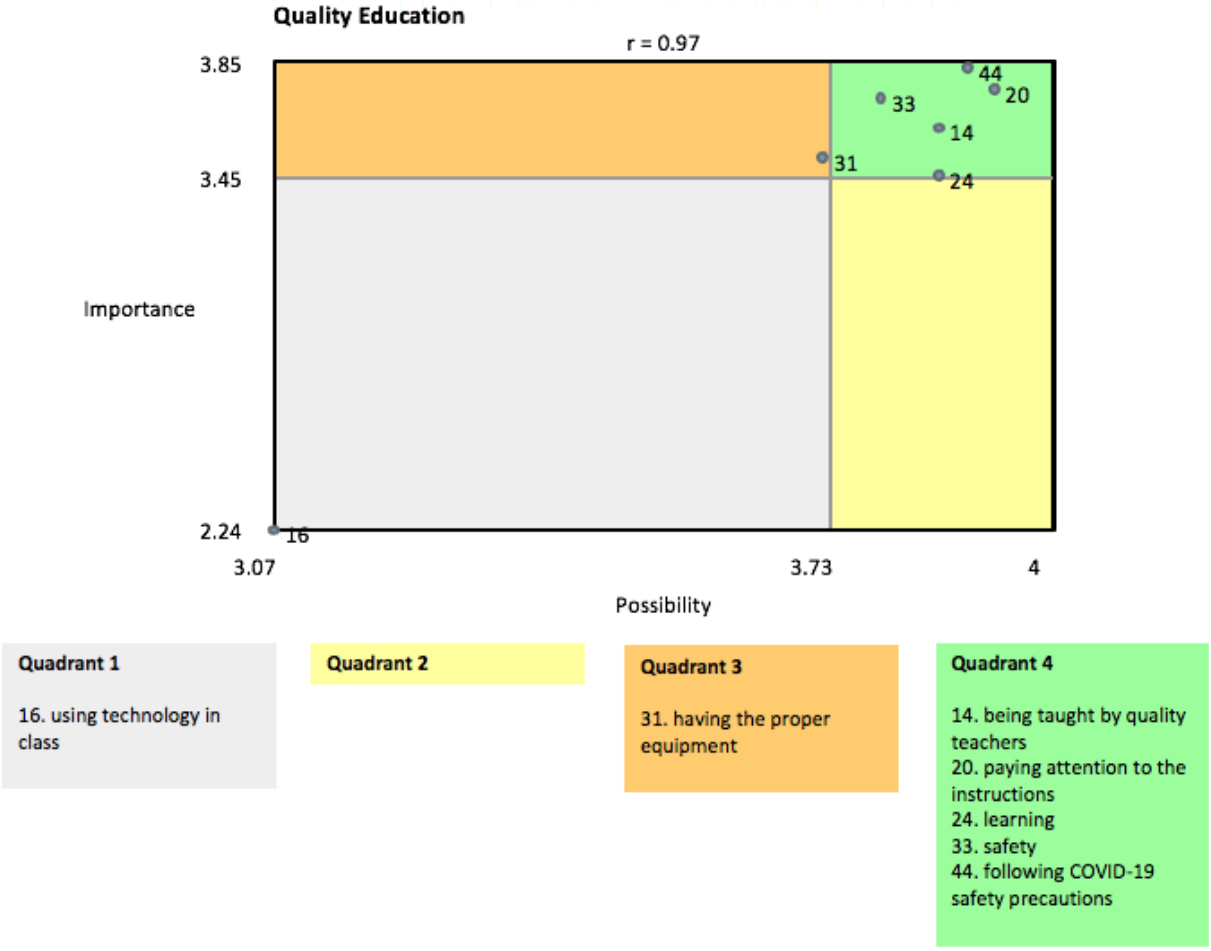
Quality Education

As human beings we want to move and we want to participate, a quality PE program continues to inspire movement (Carlson, 1995; Dyson, 2006; Kretchmar, 2008). The quality education cluster continued to reflect the roles of both teachers and students. Quality teachers were expected to be adequately trained and prepared to teach, establish safe environments, provide the proper equipment, follow COVID-19 protocols, and plan for learning (Figure 28).

Quality education as a cluster demonstrated another conceptualization where students are establishing personal responsibility. Three of the most important and most possible statements for quality education were paying attention to the instructions, safety, and learning, all student actionable (Figure 28). Being taught by quality teachers, learning, and safety were identified as the realm of teacher actionable items (Group 3 Google Meet #4 discussion). The student focus and desire for learning is similar to several research results (Beni et al., 2017; Walseth et al., 2018; Quennerstedt, 2019) that students do value learning, and they need to know why each activity is being taken up.

Figure 28

Quality Education Go-Zone



Overall, there were no surprises that quality education was ranked fourth and consensus was that it was a teacher focused cluster and therefore ranked lower. Group 1 was much quieter during the quality education analysis as students felt that this was a teacher area, not a student area. They did however add to the conversation that technology (statement 16) is not needed in PE because they come to PE to move and be active. Group 2 students also explained that technology was last within the cluster because "phys ed is to get away from the screen, to be active and not on your phone" (Trudy, Group 2 Google Meet #4 discussion). Dierdre added:

> Well, I think that in our world now, with technology we use it so much and it is a good teaching tool but like obviously we use it all the time, but I personally learn better communicating. But if teachers have to use it as a resource, I think that's fine (Group 2

Google Meet #4 discussion).

In a quiet reply, with a huge grin, Karlin added that "when they use TikTok it does make PE quite fun" (Group 2 Google Meet #4 discussion), to which the room resounded with laughter. While group 1 was quiet during the quality education cluster review, group 3 had two more ideas to share about learning and physical education. Aidan reminded us

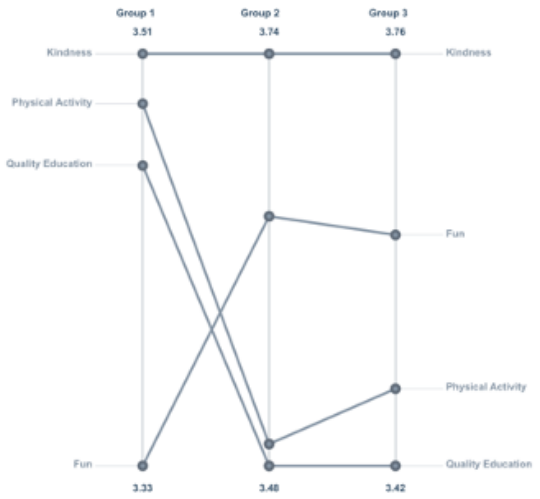
> that we should live the moment. We should just enjoy the learning stuff. See, you only learn something once. If you're learning how to swing a baseball bat, you don't get to experience that learning moment again. Unless you've developed some disability, or you paralyzed something, and you need to rebuild the muscles. You're not going to live that moment ever again (Aidan, Group 3 Google Meet #4 discussion).

Learning opportunities and appropriate locations both mattered for quality education to occur. Group 3 really enjoyed being in the big gym (Lauren, Group 3 Google Meet #4 discussion) but they do not get to choose their PE locations. The location schedule is not controlled by the students nor the teachers (Mrs. Mêkwayâhtik, Group 3 Google Meet #4 discussion) which was an aspect of quality education that group 3 felt could be improved upon. They would like to see more autonomy in choosing their PE spaces (Group 3 Google Meet #4 discussion).

After group 3 mentioned this to me, I ran further pattern matches to see if the results for the importance (Figure 29), frequency (Figure 30) and possibility (Figure 31) of the four clusters differed between the three groups. The results showed that group 3 considered quality education possible at an average of 3.62, whereas the group 1 and group 2 rated it at 3.84 and 3.76 respectively. There were also quantitative variations among the three groups regarding the importance of physical activity, kindness, and fun (Figure 29). This highlights the importance of autonomy for teachers and students (Fletcher & Ní Chróinín, 2021) in planning and selecting learning spaces.

Figure 29

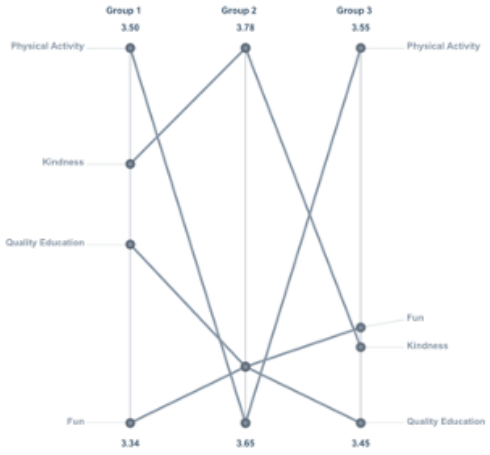
Cluster Pattern Match for Importance Across Groups 1, 2, & 3



Importance	Group 1	Group 2	Group 3
Kindness	3.51	3.74	3.76
Physical Activity	3.49	3.49	3.48
Quality Education	3.46	3.48	3.42
Fun	3.33	3.64	3.61

Figure 30

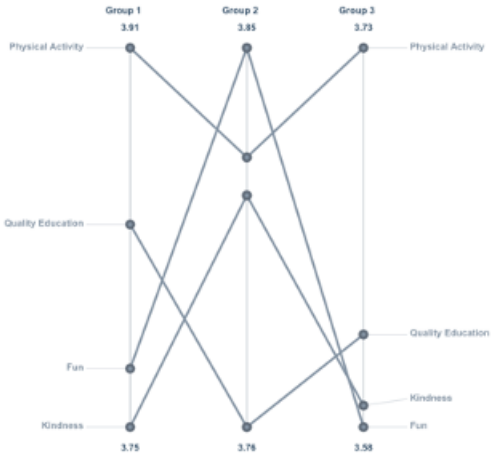
Pattern Match for Frequency Across Groups 1, 2, & 3



Frequency	Group 1	Group 2	Group 3
Physical Activity	**3.50**	**3.65**	**3.55**
Kindness	**3.45**	**3.78**	**3.47**
Quality Education	**3.41**	**3.67**	**3.45**
Fun	**3.34**	**3.67**	**3.48**

Figure 31

Pattern Match for Possibility Across Groups 1, 2, & 3



Possibility	Group 1	Group 2	Group 3
Physical Activity	3.91	3.82	3.73
Quality Education	3.84	3.76	3.62
Fun	3.78	3.85	3.58
Kindness	3.75	3.81	3.59

The importance pattern match (Figure 32) compares the importance of each Meaningful PE cluster for both students and teachers. Lauren thoughtfully linked the discrepant fun and quality education ratings between teachers and students with the following reflection:

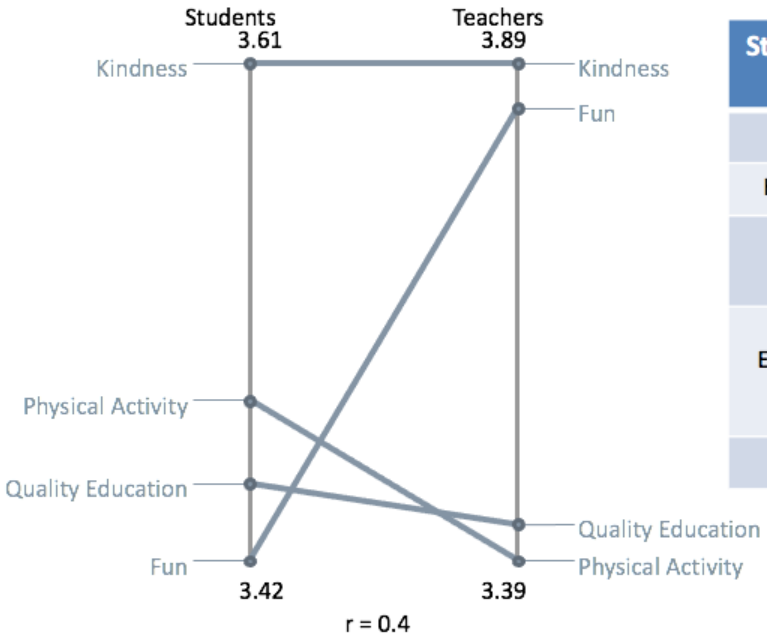
> Teachers are more focused on the teaching part, so maybe the students don't feel that that's quite as fun. It will be more fun once you actually, like, get the hang of it. Whereas the teachers are thinking more long-term, and they're seeing how this could be fun both in the moment and in the future (Group 3 Google Meet #4 discussion).

This prompted further discussions about the similarities and differences between teacher and students' conceptualizations of Meaningful PE experiences. Trudy was surprised that quality education wasn't higher for teachers (Figure 32) because educators must consider all of the elements of planning, instruction, and safety (Group 2 Google Meet #4 discussion). She also mentioned that quality education makes sense for it to be low for students because several of the concepts were beyond student control, such as being taught by quality teachers, having the proper equipment, and the use of technology (Group 2 Google Meet #4 discussion). Chelsea further described quality education as "when teachers would show us something that is useful for

something, and then it turns out to be worth going all the time" (Group 3 Google Meet #4 discussion), in direct corroboration with Beni et al.'s (2017) Meaningful PE feature of personally relevant learning.

Figure 32

Pattern Matching for Students and Teachers Importance Ratings



Student – Teacher Pattern Match for Importance		
	Students	Teachers
Kindness	3.61	3.89
Physical Activity	3.42	3.84
Quality Education	3.48	3.39
Fun	3.42	3.39

As we moved back and forth across the ladder diagram, the importance of fun was mentioned as another discrepancy between students and teachers. To much laughter, Evelyn said "I think it's cuz teachers think every activity they plan is fun but it's not necessarily" (Group 2 Google Meet #4 discussion). Karlin thought that fun would have been higher for students because when students attend PE, they want to have fun (Group 2 Google Meet #4 discussion). When discussing Figure 30, the frequency of the Meaningful PE clusters currently being observed, students revealed the wisdom they have about the teaching profession. Trudy believes that the pattern match is showing "that overall students don't realize how much teachers do

behind the scenes for quality education, that there is a lot more to phys ed than planning just what to do in class" (Group 2 Google Meet #4 discussion).

Empathetic understanding and clear communication in the relationships between the students and teachers, is critical for avoiding misunderstandings. Dewey (1938) states "… that failure of adaptations of material to the needs and capacities of individuals may cause an experience to be non-educative quite as much as failure of an individual to adapt himself to the material" (p. 46-47). The principle of interaction consists of two elements: the individual and the environment. Within the context of this research, the students shared their personal thoughts and ideas about what Meaningful PE is and could be. Similarly, the teachers' shared their individual ideas about Meaningful PE. The environmental conditions were the sports academy school context, the physical spaces available to the staff and students, cultural and political influences, fellow students, timetables, class pluralities, and learning outcomes. The way in which each individual encounters the interrelationships between their internal conditions and the objective conditions will influence the quality of the experience (Dewey, 1938).

For example, if the teachers are not listening to the thoughts and opinions (statement 34) of the students, the teachers may not be clear on the function of being competitive (statement 36) and competition (statement 41) in Meaningful PE experiences for students. Deirdre mentioned she felt like the teachers were focusing too much on creating a fun rather than a competitive environment, which was leading to the decrease in teacher perceptions of physical activity levels. She explained that when they let students make their own teams and be competitive, students were more physically active and having more fun (Group 2 Google Meet #4 discussion). Walseth et al' (2018) also found that "competition affects students' sense of meaningfulness in PE differently" (p. 245). Karlin agreed that teachers need to have a balance of fun and competition

to help students stay physically active. She said the best way to make sure that fun and physical activity happens in PE is by "making a personal connection with all of us and that makes everything better because you can have fun and feel comfortable around teachers who teach you" (Group 2 Google Meet #4 discussion). Her other implementation suggestion was to "take the students thoughts and ideas into consideration when planning phys ed" (Group 2 Google Meet #4 discussion), an interconnection with the kindness cluster. Further evidence to support Karlin's statements was the kindness go-zone (Figure 25). Student participants considered having their thoughts and opinions heard (statement 34) as important, however less possible. This could be a goal to work towards to support Meaningful PE experiences especially in the social interactions (Beni et al., 2017) between students and teachers.

Kindness Between Students & Teachers

There is little research that articulates 'kindness' specifically as a focus in physical education (Pathak, 2009) unless they are sharing aspects of social emotional learning (Ciotto & Gagnon, 2018; Green, 2017) or as part of philosophies of care and kindness in inclusive physical education (Haegele., Li., & Wilson, 2020). Kindness, as described by our student participants, requires respect amongst teachers and students. There is an expectation of equity and a commitment to treating students well. Students expanded on equality between teachers and students, "I don't think it happens in our class, but I know that there's teachers who favour people and I don't think it's fair that people are being treated differently just because the teacher likes them" (Trudy, Group 2 Google Meet #4 discussion). The students all agreed that they did not see special treatment as equality. As the discussion continued the students also considered students with varying abilities and that

> it is not treating people the exact same, I think it's treating people like how they need to be treated in order to succeed. Like if you're treating everyone the same and

> someone needs like more attention or something, like just make it equal. Don't treat everyone the same cuz then they still can't do it (Teegan, Group 2 Google Meet #4 discussion).

Deirdre expressed it as "giving everyone the same opportunity in different ways" (Group 2 Google Meet #4 discussion). The need for clear communication and group reflection (Fletcher & Ní Chróinín, 2021) was supported by the thought's students shared about competition, equity, and fun.

What Teachers Need to Know About Fun

John Dewey encouraged us to take into consideration the individuals as they come and the environment in which we interact and adjust to each other accordingly to plan for positive experiences (1938). In this research, the individuals are the students and teachers in a sport academy environment. Student and teacher participants conceptualized fun in Meaningful PE as making positive memories, getting along, making new friends, including everyone, demonstrating teamwork, doing activities they love, working & being with others, laughing, and participating. When sorted into a 'social' list and an 'individual' list, they would read as follows: social aspects of fun are getting along, making new friends, including everyone, demonstrating teamwork, and working & being with others. The individual or personal aspects of fun are doing activities students love, making positive memories, laughing, and participating. Fun is therefore a complex and personal concept which is a blending of both social and individual activities and reflections (Beni et al., 2017; Garn & Cothran, 2006). To teach for fun, the teacher, would need to co-create experiences with students by discussing activity ideas and negotiate groupings based on the needs of students in the moment. The conscious co-creation of physical education experiences between the teacher and students, the tasks, and the social implications are key themes for fun in physical education (Garn & Cothran, 2006; O'Connor, 2019). Students agreed

that fun needs to come from both the students and the teachers. However, adults and students have different perspectives of what is fun, and this was why there was a discrepancy of its importance between students and teachers (Figure 32). Ms. Osâwikwaniy paraphrased:

> The general just that I am getting from this conversation is that sometimes it is not necessarily the activity but more so the inclusion piece and feeling involved in the sport itself, like you can have fun more so not really because of the game but because of how the environment is (Ms. Osâwikwaniy, Group 2 Google Meet #4 discussion).

As we took a final look at the pattern match discrepancies between teachers and students (Figure 32), Mike thought that fun was higher for teachers than students because "fun is what they want to see in their classrooms" (Group 1 Google Meet #4 discussion).

> Teachers and students have different perspectives about what is fun. You grew up in different times and so what you see as fun, not growing up with all this technology, so you see going outside and playing as something you could do on a summer evening. But for some of us it is fun going on your Xbox or gaming and playing with your friends (Madeleine, Group 3 Google Meet #4 discussion).

This statement led to echoing confirmations and head nodding. Ms. Nipiy then asked them why quality education might be so low in a school setting. Ed replied, "that's no surprise, I'd rather have fun than think" (Group 1 Google Meet #4 discussion). Cue laughter. Mike replied that "I want to be active and have fun in gym class because we are sitting the rest of the day and we do that almost every single day" (Group 1 Google Meet #4 discussion).

Ms. Nipiy encouraged the discussion and asked, "do you think if we were a different program or a different school that didn't value soccer so much that it [the importance ratings] would be different" (Group 1 Google Meet #4 discussion)? Richard jumped in right away

> Fun would be probably the highest there for a kid at another school that doesn't focus on soccer because a kid in our grade, they'd be sitting in class for six periods a day and only maybe get gym once or twice a week. And so, they'd value having fun way more than we would because we get to go out and play soccer everyday" (Group 1 Google Meet #4

discussion).

Richard's comment provides further support for the use of Fletcher & Ní Chróinín's (2021) pedagogical principles of autonomy, inclusivity, and reflection. Secondary students, while expressing their desire to be heard when it comes to aiming for Meaningful PE experiences, will need time to develop and reflect upon their own thoughts and opinions about participation in PE (Fletcher & Ní Chróinín, 2021; O'Connor, 2019; Walseth et al., 2018). Two important statements for Meaningful PE experiences included being happy in class (32) and doing activities I love (40). However, without knowledge of self, how can students identify what makes them happy and which activities they love?

Self - Reflection and Individual Conceptualizations of Meaningful PE Experiences

With support from Fletcher and Ní Chróinín's (2021) democratic and reflective principles, students are encouraged to set goals and reflect upon their PE experiences. Reflective principles encourage students to articulate what they perceive to be the purpose of the PE activity, to establish their own personal goals for the experience, identify their personal value of the PE activity, and ultimately connect the experience to their own lives, outside the school walls (Fletcher & Ní Chróinín, 2021).

Chen's work (1998) is congruent with the GCM methodology in asking individuals to contribute the collective understanding of Meaningful PE experiences, as well as encouraging time for individuals to (de)construct their own Meaningful PE experiences. SASS students listed being challenged (statement 15), competing (statements 41 & 36) skill improvement (statement 35), hard work (statement 7) and effort (statement 42) as some of the important concepts of Meaningful PE. These statements demonstrate the level of individual thought and reflection

required to ascertain the quality of the PE experience. Providing time for introspection and discussions before, during, and after PE lessons will assist students in generating specific and personally relevant connections and suggestions that may facilitate Meaningful PE experiences (Fletcher and Ní Chróinín, 2021).

While personal preference and relevance (Beni et al, 2017) are important components of meaningful experiences, social interaction (Beni et al, 2017) was emphasized as the most important feature (kindness was rated 3.64/4.00 in the cluster rating data). SASS students listed making positive memories (statement 27); including everyone (statement 18), getting along with others (statement 8), showing support for my classmates (statement 30), being with friends (statement 9), competing (statements 41 & 36); everyone demonstrating teamwork (statement 5), working with others (statement 23), and being with friends (statement 9) as some of the peer-to-peer relationships that contribute to social interaction.

Social interaction and relationships strongly emphasised the pedagogical principle of inclusivity (Fletcher & Ní Chróinín, 2021). The entire 'fun' cluster contained the statements: including everyone in activities (18); getting along with others (8); showing support for my classmates (30); everyone demonstrating teamwork (5); group participation (39); being with friends (9); working with others (23); laughing with classmates & teachers (2); being with peers (4); getting to know people (43); and making new friends (37). Their kindness cluster was also interconnected to inclusivity through statements such as being treated with respect (1), equality (10), being treated with kindness (19), and having their thoughts & opinions heard (34). To evaluate the meaningfulness of PE and the possibility of future participation, students and teachers need to connect and reflect upon their relationships with self, others, and the PE subject area.

Quality Education, Fun, Physical Activity & Kindness

The GCM conceptualizations of quality education reflected the roles of both teachers and students. Quality teachers were expected to be adequately trained and prepared to teach, establish safe environments, provide the proper equipment, follow COVID-19 protocols, and plan for learning. It is important to note that the conceptualizations of quality education, articulate some of the 'what' of teaching: safety, training, knowledge, and preparation and the 'how': equipment choices and planning (Quennerstedt, 2019). Not the 'why'. Instead, the students described their 'why' in the other three conceptualizations: kindness, physical activity & fun. As democratic educators aiming for educative experiences (Dewey, 1938; Fletcher et al., 2021; Quennerstedt, 2019) we must remain open to the 'why' of our students and their ever-changing process of becoming.

Experiential Education in PE

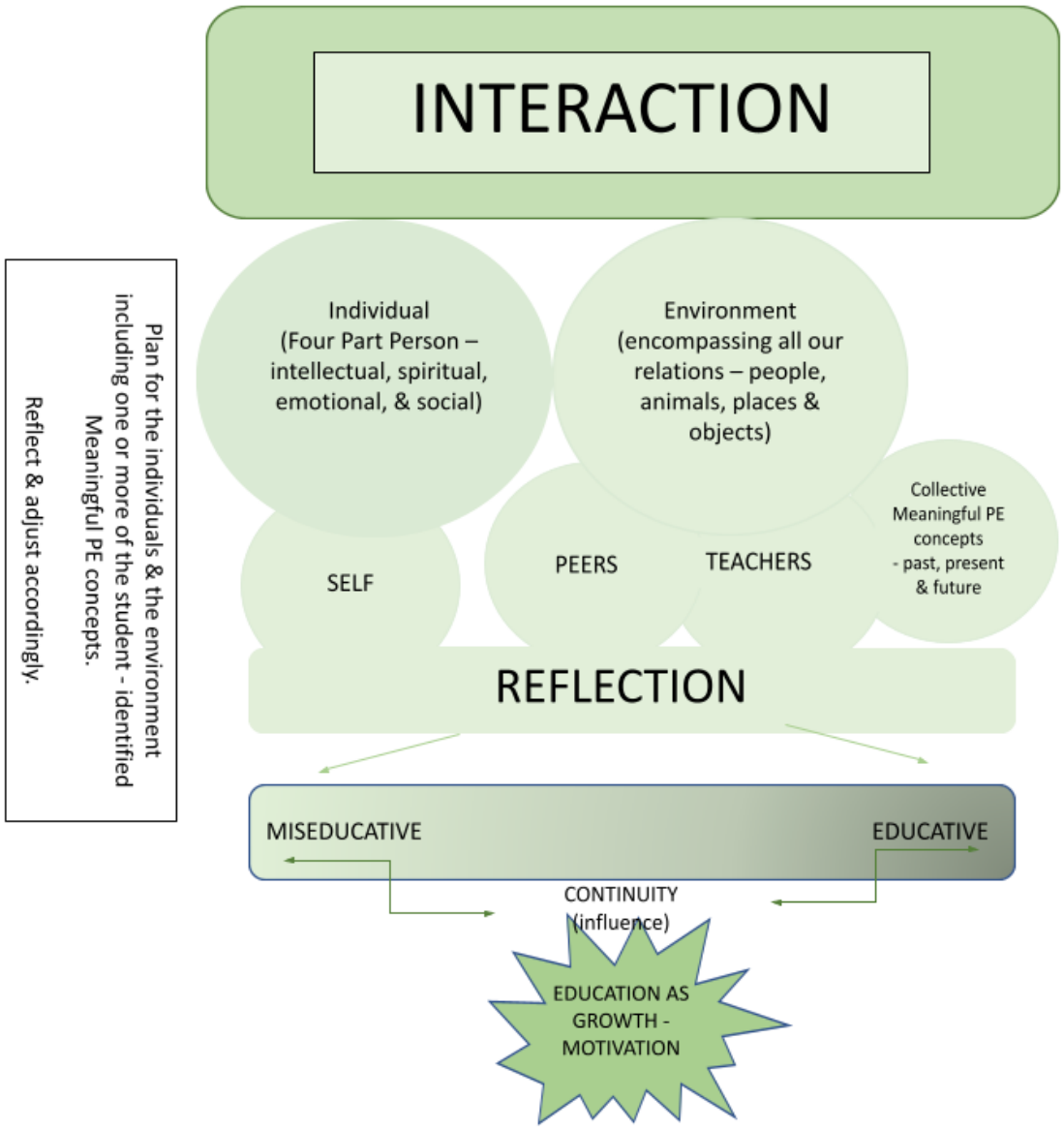
"The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative" (Dewey, 1938, p. 25). The two main discerning principles for the quality of an experience, be it educative or miseducative, are: interaction and continuity (Figure 24). An experience, or situation, is an interaction between an individual and their environment (Dewey, 1938).

Continuity

Dewey (1938) explains that "… every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after" (p.35). The principle of continuity puts forward that all our experiences are connected over time (Dewey, 1938).

Figure 24

Interaction Interconnections



Interaction

Student-identified Meaningful PE concepts are one of the factors in creating Meaningful PE experiences; relationships between peers and students & teachers are also a part of the environment within an interaction (Figure 24). The individuals continue to be a *given*.

Democratic decisions (Fletcher & Ní Chróinín, 2021) made by the educator alongside students with explicit consideration of individual student needs and interests, have the potential to create the conditions for educative PE experiences and increased motivation toward activity for life.

Relationships are critical for knowing which activities are relevant for students and the appropriate level of physical and cognitive challenges that need to be provided, therefore there are no lines around the circles in Figure 24. The circles also overlap and connect as a further demonstration of the interconnectedness and relationality of all the contributing factors within an interaction. Democratic co-planning with specific attention to inclusivity and student voice followed by a reflective analysis of learning aids in making meaning of past, present, and future experiences in PE (Fletcher & Ní Chróinín, 2021 & Vasily et al., 2020). "Without continuity [and reflection] learning is random and disconnected, building toward nothing either within the learner or the world" (Rodgers, 2002, p. 847), a Meaningful PE program makes explicit student learning through reflection.

It is essential to re-emphasize that this research data showed that *both the students and teachers* have contributions to make towards quality education in Meaningful PE. From a macro level, this research about Meaningful PE contributes to the growing literature that positions students as active participants in the research process for the purposes of improving the quality of education (Chivevo Garwe, 2015; Enright., Coll., Ní Chróinín., & Fitzpatrick., 2017; Enright & O'Sullivan, 2010; Howley & Tannehill, 2014). Zooming in to a micro level, the SASS data and Enright & O'Sullivan (2010) illustrated that when students were a part of the curriculum decision-making process at the school level, they were more likely to participate, they were invested in their movement and learning, they held themselves and each other accountable, and built pathways to participation outside of the school setting. This is also

in alignment with the Meaningful PE features (Beni et al., 2017), the SASS clusters, and statements that students from SASS contributed to this research data. Students identified that they were responsible for paying attention to the instructions, actively participating, and learning (Google Meet #4 discussions). Overall, the interconnections of the Meaningful PE conceptualizations from SASS students and teachers convey to us that secondary students can tell us *what* Meaningful PE experiences include socially, emotionally and physically and *how* to co-create PE programs that are more likely to be meaningful.

Research Limitations

Regardless of the amount of effort and thought devoted to designing and implementing a research project, there are always limitations. The COVID-19 global pandemic certainly provided some physical restrictions; however, it is also important to identify other limitations experienced and their implications for the findings.

Participants. The three PE teachers were chosen based on their interest in learning about and implementing Meaningful PE. The student participants were selected because they were in the PE courses being taught by the three teacher participants. As a result, the findings are considered to be context specific to an urban, sports academy school setting and generalizability is somewhat limited. Specific concerns regarding participants are outlined below.

Class Groupings. The three class groups were not an equal representation of grades and genders. Of the students who responded to the participant questionnaire (n = 31), 35% were grade 7 students and 58% were grade 8 students. There were also noticeable gender inequalities (n = 37). Significantly more participants identified as male, 57%, as compared to 3% identifying as LGBTQ2S+ and 38% identifying as female. Lastly, of those who responded to the program question (n = 37), 59% were in the soccer program, 35% were from the sportfit group, and 5%

were in the ringette group. In summary, the following groups were underrepresented in the student participants: grade 7s, LGBTQ2S+ students, female students, and the ringette group.

Sorting. Thirty-eight of the fifty-eight participants completed the sorting activity with most of them identifying as male, in grade 8, and registered in the soccer program (n = 15). The second most represented participants identified as female, in grade 7, and registered in the sportfit program (n = 10). The following groups were underrepresented in the sorting activity: female soccer students, male grade 7 sportfit students, and the ringette students.

Rating. An average of 40 participants completed the rating activities for importance, frequency, and possibility. Once again, many participants who completed the activities were the grade 8 soccer boys and the grade 7 sportfit girls. In summary, the following groups were underrepresented in the sorting activity: female soccer students, male grade 7 sportfit students, and the ringette students.

Although the lack of even representation for all grades, programs, and genders affects the generalizability of the results to all secondary students, the number of participants who completed each of the activities exceed the minimum number of required participants. Both the sorting and rating processes require a minimum of 10 participants (Kane & Trochim, 2007) and this study involved well over thirty participants. The validity and reliability of the results are further supported by the concept map's stress value of 0.2396 which is within the average stress range of 0.17 to 0.34 (Rosas & Kane, 2012; Kane & Trochim, 2007; Visek et al., 2015). A potential solution for similar educational settings would be to complete all the research activities during class time so that the teacher and researcher can better track participation and completion rates.

Uncommon Features

In our group discussions students shared why statements #16 – using technology and #3 – winning were the least important statements. I believe there is value in also further discussing the three specific statements #12 - being outdoors, #36 – being competitive, and # 37 -making new friends that were neutrally rated for importance. Are these uncommon features of Meaningful PE? Would they be rated differently in an alternate school setting?

Chapter 7: Conclusion

What are Meaningful PE experiences?

The findings of this research submit that it is critical to consider the interactions between the students, teachers, and environment to plan for meaningful and educative PE experiences. Research as Service is akin to relevant continuous professional development (CPD) (Armour, Quennerstedt, Chambers, and Makopoulou, 2017; Armour & Yelling, 2004) and could be a possibility for future implementation of the co-conceptualization of Meaningful PE.

Meaningful PE experiences are co-created by physical educators and students in a democratic learning space and through reflection, both individually and collectively. Secondary students provided detailed examples of what Meaningful PE is for them and how to co-create Meaningful PE experiences using the democratic principles of autonomy and inclusivity (Fletcher & Ní Chróinín, 2020) and through reflective processes of group discussions and personal reflections.

Some examples of statements demonstrating the principle of autonomy included ‘doing activities I love’ (#40); ‘improving my skills’ (#35); ‘trying new activities’ (#6); ‘being challenged’ (#15); and ‘having thoughts and opinions heard’ (#34). The participants also provided statements of inclusivity ‘including everyone’ (#18); ‘showing support’ (#30); ‘being with peers’ (#4); ‘getting along’ (#8); and ‘being treated with respect’ (#1).

Who can co-create Meaningful PE experiences?

Democratic educators and autonomous students are the co-creators of Meaningful PE experiences through open dialogue, discussion, and action. Students and teachers must consider their individual relationships with PE; student-student relationships within the class; and student-teacher relationships when co-creating Meaningful PE experiences.

Individuals' Relationship with PE

> When I think of meaningful physical education I think of good teachers or qualified coaches who know what they are doing. I also think of competitiveness between the students or players, and everyone is involved in the activity that they are doing (Doug, Brainstorming Statements).

Both teachers and students described common preferences for what they like to *do* in PE as 'working hard' (#7); 'being active' (#11); 'exercising' (#17); 'demonstrating sports-personship' (#29); 'improving my skills' (#35); 'trying my hardest (demonstrating effort)' (#42); 'playing sports' (#38); 'focusing on the activity' (#13); 'being challenged' (#15); 'participating in a variety of activities' (#25); 'practicing strategies & tactics' (#22); 'demonstrating athleticism' (#28); 'trying new activities' (#6); 'competition' (#41); 'being competitive' (#36); 'being outdoors' (#12); and 'winning' (#3) – the majority of which are controlled solely by the individual. By honouring each autonomous voice, collective Meaningful PE experiences can be created leading to feelings of inclusivity.

Participants described how they wanted to *feel* in PE as a combination of statements from all four clusters: 'being treated with respect' (#1); 'having fun' (#26); 'equality' (#10); 'being treated with kindness' (#19); 'being happy in class' (#32); 'having my thoughts and opinions heard' (#34); 'making positive memories' (#27); 'working hard' (#7); 'improving my skills' (#35); 'trying my hardest (demonstrating effort)' (#42); 'focusing on the activity' (#13); 'being challenged' (#15); 'including everyone in the activities' (#18); 'getting along with others' (#8); 'showing support for my classmates' (#30); 'everyone demonstrating teamwork' (#5); 'group participation' (#39); 'laughing with my classmates & teachers' (#2); and 'learning' (#24). Participants acknowledged their personal responsibility for co-creating Meaningful PE experiences: "It is up to us to contribute, like by working hard and putting in the effort and stuff"

(Mike, Group 1, Google Meet #4). Interconnected to the individuals' relationship with the subject of PE are the (dis)connections between students; social interactions, are critical considerations for Meaningful PE experiences (Beni et al, 2017).

Student-Student Relationships

> "Kindness includes being treated with respect, equality, and being treated with kindness; but, like, equality should have been the highest. Being treated equal makes everything better because if one person is being treated differently it, like, you think like, there's something wrong with you or how you played the game" (Teegan, Group 2, Google Meet #4).

The cluster that students rated as the most important for Meaningful PE experiences was kindness. "If you're not having fun, you're not going to be kind" (Doug, Group 3, Google Meet #4). Of interest, the fun cluster solely encompassed statements that included student-student relationships therefore highlighting the criticality of these relationships. Almost half of the participant generated statements (19/44) in all four clusters, reflected the importance of student-to-student relationships for Meaningful PE experiences (as highlighted in Table 9), further supporting the significance of relationships. The overall findings support not only student-student relationships, but also teacher-student relationships.

Table 9

Student-Student Relationship Statements in the Meaningful PE Map Clusters

Custer 1: Kindness - Being treated with respect (1); having fun (26); equality (10); being treated with kindness (19); being happy in class (32); having my thoughts and opinions heard (34); doing activities that I love (40); practicing leadership (21); making positive memories (27)
Cluster 2: Physical Activity - Working hard (7); being active (11); exercising (17); demonstrating sports-personship (29); improving my skills (35); trying my hardest (demonstrating effort) (42); playing sports (38); focusing on the activity (13); being challenged (15); participating in a variety of activities (25); practicing strategies & tactics (22); demonstrating athleticism (28); trying new activities (6); competition (41); being competitive (36); being outdoors (12); winning (3)
Cluster 3: Fun - Including everyone in the activities (18); getting along with others (8); showing support for my classmates (30); everyone demonstrating teamwork (5); group participation (39); being with friends (9); working with others (23); laughing with my classmates & teachers (2); being with peers (4); getting to know people (43); making new friends (37)
Cluster 4: Quality Education – following COVID-19 precautions (44); paying attention to the instructions (20); safety (33); being taught by quality teachers (14); having the proper equipment (31); learning (24); using technology in class (16)

Note: Statements are listed in order of importance as per the participants rating data. The statement number follows in brackets.

Student-Teacher Relationships

> The best way to make sure that fun and physical activity happens in PE is by making a personal connection with all of us and that makes everything better because you can have fun and feel comfortable around teachers who teach you. You also need to take the students thoughts and ideas into consideration when planning phys ed (Karlin, Group 2 Google Meet #4).

Karlin's quote is an accurate synopsis of the overall expectations students described for teachers who are facilitating Meaningful PE experiences. The fourth cluster, quality education, described further expectations that were more closely tied to pedagogy (Table 9). However, clusters one and three, kindness & fun, provided physical educators with very specific examples of

Meaningful PE pedagogical principles such as 'being treated with respect' (#1); 'having my thoughts and opinions heard (#34); and 'including everyone in the activities (#18). Richard further contributed that "playing music, having more fun, listening to more student voices, and modeling kindness" (Group 1 Google Meet #4) are important actions PE teachers can take to co-create Meaningful PE experiences.

Where do Meaningful PE Experiences Take Place?

Meaningful PE experiences can take place in any physical education space and context; provided students and teachers collaborate to create an inclusive and autonomous setting. This democratic culture can be indoors or out according to our secondary participants. Students also stressed the importance of honouring student voice & choice in activity locations and that having the proper equipment enables Meaningful PE experiences. Ultimately, Meaningful PE experiences are less about the physical location and more about the enduring feelings that co-created learning experiences (where everyone is valued equally as a person and are included in planning and participating) yield in the moment and in the future.

How do we co-create Meaningful PE experiences?

Providing time for introspection and group discussion before, during and after PE lessons will assist students in generating specific and relevant suggestions that may continue to facilitate Meaningful PE experiences (Fletcher & Ni Chroinin, 2021). To assist students to discern between educative and miseducative PE experiences, they will need to reflect on their past experiences, understand their current PE experiences, and contemplate their future involvement in PE and physical activity for life (Dewey, 1938). I would further posit that as teachers continue to reflect on their practice and co-plan for Meaningful PE with their students, students will likely respond with increased motivation to participate in PE and lifelong physical activity. By

learning and reflecting with their peers and teachers, students may demonstrate a continued dedication and commitment to daily physical activity.

Important Contributions from this Research

There are five important inferences this research contributes to the physical education and Meaningful PE literature:

1) Both students and teachers have contributions to make towards co-creating quality Meaningful PE experiences.

2) Students need to be active participants in the research process and education planning process to improve the quality of PE experiences and optimize participation (Chivevo, 2015; Enright., Coll., Ní Chróinín., & Fitzpatrick., 2017; Enright & O'Sullivan, 2010; Howley & Tannehill, 2014).

3) The interconnections made and shared from the SASS conceptualizations can tell us what to consider socially, emotionally, and physically to co-create Meaningful PE experiences.

4) Secondary students successfully participated in GCM activities to conceptualize Meaningful PE.

5) Secondary students were able to articulate where and how Meaningful PE experiences are more likely to occur: in *democratic PE classes where there is a focus on autonomy and inclusion* and where reflection is prioritized.

Next Steps - Possibilities for Implementation & Research as Service

My purpose is to co-create **Research as Service** opportunities alongside practicing teachers and their students to continue to learn and reflect alongside both groups with the intention of pursuing meaningful education experiences in addition to modelling relational and reciprocal projects and studies. The findings of this research submit that it is critical to consider the interactions between the students, teachers, and environment to plan for meaningful and educative PE experiences. Research as Service is akin to relevant continuous professional development (CPD) (Armour, Quennerstedt, Chambers, and Makopoulou, 2017; Armour & Yelling, 2004) and could be a possibility for future implementation of the co-conceptualization

of Meaningful PE. As we build relationships with our teacher participants, we begin to understand what their pedagogical needs are and if, through our research, we can be of service then it is 'Ethically' (Casey et al., 2018) acceptable to proceed. To the same degree, when we begin to understand the students' lived experiences, our educational research should also have enough flexible rigidity (Gleddie personal communication, 2010) to ensure that the student participants will also benefit. Parker and Patton (2017) encourage PD facilitators to reflect upon the lived experiences, knowledge, context, and interest of the teacher participants. Research as Service would extend the same considerations of care to both teachers and students.

Final Words

It is important to take a moment to sincerely thank Stephanie Beni, Tim Fletcher, and Dierdre Ní Chróinín for their original Meaningful PE work that inspired this research project. In their review of the literature (Beni et al., 2017) six Meaningful PE features were originally identified: social interaction, fun, challenge, motor competence, personally relevant learning, and delight. These features greatly influenced my initial understandings of Meaningful PE.

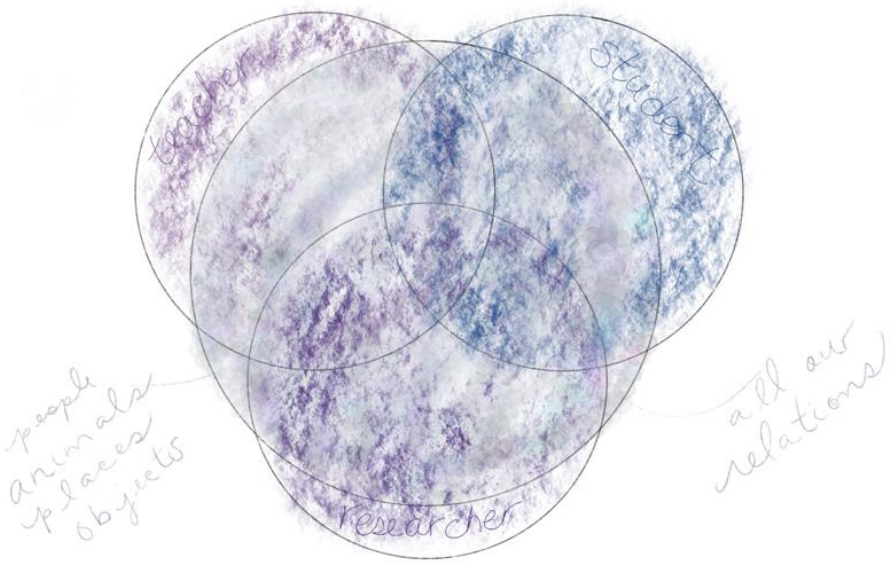
The research journey has opened my eyes to the complexity of knowledge generation and sharing. Through the process of reading, writing, and reflection, I now understand through course work and conversations with secondary students & teachers, that for our physical education profession to survive we have had to learn specific pedagogies and teaching strategies at specific points in our development as educators. However, it is now time to unlearn those disciplines which remain only as unconscious traditions and no longer serve our students and our education contexts. It is time to challenge the historical purposes of PE as part of a thriving effort to "support students in coming to value physical education through experiencing

meaningfulness… and recognizing ways participation enhances the quality of their lives" (Fletcher et al., 2021, p. 4).

Meaningful PE experiences offer a range of growth opportunities for students, teachers, and researchers. John Dewey (1938) explained that "ideas are not fixed but formed and reformed through experience" (p. 8). Interrelated with growth are the principles of interaction and continuity, as relational beings we are constantly learning and unlearning, we are in the flux of becoming and changing. Students, with teachers and researchers, should be involved in collaborative and on-going reflection of Meaningful PE experiences. As well, researchers ought to be continuously reflecting on how their research is serving the students and teachers of the learning community. Educative research experiences are those that inspire teachers to continue to improve their practice and they are also experiences that are tailored to the contextual needs, interests, and abilities of students. Researchers demonstrate growth as they synthesize the interactions of the teachers, students, and the environment to co-create Meaningful PE experiences in a variety of contexts through sustained communities of practice (Patton, Parker, & Pratt, 2013). Developing, implementing, and evaluating context specific conceptualizations will ensure continued growth in the research of Meaningful PE. It would be my pleasure and honour to continue to engage in Meaningful PE research, provided there is a demand for it from students and teachers. In educational research, there is no separation between researcher, student, and teacher (Figure 33) as the blurring of lines between teachers, researchers and students is relational.

Figure 33

Relational Research Image



Dewey (1938) reminds us that a situation considers each individual and their lived experiences situated within the fluid environment including all our relations. As my drawing depicts, there is no research without relationships. I also attempted to draw the individual circles of equal size to acknowledge that not one of us is more important than the other (students and teachers play equally important roles in experiences) and that we are all connected (Wilson, 2001). The larger circle is meant to be our respective and connected environments. Furthermore, any ideas that come from research are built upon the foundations of all these interconnections. (Wilson, 2001).

> There is, I think, no point in the philosophy of progressive education which is sounder than its emphasis upon the importance of the participation of the learner in the formation of the purposes which direct [their] activities in the learning process, just as there is no defect in traditional education greater than its failures to secure the active co-operation of the pupil in the construction of the purposes involved in [their] studying (Dewey, 1938, p. 67).

Research as Service is messy and responsive to the changing conditions of our research participants. The field of education is equally messy and ought to be responsive to the changing conditions of students, teachers, administrators, pre-service teachers, and teacher educators. Each of us could be a reflective learner in within our contexts. Meaningful PE as focus for continued professional development (CPD) (Armour, Quennerstedt, Chambers & Makopoulou, 2017) through Research as Service would emphasize the importance of the learner in the conceptualization, implementation, and evaluation of educative experiences (Dewey, 1938).

The prominence of relationships in my research findings, continues to inspire in me a passion for research as service to physical education communities of practice (Parker & Patton, 2017). When I began researching Meaningful PE, I was hoping to create a document that teachers could use in their planning and implementation of physical education. Instead, I have come to realize, from listening to students and teachers, that it is not documents or resources that will bring Meaningful PE to students. It is the relationships between learners (students, pre- and in-service teachers, teacher educators, and researchers) that will create Meaningful PE experiences. As I noted earlier, these relationships also include our professional environments and the pedagogies shared.

> Professional development opportunities for teachers in the field also need to begin to move beyond a content focus and towards the notion of supporting pedagogies of possibility if the PE community is serious about engaging students in personally meaningful ways with PE (Enright & O'Sullivan, 2010, p. 219).

This paper and subsequent dissemination marks the continuation of sharing Meaningful PE ideas with PE communities through Research as Service. Educators are researchers and vice versa (Gleddie, personal communication, 2021). We never stop growing in our practice especially when we are sustained and motivated by career-long growth. Research as Service awakens us to

new possibilities for respectful, relational, and responsible research that makes us better teachers and encourages all learners to grow and learn in educative ways.

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Appendix A

Teacher Consent Form

Informed Consent Form - Teachers

October 9, 2020

Project Title: Creating a Culture of Meaningful Physical Education - A Secondary School Case Study

Principal Investigator (PI): Principal Student Investigator (PSI):

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Jodi Harding-Kuriger, PhD student
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Invitation

You are invited to participate in a study that involves research. The purpose of this research project is to examine the experiences of physical education teachers implementing the Meaningful Physical Education (MPE) approach in a physical education classroom. We believe that meaningful experiences are one of the main driving forces that lead children to want to participate in physical education and physical activity both inside and outside of school. We are trying to understand ways that we can foster these types of experiences through teaching in certain ways.

What's Involved

As a participant, you will be asked to review some freely accessible online resources including videos and some reading material to familiarize yourself with the MPE approach. You will also have the opportunity to ask questions of the research team to further your understanding of the approach across the duration of the study. You will to engage in a professional learning community meeting once a month with other teacher participants and members of the research team during which time you will be asked to share your experiences of implementing the MPE approach in your classroom. Participation will take approximately 30-40 minutes of your time. This will also provide the opportunity for you to ask questions and consider ideas other teachers share. These meetings may be audio recorded for transcription purposes. You will also be asked to engage in three one-on-one interviews with a member of the research team. These interviews will be audio-recorded for transcription purposes. Participation will take approximately 20-30 minutes of your time and will take place at your convenience. In addition, you will be asked to keep a short reflective journal in which you will record your experiences of using the MPE approach following each lesson. You may use this journal to prompt discussion in meetings with other participants and will also be asked to submit these journal entries to the research team. Prior to implementing the MPE approach, you will be asked to take part in online anonymous concept mapping, which include four steps: a demographic questionnaire; brainstorming; sorting participant created statements; and rating the statements. Lastly, a member of the research team will visit your classroom a minimum of three times to conduct observations of your teaching practice while using the MPE approach. The purpose of these observations is not to 'critique' or criticize your practice but rather to learn more about how

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teachers learn to use the approach and how it might be adapted for different teachers in different contexts.

Potential Benefits and Risks
This research and its findings offer the following possible benefits. First, the findings of this research will contribute to understanding a meaning-oriented approach in physical education, as well as to the literature on this topic. Second, the reflections you will be asked to engage in during through journal writing, learning community meetings and interviews have the potential to influence the development of your teaching practice, consequently benefiting the students in turn. Third, you will have the benefit of engaging in a sustained form of professional development as you work together with the research team in a professional learning community and have the freedom to ask questions across the duration of the study. Participation in professional learning community meetings involves a level of vulnerability in sharing one's experiences with other teachers in the group. Any statements made in this context cannot be considered confidential or anonymous given the nature of the group dynamic. However, the research team will present any findings from these meetings anonymously.

Confidentiality
All information you provide will be considered confidential, with the exception of professional learning community meeting notes as described above. Your name will be replaced with a pseudonym to protect your identity; access to the master list of pseudonyms will be restricted to the research team. Please note that with your permission, your anonymous quotations may be used in final reports of the research. Please note that no information will be reported that will render your quotations personally identifiable.

Data collected during this study will be stored on password-protected computers in locked offices on the University of Alberta's campus. Data will be kept only until the completion of the final report, after which time any hardcopy documents will be confidentially shredded and electronic files will be permanently erased.

Voluntary Participation
Participation in this study is completely voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. Further, you may decide to withdraw from this study at any time within two weeks of the data collection and may do so without any penalty.

Publication of Results
Results of this study may be published in professional journals and presented at conferences to audiences of teachers and researchers. If you wish to receive a final report of this research, please contact Jodi Harding-Kuriger via email.

Contact Information and Ethics Clearance
If you have any further questions regarding this study, please do not hesitate to contact Dr. Doug Gleddie at 780-248-1951. The plan for this study has been reviewed for its adherence to ethical 2

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guidelines by a Research Ethics Board at the University of Alberta (Project #00096776). For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

Thank you for your assistance in this project. Please keep a copy of this form for your records.

Informed Consent Form

I agree to participate in the study "Meaningful physical education: Testing a model for teaching and learning" as described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

Name of Participant: _____

Signature: _____ Date: _____

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Appendix B

Student Assent Form

Informed Assent Form - Student

October 7, 2020

Project Title:
Creating a Culture of Meaningful Physical Education - A Secondary School Case Study

Principal Investigator (PI):
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Invitation
My name is Jodi Harding-Kuriger, and I am a researcher who studies physical education. I would like to invite you to be part of a study that involves your physical education teacher. Your teacher is learning to teach in a new way and wants to keep improving as a teacher. I am going to give you some information about the study, and you can decide whether or not you wish to participate. If you would like to participate in the study, your parent(s)/guardian will also have to agree.

You do not have to decide right away if you'd like to participate. You may discuss anything in this letter with your parents first. If there is anything in this form you don't understand or want to ask me about, please ask and I will be happy to explain it to you.

What's Involved
If you would like to participate, you will be asked to complete four online activities via the GroupWisdom, Group Concept Mapping platform. You will be asked to brainstorm your ideas about meaningful physical education, sort the statements generated, and rate the statements. Depending on COVID restrictions, we may engage in a focus group interview with a member of the research team in which you will be asked to discuss with your peers your experiences and perspectives of physical education when taught using the MPE approach. Some of your classmates will also be in the room or Google Meet. We will record just the sound of the interview so we can write down all of the things we spoke about afterward. It will only take about 20-30 minutes to answer the questions, and we will do the interview at school. You can also participate by allowing us to use some samples of your work for the study. Everyone in the class will fill out some exit slips, do some goal-setting, and keep a journal, but we only use yours in the study if you would like us to, and we won't put your name on it. Your principal knows about the study and what we will be doing and has let us invite you to be involved.

What are the good or bad things that might come from this?
There are a few good things that might come from this study. First, what we learn from this study can help us find better ways to teach physical education, and we might even be able to share that

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information with other teachers and researchers. Second, the things you share with us may help your teacher continue to make good changes to the way they teach your physical education classes. This might help you and the students they will teach in the future.

You might feel like you *must* participate in this research, but we want you to know that is ***not true***. You do not have to participate in this research. Whether you do or do not participate will not change your grade in physical education in any way. In fact, your teacher will not even know if you did or did not participate. Your teacher may see *what* you said but will not know it was you who said it.

Confidentiality

This is a big word that means that I am going to keep whatever you tell me in the interview to myself. We will not put your name on anything – we will use a made-up name. We may use some of the things you say to help with the research, but no one will know that it was you who said it except for me and your peers who were in the room. We will keep this information locked on a computer so no one can get to it except us. Your physical education teacher will only see the information that does not have your name on it. However, it's important to remember that whatever you say in front of your classmates might end up getting shared with others.

Voluntary Participation

You do not have to participate in this study. It's completely up to you. If you would like to, you can choose not to answer any questions or participate in any part of the study at any time. Also, if you decide to participate but later change your mind and want to pull out of the study any time within two weeks of when we talk to you that is totally fine. You can change your mind at any time during the study.

Sharing of Results

What we learn from this study may be printed in journals or even talked about at conferences where other teachers and researchers will be able to learn from it also. If you would like to read the paper we have written when the study is all done, you and your parent(s)/guardian can email me, and I will send it to you.

Contact Information and Ethics Clearance

If you have any questions about this study or would like some more information, you can ask me at any time. The Research Ethics Board at the University of Alberta has reviewed this study to help us make sure your rights are protected. They have given us permission to do this study (Project #00085341). For questions regarding your rights as a research participant, contact the Research Ethics Office at (780) 492-2615.

Thank you for helping us with this project. Please keep this form so you can look at it whenever you would like to.

Assent Form

I agree to participate in the study "Creating a Culture of Meaningful Physical Education - A Secondary School Case Study" as described above. I have made this decision based on what I have read in this letter. I have been able to ask questions and get more information, and I understand that I may ask questions whenever I want to. I also understand that I can choose to leave the study at any time.

Your Name: _____

Please check which parts of the study you would like to be a part of:

GroupWisdom Online Questions ☐

Group Interview ☐

Work Samples ☐

Signature: _____ Date: _____

University of Alberta
Research Ethics Project #00096776

Appendix C

Parent/Guardian Consent Form

Informed Consent Form – Parent/ Guardian

October 7, 2020

Project Title:
Creating a Culture of Meaningful Physical Education - A Secondary School Case Study

Principal Investigator (PI):
Dr. Doug Gleddie
Faculty of Education
University of Alberta
dgleddie@ualberta.ca

Principal Student Investigator (PSI):
Jodi Harding-Kuriger, PhD student
Faculty of Education
University of Alberta
jlhardin@ualberta.ca

Invitation
Your child is invited to participate in a study that involves research. The purpose of this research project is to examine the experiences of physical education teachers (including your child's teacher) implementing the Meaningful Physical Education approach in a physical education classroom. We believe that meaningful experiences are one of the main driving forces that lead children to want to participate in physical education and physical activity both inside and outside of school. We are trying to understand ways that we can foster these types of experiences through teaching in certain ways.

What's Involved
As a participant, your child will be asked to complete four online activities via the GroupWisdom, Group Concept Mapping platform. They will be asked to brainstorm their ideas about meaingful physical education, sort the statements generated, and rate the statements. Depending on COVID restrictions, students may engage in a focus group interview with a member of the research team in which your child will be asked to discuss with their peers their experiences and perspectives of physical education when taught using the MPE approach. This interview will be audio-recorded for transcription purposes. Participation will take approximately 20-30 minutes of their time and will take place during the school day. Participants will also be asked to submit a few work samples, including exit slips – short questions that they complete and submit at the end of select lessons to share their perspectives and experiences – journal entries, and goal-setting activities. These assignments will be given to and collected from all students in the class, but only the samples of those students who, along with their parents, have given consent will be used anonymously in the study. The proposed research protocol has been approved by the school administration.

Potential Benefits and Risks
This research and its findings offer the following possible benefits. First, the findings of this research will contribute to understanding a meaning-oriented approach in physical education, as well as to the literature on this topic. Second, the reflections your child will be asked to engage in

University of Alberta
Research Ethics Project #00096776

during this interview may benefit the development of their own teacher, consequently benefiting the students in turn.

Please be assured that your child is in no way obligated to participate in this research. Their participation (or lack thereof) will not have any impact on their grade and their identity will be kept anonymous from the physical education teacher, who will have no access to the data.

Confidentiality
All information you and your child provide will be considered confidential; their name will not be associated with the data collected in the study other than in matching those children and parents who have provided informed consent. Your child's name will be replaced with a pseudonym to protect their identity; access to the master list of pseudonyms will be restricted to the research team. Please note that with your permission, your child's anonymous quotations may be used in final reports of the research. Please note that no information will be reported that will render their quotations personally identifiable.

Data collected during this study will be stored on password-protected computers in locked offices on the University of Alberta's campus. Data will be kept only until the completion of the final report, after which time any hardcopy documents will be confidentially shredded and electronic files will be permanently erased.

Voluntary Participation
Participation in this study is completely voluntary. If you or your child wishes, your child may decline to answer any questions or participate in any component of the study. Further, you or your child may decide to withdraw from this study at any time within two weeks of the data collection and may do so without any penalty.

Publication of Results
Results of this study may be published in professional journals and presented at conferences to audiences of teachers and researchers. If you wish to receive a final report of this research, please contact Jodi Harding-Kuriger via email.

Contact Information and Ethics Clearance
If you have any further questions regarding this study, please do not hesitate to contact Dr. Doug Gleddie at 780-248-1951. The plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta (Project #00096776). For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at 780-492-2615.

Thank you for your assistance in this project. Please keep a copy of this form for your records.

Informed Consent Form

I agree to allow my child to participate in the study "Meaningful physical education: Testing a model for teaching and learning" as described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

Name of Student: _____

Name of Parent: _____

Please check all that apply:

GroupWisdom Online Questions ☐

Focus Group Interview ☐

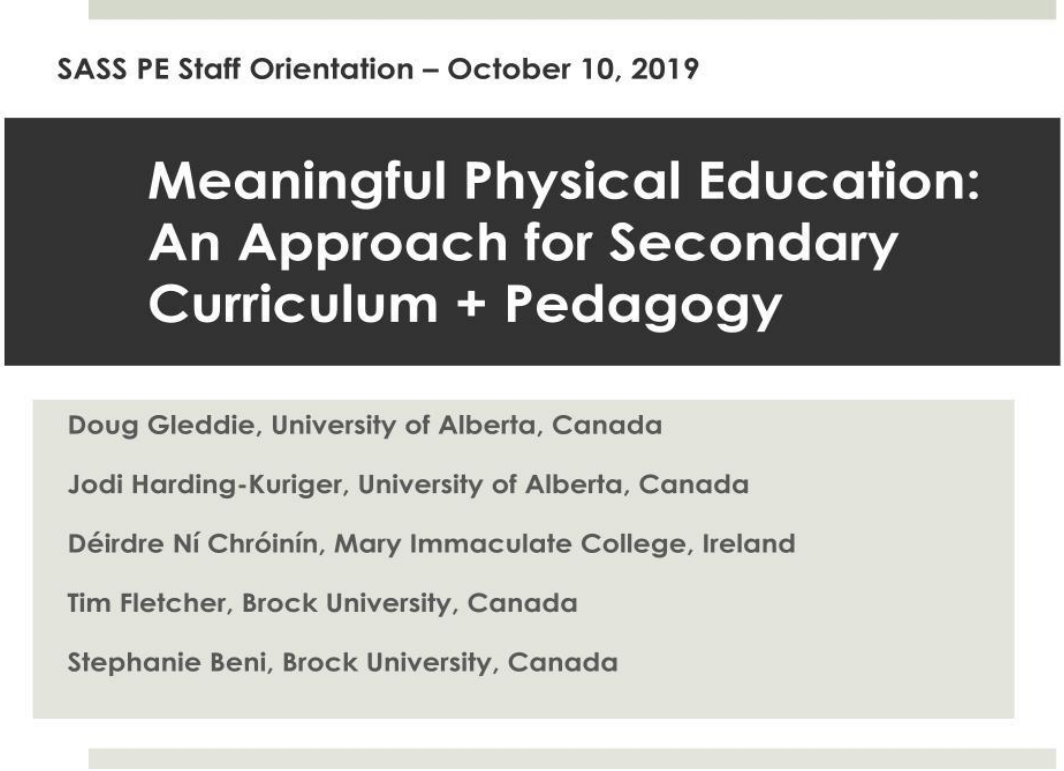
Student Work Samples ☐

Signature: _____ Date: _____

University of Alberta
Research Ethics Project #00096776

Appendix D

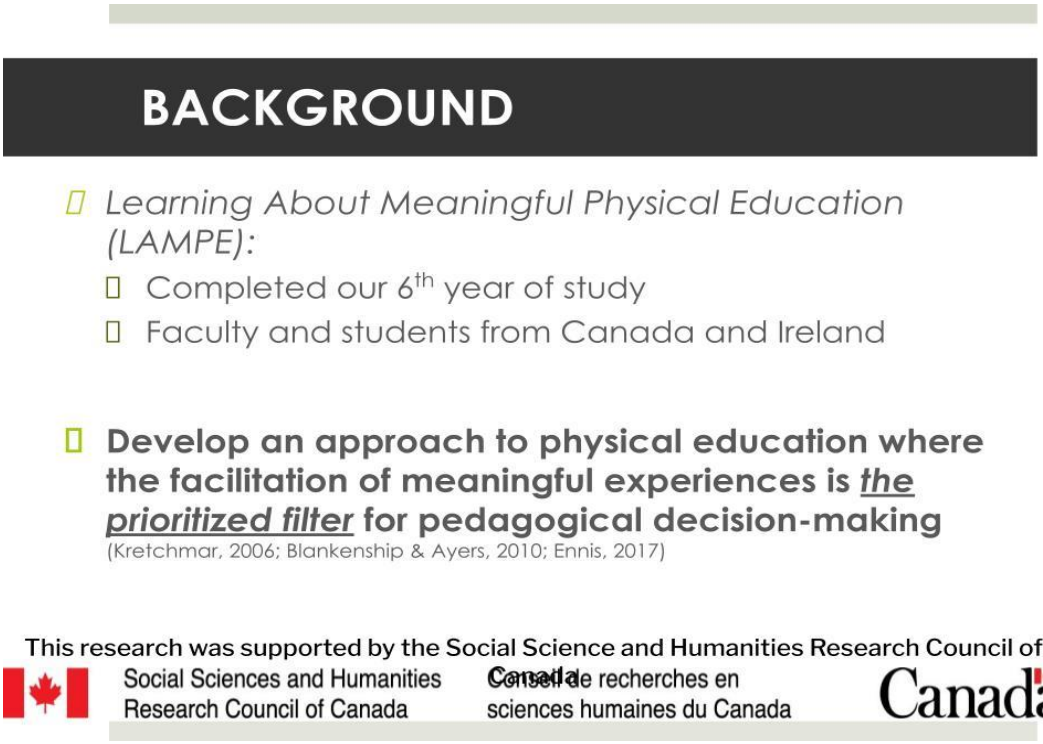
SASS MPE Orientation Slides



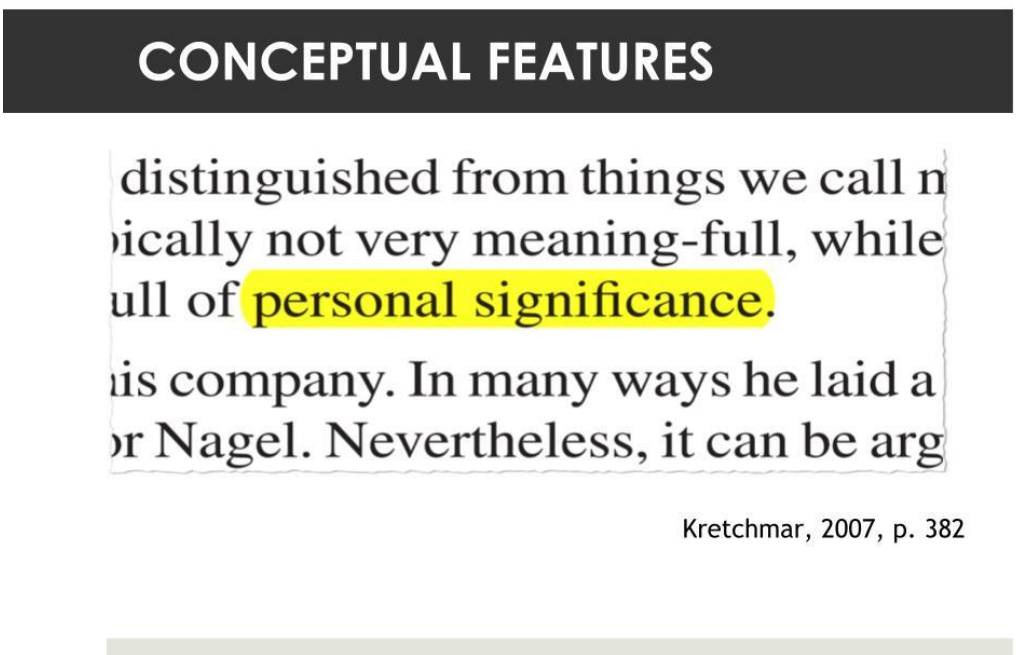
Welcome to our session on Curriculum + Pedagogy, where we are going to introduce some of our ideas on Meaningful PE and how those ideas and associated pedagogies might provide a suitable frame to think about curriculum and pedagogy in Secondary PE.

You can see in your agenda for our session what we have planned: we are going to introduce the Meaningful PE project and its research base, then provide some time to consider these ideas through consideration of some pedagogical cases. These cases will be book-ended by several MPE team members sharing their experiences.

We are keen to get your ideas and feedback, as this is very much a work in progress, and we hope you find the session useful, and dare I say, meaningful…



Bulk of our work has been conducted with pre-service teachers



Dewey suggests that all experiences that have meaning; but Kretchmar suggests that experiences which are full of personal significance are meaningful and distinct from those that simply have meaning.

THEORETICAL FOUNDATIONS

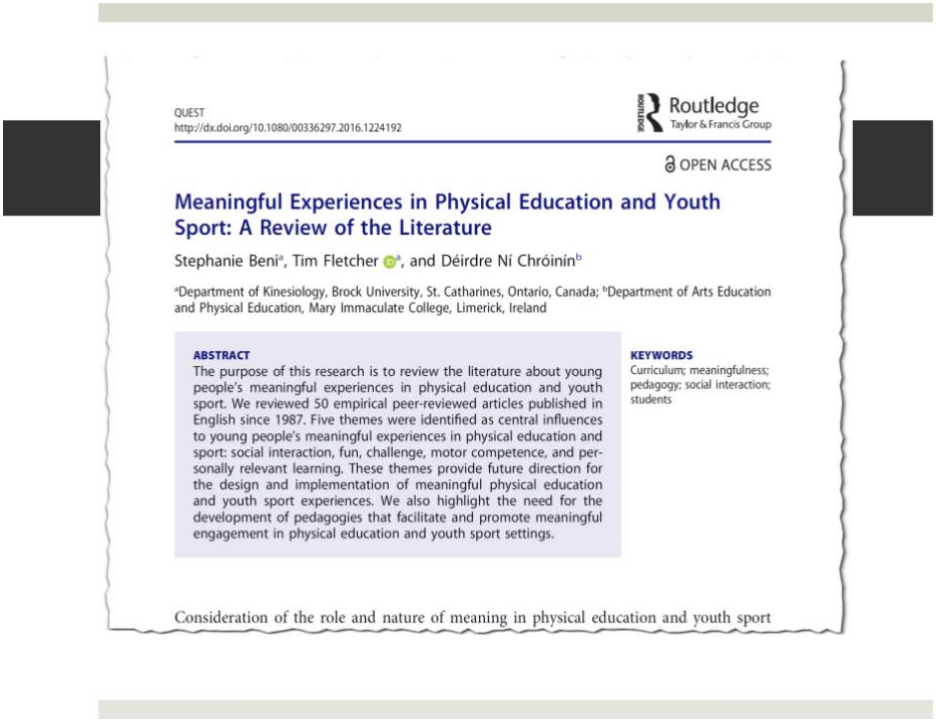
- Work of Scott Kretchmar and Eleanor Metheny:

> "
> . . . one of the greatest things about physical activity and play is that they make our lives go better, not just longer. It is the quality of life, the joy of being alive
>
> (Kretchmar, 2006, p. 6)

Meaningful experiences promote regular physical activity participation in a way that enriches our lives (Hawkins, 2008).

So, meaningfulness is concerned with the quality of experience rather than the quantity.

In addition to the personal significance meaningful experiences provide, research has shown that experiences that are satisfying, challenging, social, or fun is more likely to lead individuals to commit to a physically active lifestyle than extrinsic reasons (such as weight loss or disease prevention).



QUEST
http://dx.doi.org/10.1080/00336297.2016.1224192

Routledge
Taylor & Francis Group

OPEN ACCESS

Meaningful Experiences in Physical Education and Youth Sport: A Review of the Literature

Stephanie Beni[a], Tim Fletcher[a], and Déirdre Ní Chróinín[b]

[a]Department of Kinesiology, Brock University, St. Catharines, Ontario, Canada; [b]Department of Arts Education and Physical Education, Mary Immaculate College, Limerick, Ireland

ABSTRACT

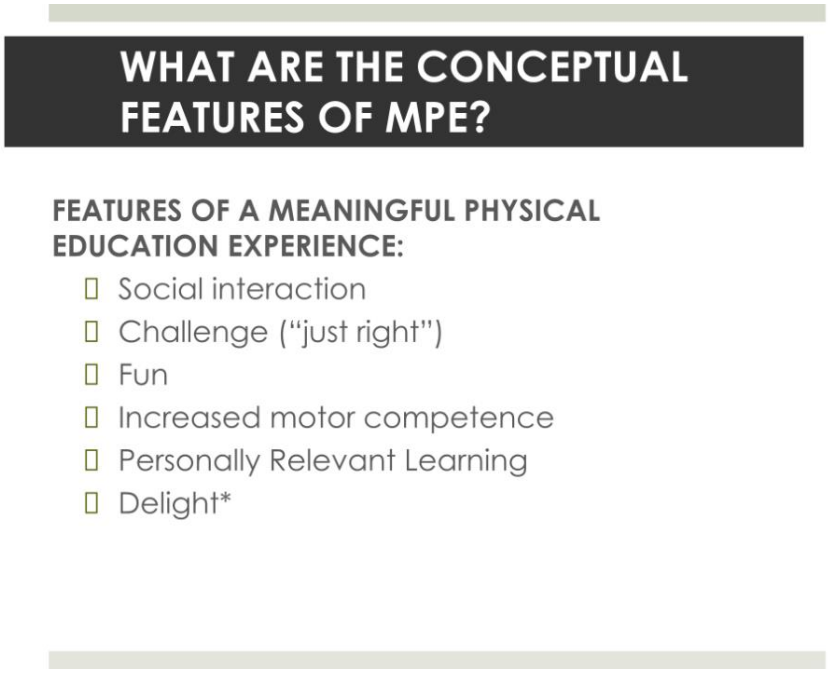
The purpose of this research is to review the literature about young people's meaningful experiences in physical education and youth sport. We reviewed 50 empirical peer-reviewed articles published in English since 1987. Five themes were identified as central influences to young people's meaningful experiences in physical education and sport: social interaction, fun, challenge, motor competence, and personally relevant learning. These themes provide future direction for the design and implementation of meaningful physical education and youth sport experiences. We also highlight the need for the development of pedagogies that facilitate and promote meaningful engagement in physical education and youth sport settings.

KEYWORDS

Curriculum; meaningfulness; pedagogy; social interaction; students

Consideration of the role and nature of meaning in physical education and youth sport

One of the first tasks we completed as part of the project was to review the literature on meaningful PE from the perspectives of students.



WHAT ARE THE CONCEPTUAL FEATURES OF MPE?

FEATURES OF A MEANINGFUL PHYSICAL EDUCATION EXPERIENCE:

- Social interaction
- Challenge ("just right")
- Fun
- Increased motor competence
- Personally Relevant Learning
- Delight*

We found support for four key ideas suggested by Kretchmar, while also finding support for PRL. Delight was not supported

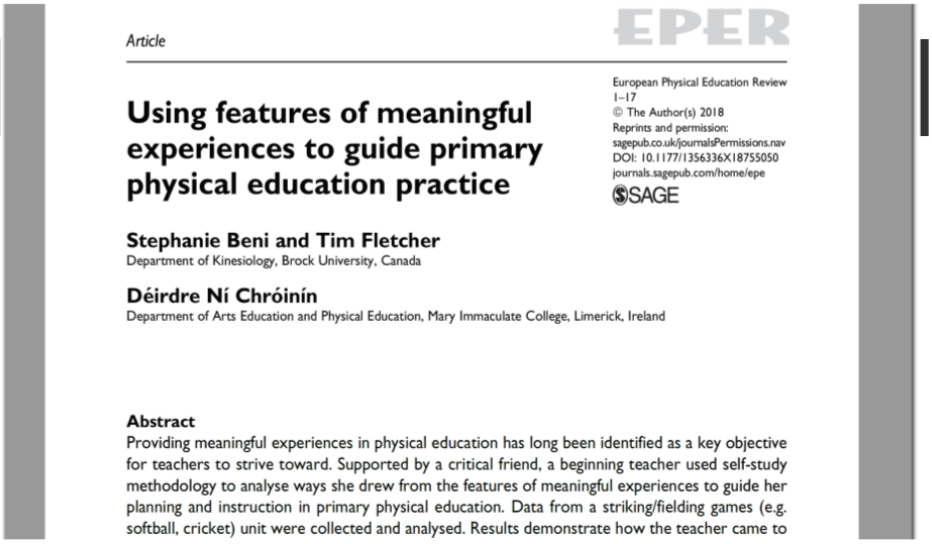
These provide a foundation for framing meaningful PE: it helps us think about WHAT meaningful PE consists of.

But there remains a big gap concerning the HOW of MPE

PILOT WORK: MPE IN SCHOOLS

- Self-studies of *teaching* practice led by two graduate students:

2 students have been piloting the work on HOW to do meaningful PE in primary schools
Show the 2 videos with a short break for questions in between.



Article

EPER

Using features of meaningful experiences to guide primary physical education practice

European Physical Education Review
1–17
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SAGE

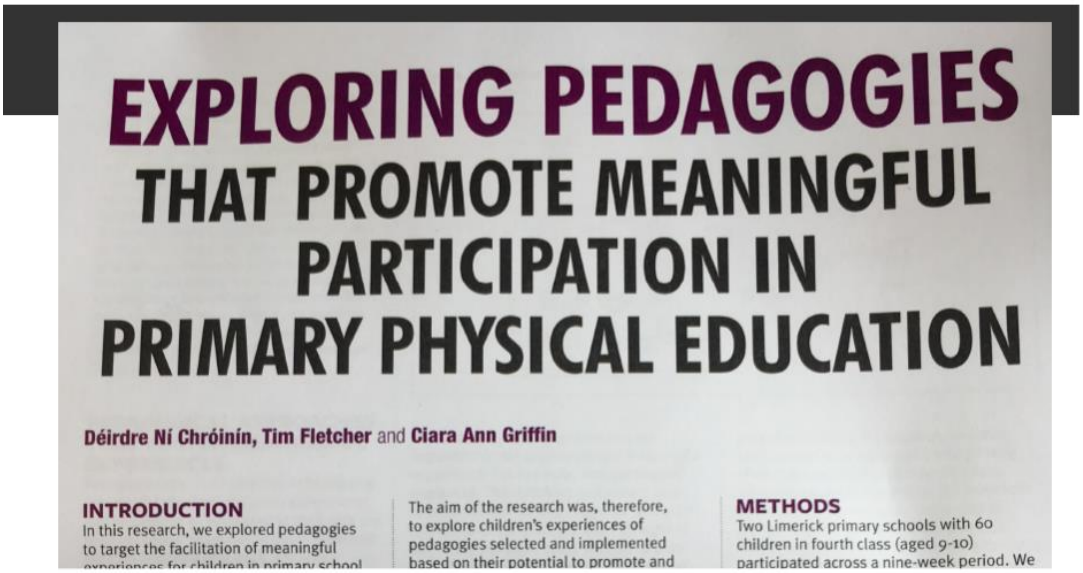
Stephanie Beni and Tim Fletcher
Department of Kinesiology, Brock University, Canada

Déirdre Ní Chróinín
Department of Arts Education and Physical Education, Mary Immaculate College, Limerick, Ireland

Abstract
Providing meaningful experiences in physical education has long been identified as a key objective for teachers to strive toward. Supported by a critical friend, a beginning teacher used self-study methodology to analyse ways she drew from the features of meaningful experiences to guide her planning and instruction in primary physical education. Data from a striking/fielding games (e.g. softball, cricket) unit were collected and analysed. Results demonstrate how the teacher came to

European Physical Education Review (Online First)

SB's pilot work is in the Online First in EPER



EXPLORING PEDAGOGIES THAT PROMOTE MEANINGFUL PARTICIPATION IN PRIMARY PHYSICAL EDUCATION

Déirdre Ní Chróinín, Tim Fletcher and Ciara Ann Griffin

INTRODUCTION
In this research, we explored pedagogies to target the facilitation of meaningful

The aim of the research was, therefore, to explore children's experiences of pedagogies selected and implemented based on their potential to promote and

METHODS
Two Limerick primary schools with 60 children in fourth class (aged 9-10) participated across a nine-week period. We

PE Matters, Spring 2018

Ciara's is in current issue of PE Matters

A BLUEPRINT OF THE MPE APPROACH

- Framework to guide prioritization of meaningful experiences
- Beginning and experienced teachers
- Flexible implementation
- Guided by social constructivist theory of learning

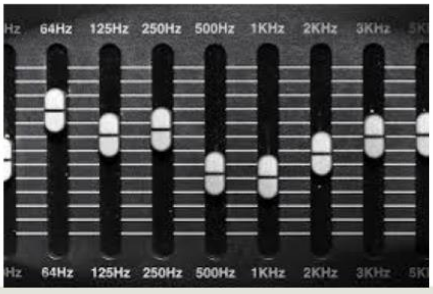
To package these together then, here are some main ideas

A BLUEPRINT OF THE MPE APPROACH

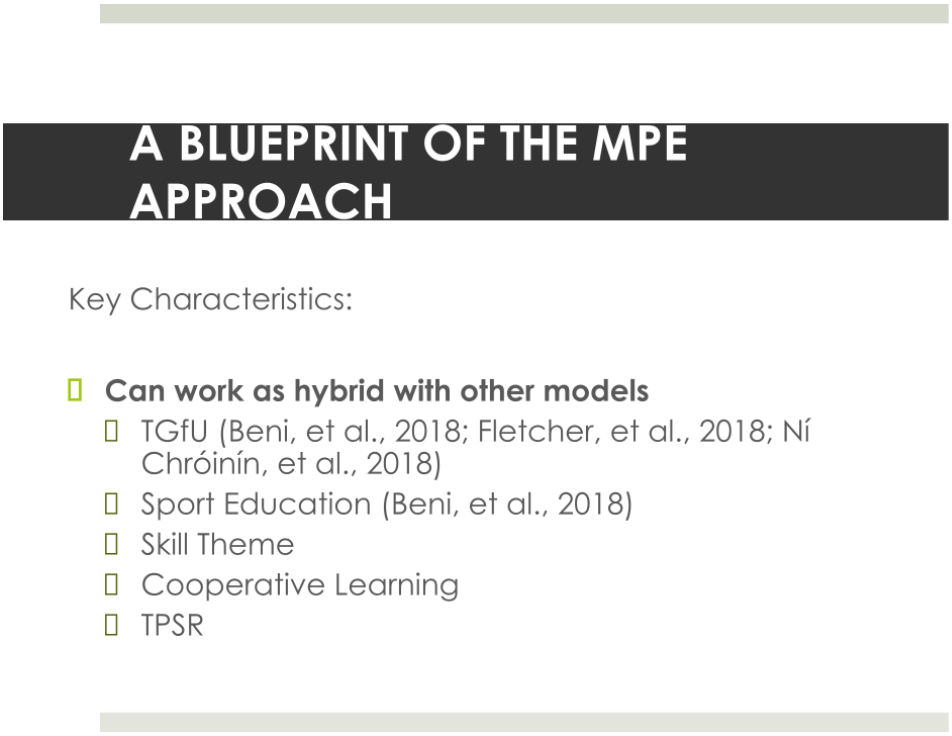
Key Characteristics:

- **Features of meaningful experiences guide planning and instructional decisions**
  - Prioritized according to: (1) student outcomes and (2) teacher beliefs
  - Features as integrated vs checklist

Metaphors

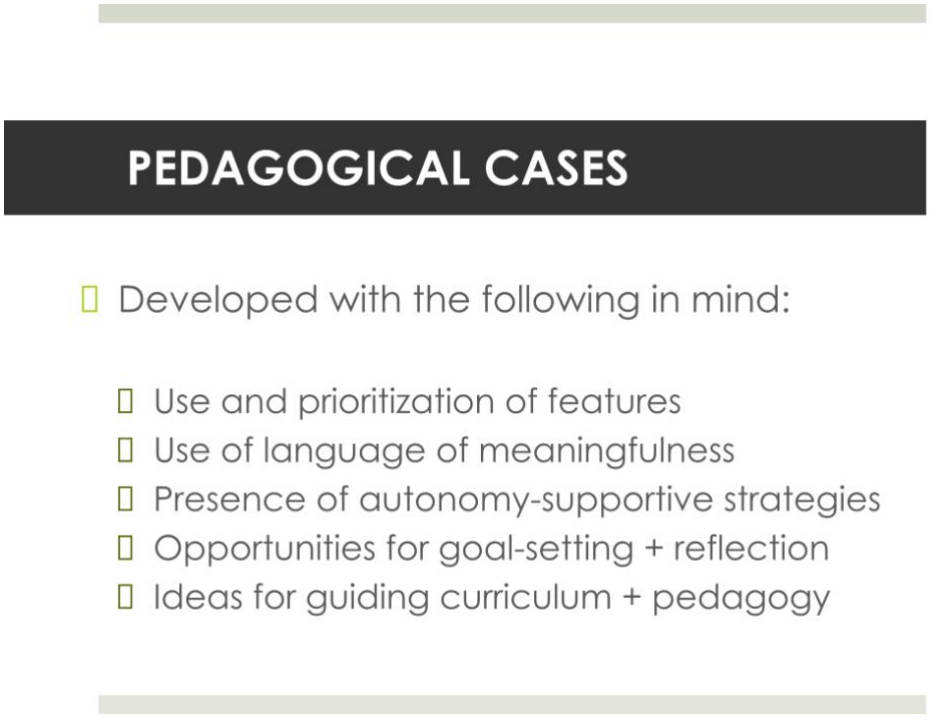


Add equalizer example here.



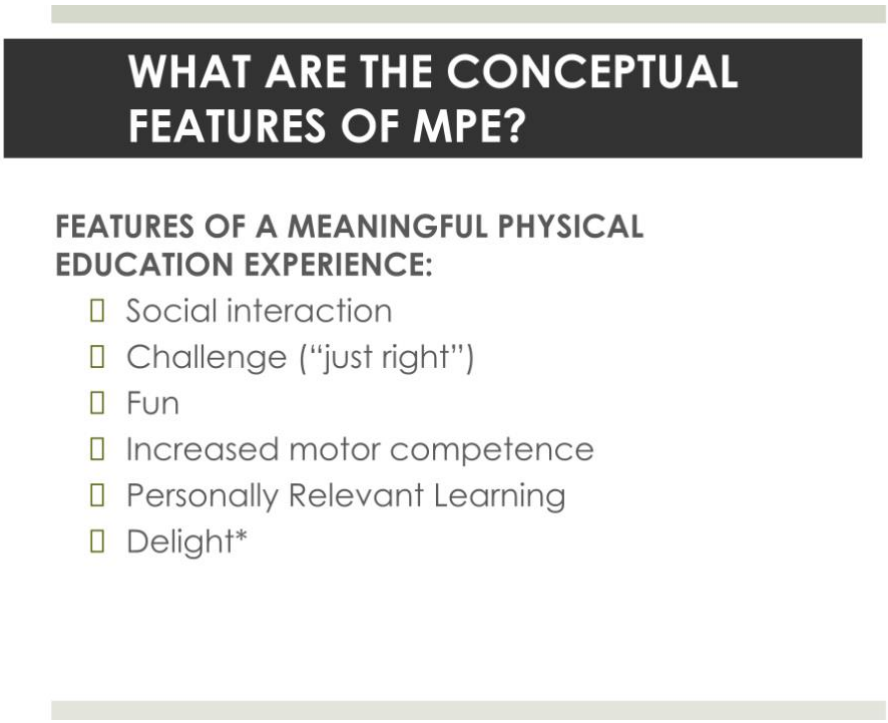
E.g., teachers might decide on the unit of work (creative dance; target games) and throughout the unit offer students opportunities to decide what type pf activity, with whom, for how long, etc. Negotiated – this does not mean the teacher just lets students do what they want; it is not a free for all.

Significant challenges with these due to teachers' willingness to offer more democratic classroom culture, pedagogies, etc; longer units of work needed



Based on these ideas and some authentic, practical examples, we have developed several pedagogical cases that might help teacher educators, teachers and students see what MPE might look like in practice

UP TO HERE IN INTRO 15 mins…



We found support for four key ideas suggested by Kretchmar, while also finding support for PRL. Delight was not supported

These provide a foundation for framing meaningful PE: it helps us think about WHAT meaningful PE consists of.

But there remains a big gap concerning the HOW of MPE

CURRENT STATUS

- Blueprint of MPE Approach implemented in 5 x 4th/5th grade classes in Limerick schools
  - Currently preparing data for analysis
- MPE being implemented in KAUST School in Saudi
- Recently awarded 2 yrs of funding to implement in Canadian schools (ON + AB)

Learning about Meaningful PE (LAMPE)

Routledge
Taylor & Francis Group

Physical Education and Sport Pedagogy

ISSN: 1740-8989 (Print) 1742-5786 (Online) Journal homepage: http://www.tandfonline.com/loi/cpes20

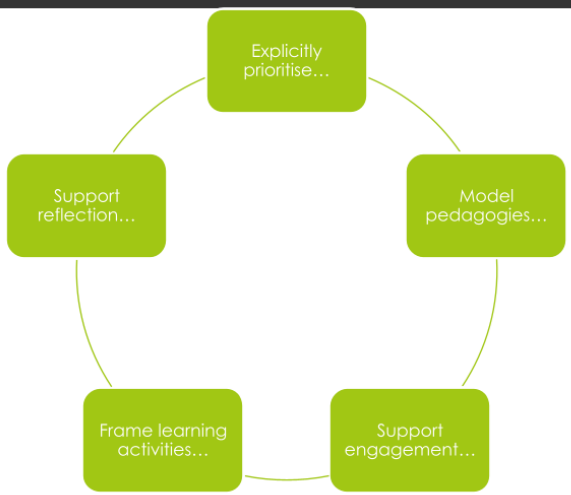
Pedagogical principles of learning to teach meaningful physical education

Déirdre Ní Chróinín, Tim Fletcher & Mary O'Sullivan

To cite this article: Déirdre Ní Chróinín, Tim Fletcher & Mary O'Sullivan (2017): Pedagogical principles of learning to teach meaningful physical education, Physical Education and Sport Pedagogy, DOI: 10.1080/17408989.2017.1342789

To link to this article: http://dx.doi.org/10.1080/17408989.2017.1342789

Pedagogical principles of LAMPE



Planning for Pedagogy

- How might you use the 5 principles to infuse meaning into your lessons/ units/ program?
- Pick a lesson you taught last week…
  - How DID you use the features and principles (maybe without even knowing it?)?
  - How COULD you have used the features and principles in that lesson?
  - What might you change in your own pedagogy, knowing what you know now?
- Explicitly prioritize, model pedagogies, support engagement, frame learning activities, support reflection

Next Steps

- An invitation to:
  - Future research with SASS Staff and Students
    - SSHRC Grant w Ontario (Brock), Ireland (Mary Immaculate) and Alberta (U of A)
  - ... Share stories or experiences of implementation to be posted on the meaningful pe blog/website for sharing with a practitioner audience

THANK YOU!

Déirdre Ní Chróinín Deirdre.NiChroinin@mic.ul.ie

Tim Fletcher tfletcher@brocku.ca

Stephanie Beni sb12kz@brocku.ca

Doug Gleddie dgleddie@ualberta.ca

Jodi Harding-Kuriger jlhardin@ualberta.ca

@meaningfulpe

meaningfulpe.wordpress.com

Appendix E

Meaningful PE SASS Community of Practice Emails
(adapted from Stephanie Beni's LAMPE emails)

	Jodi to send emails to SASS PE Staff
Week 1 Jan 28, 2020	Good Morning! Thank you again for meeting with us. We're asking that you take the next month or so to become familiar with the MPE Approach. The Resources page on our website should tell you everything you need to know to get started, but please don't hesitate to send any questions/comments my way. Each week I will send you an email with a list of suggested tasks for the week, though you are more than welcome to access any of the resources as you wish. **Viewing/Reading:** **https://meaningfulpe.wordpress.com/lampe-resources/** LAMPEresources2018 Please watch the first two videos. You will also find a journal template (docx) in the resources, if you'd like to use this to reflect on your MPE journey. **Journal Prompt:** Which class(es) will try to implement MPE with and why? **Important Dates** February 6 - Jodi to interview Anna, Katie & Brenda February 20 - CoP 2:30 - 3:30; Coaches Lounge Thank you again, Jodi & Doug
Week 2 February 6	Good Morning! - February 6 Q: Which side of an Arctic Tern has the most feathers? A: The outside! Wishing you lots of warm feathers this week :) **Watch the Series of videos:** Suggestions From Teachers Who Have Implemented MPE **Journal Prompt:** Take a look at the resources underneath the suggestions video and consider how you see these potentially working (or not) in your class. **Important Dates** February 6 - Jodi to interview Teachers 1, 2, & 3 - **2:30 today** February 20 - CoP 2:30 - 3:30; Coaches Lounge

	See you this afternoon! Have a good day, Jodi & Doug
Week 3 Feb 14, 2020	Good Morning! Happy Valentine's Day! **Videos/Readings:** At this point you may have made your way through all of the videos and some of the Supplemental Resources on the website. Tim Fletcher and Steph Beni were featured on a podcast about MPE. You can listen to it here (or subscribe to it on whatever podcast platform you use): https://anchor.fm/PwRHPE/episodes/Episode-29-Meaningfulness-in-PE-with-Stephanie-Beni--Dr--Tim-Fletcher-e378jh There are lots of other good episodes on there as well. Great 'drive to work' content! **Journal Prompt:** What is your vision for MPE in your respective classes? With support from us and the resources, what would you like to emphasize in the planning of your MPE unit? -- If you are using Google docs for your journal please share the link with Jodi & Doug. **Important Dates** February 20 - Community of Practice Have a great weekend, Jodi & Doug
Week 4 **Feb 19, 2020**	**- Feb 19, 2020** **Happy Wednesday and we hope you had a wonderful Family Day weekend.** **Videos/Readings:** Suggested tasks for this week involve continuing to make your way through the remaining resources on the LAMPE website. **https://meaningfulpe.wordpress.com/lampe-resources/** LAMPEresources2018 **Journal Prompt:** How did you choose the class(es) you'd like to try the MPE approach with? How do you plan to introduce it? **Important Dates** February 20 - CoP 2:30 to 3:30pm in the Coaches Lounge Have a great week, Jodi & Doug
March 5	First COVID case in AB

March 15	Alberta students move to online learning
Email 5 March 24, 2020	Good Morning and Happy Spring Break To You All!!! We hope that this email finds you safe and healthy. In speaking with Doug, we've decided to pause the MPE Research for a *short* time. We will be contacting SASS Ethics personnel to find out #1 if any research can continue this school year and #2 if that is limited to teachers only or if we can still involve students. So the next steps would be: 1) Getting an answer from the Ethics board and sharing this with you all. 2) Teachers, if you could please let us know if you will continue delivering HPE content to students after Spring Break. 3) Teachers, are you still willing to take part in a virtual/electronic version of the MPE study - with or without students. If need be, we can also push the entire project to the fall, in hopes that we will all resume our regularly scheduled programming at that time. :) Yours in meaningful and physically distanced research, Jodi & Doug
Email 6 April 17, 2020	Email communication: SASS Meaningful PE research will resume in the fall. All further CoP meetings are cancelled for the 2019/2020 school year
Email 7 September 28, 2020	Email communication: SASS Meaningful PE research to begin using Group Concept Mapping

Appendix F

Meaningful PE Introduction Script

Welcome to the Meaningful Physical Education (Meaningful PE) research project!!!

I am so grateful to you and thank you for participating in the Meaningful Physical Education - Meaningful PE- Research.

Please ensure that all of your consent and assent forms are completed and handed in.

If you are choosing to not partake in the study, please let me know right away. (Teacher to note this on class list). If you choose not to participate, this will NOT in any way affect your physical education mark. The research is entirely voluntary, only if you consent, will I keep and use your data. However, we (your teachers and I, the researcher) do ask that ALL of you complete the activities for teaching purposes.

Here is a video explaining the project:

https://www.youtube.com/watch?v=NHoivD1zAJw&feature=youtu.be (18 mins)

The links are in our Google classroom. Please complete both today during class.

Activity 1 is the Participant Questionnaire: https://participant.groupwisdom.tech/project/1333/participant-questions

The survey does ask for your name, this is only so that I can remove the data from those students who do not consent to participate in the research project. After those students are removed from the data, all remaining participants will be anonymized.

Activity 2 is the Brainstorming activity: https://participant.groupwisdom.tech/project/1333/brainstorming

When you are brainstorming ideas about what meaningful physical education is to you, you are welcome to think of general PE ideas, or PE ideas during COVID, or PE ideas without COVID. As you type your answers IF the idea is not general, but is specific to COVID please use these codes in your typing:

(w COVID)
(no COVID)

- No code needed for overall general PE ideas

Once everyone completes the brainstorm, I will pause the online platform while to synthesize the brainstormed ideas into statements. I will check back in with you to make sure that the consolidated statements reflect your thoughts and ideas.

Then we will sort and rate the statements later in November.

MANY MANY MANY THANKS!

Appendix G

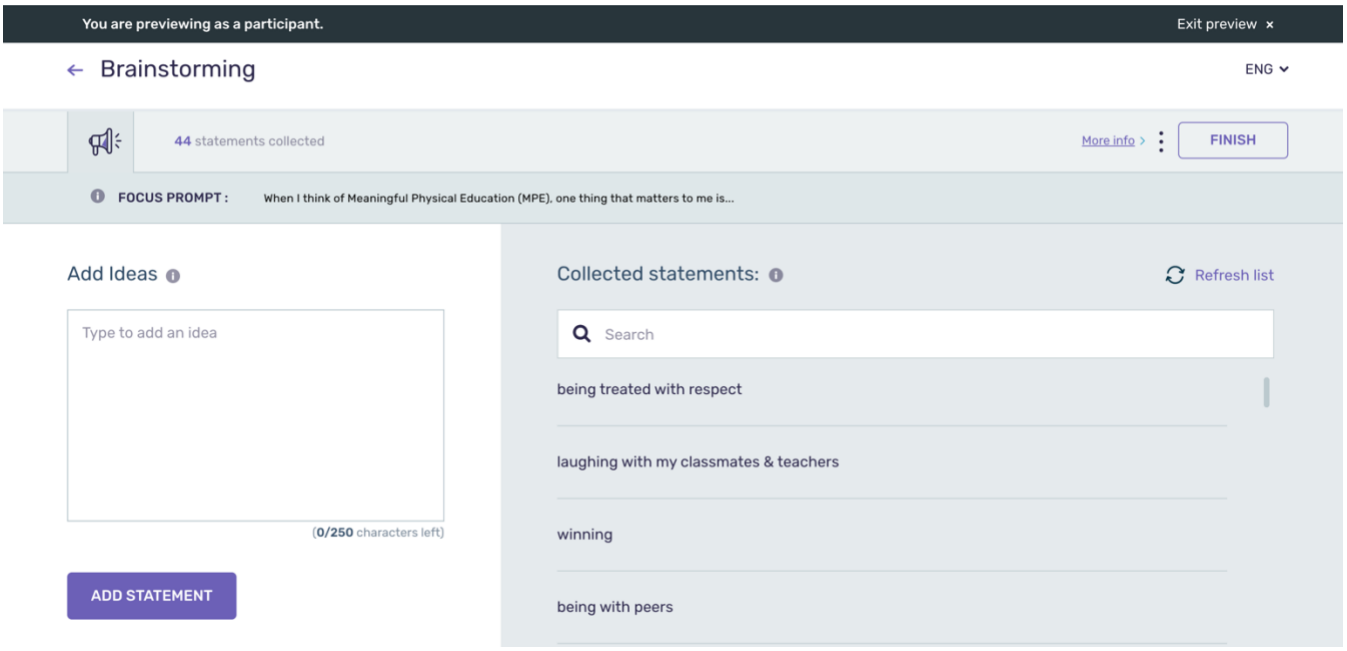
Activity 1 - Participant Questionnaire

Using the GroupWisdom® online Concept Mapping platform participants selected the appropriate answer to the following questions:

1. What is your name? -- This will be removed during data analysis and all answers from non consenting participants will be deleted.
2. What grade are you currently in? 7, 8, 9, 10, 11, 12, or Teacher Participant
3. Which class are you a part of: Soccer, Ringette, or SportFit
4. How do you self identify? Female, Male, LGBTQ2S+, Prefer not to answer
5. What is your self identified ethnic background? First Nation, Metis, Inuit, White/Caucasian, Asian, African American, Hispanic, Prefer not to answer

Appendix H

Activity 2 - Participant View Brainstorming Activity



Appendix I

Full list of Meaningful PE Statements

Statement number	
1	When I think about physical education the one thing that matters and that's important to me in PD is that I try my hardest and push my self to my ability.
2	Having fun while learning and improving
3	learning but also having fun at the same time
4	Being competitive and pushing yourself
5	always having fun
6	Having an open mind
7	meaningful education to me means being with my friends
8	Be able to work with others and try new things
9	Trying my hardest, and giving 110%
10	working together
11	sportsmanship
12	learning from my mistake
13	Learning from your mistake
14	Learning from your escape
15	Leadership
16	Being a Leader
17	Cobra Kai
18	being a leader and working hard
19	Teacher should make fair teams
20	being like a dad
21	Sportsmanship
22	Supportive
23	Good spirit
24	Kai kinda sus
25	Playing soccer wit da boys
26	Never Giving Up
27	Doing The Best You Can Do
28	Competitive
29	working hard
30	Yash kinda cute ngl
31	G.O.A.T

32	competition and fun
33	Having fun ;)
34	winning
35	being goated
36	Winning
37	doing the best
38	Having fun
39	telling jokes
40	Contribution
41	Sleeping with my teddy bear
42	staying safe and not getting sick
43	Domination
44	Giving Everything You Have
45	Teamwork
46	When I think of Meaningful Physical Education (Meaningful PE), one thing that matters to me is...
47	Domination
48	doing diffrent activities and having fun
49	not voleyball
50	110%
51	staying safe and following covid precautions
51	everyone trying
53	When I think of meaningful physical education i think of a soccer drill
54	Winning
55	Working Together
56	being a leader
57	competitive competition
58	trying as hard as you can
59	working as a team (teamwork)
60	havng fun
61	Effort
62	doing good
63	Fun
64	my friends having fun
65	Competitive Spirit
66	Effort
67	I want to play different sports in gym. New spirts5 that I haven't played

68	teamwork and competition
69	Futsal
70	Soccer
71	Fun
72	My friends because they are very helpful and push me to try my best
73	looking cool
74	Futsal
75	soccer
76	Exercise
77	Soccer
78	When I think about Meaningful Physical Education I think about everyone being treated equal
79	playing wth friends
80	Soccer
81	Soccer
82	Competition
83	Soccer
84	Fortnite funny
85	having fun
86	Surfing
87	Playing soccer at school
88	Soccer
89	Everyone working hard and focusing for gym class
90	Skydiving off my cou5
91	Funny monkey
92	Team spirit, effort
93	scoring
94	When I think of meaningful I think of my medals because they mean something and the resemble a tournament I won
95	Soccer ball
96	dunking on kai
97	teamwork
98	Eating food that good sports yes
99	Dominating my competition
100	A soccer ball because it lets me play my favourite sport
101	Playing sports with peers outdoors
102	I also thing of a soccer ball because that is the main thing that brings my team together

103	hitting threes
104	having fun
105	Working hard
106	Golf Club
107	Teachers because they help me improve and try my best
108	Soccer Ball
109	When I think of meaningful physical education I think of good teachers or qualified coaches who know what they are doing. I also think of competitiveness between the students or players and everyone is involved in the activity that they are doing
110	Good equipment
111	A soccer ball
112	It is not necessarily the activity that is meaningful it is the group that matters and it really helps if you like the activity just a heads up.
113	winning
114	Playing good
115	Playing water polo with Karsen
116	fun
117	I would like to learn different strategies and tactics to use in all sorts of sports. I want to discover sports that I enjoy
118	effort
119	That everyone should work as a team and should put work
120	When I think of meaningful physical education I think of my sport soccer and how everyone should be treated the same.
121	A mask because I can do gym with my friends without spreading the virus.
122	teamwork
123	Being a good athlete
124	Effort
125	Everyone should be treated the same no matter the skill level and
126	When I die I am going to want sports in it graveyard
127	playing a variaty of sports
128	Dominating
129	A soccer ball because I love that sport and it is the one of the things that

130	Being a athlete good alot
131	Everyone trying hard so it’s fun
132	Winning
133	I want to be safe from covid????????????
134	Effort
135	I dont wanna play in a mask
136	Basketball
137	I want to play basketball
138	I want to do sports
139	Ekiiqmd3i
140	Learning sports, and being active
141	Working hard to become better or do my best in each activity I do in gym
142	\-(. .)-/
143	when i think of meaningful i think of people who get treated the same no matter what skill level they are at.
144	Paying attention
145	people arent sitting in a corner and talking
146	people who are not on level with the better kids should not be with them in the first place
147	everyone has an opinion
148	people are good sports
149	everyone puts in effort
150	people aren't on there phones
151	people are listening
152	everyone works as a team
153	trying lots of different sports
154	that teachers should make equal teams (ex. not all the best kids on one team.)
155	having lots of fun
156	everyone is treated equally
157	no one is shamed for their level of physical activity.
158	being with people
159	everyone tries their best
160	playing games with frends
161	try to have fun
162	teamwork
163	playing games
164	having fun

165	doing like a drawing project in class and being able to talk to friends
166	being with friends
167	being with friends and enjoying all the fun we have in sport fit and all the places we go to.
168	working together
169	Playing games I really enjoy
170	learning a bit of every sport
171	listen
172	get along well
173	Having fun and making lots of friends
174	Having fun games
175	getting to know people
176	Teamwork
177	have fun
178	all the sports we do
179	having friends to talk to during sports
180	being on your phone
181	Having fun
182	being very active
183	being happy
184	Being active
185	good teachers
186	being active
187	Being with friends
188	Being active
189	om =0ipo]puj -r]2k -23ipowekdp -9u2r
190	creating positive memories
191	making friends
192	having fun
193	clothes
194	gaming
195	being with friends
196	fun

Appendix J

Meaningful PE Statement Synthesis

Focus Prompt: When I think of MPE, one thing that matters to me is...							Focus Prompt: When I think of MPE, one thing that matters to me is...
Statement number	Statement	Keywords 1	Keywords 2	CODE WORDS			Synthesized Statement Set
1	When I think about physical education the one thing that matters and that's important to me in PD is that I try my hardest and push my self to my ability.	try my hardest push my self to my ability.		effort			1 trying my hardest (demonstrating effort)
2	Having fun learning and improving	fun learning improving		effot fun learning improving			2 having fun 3 learning 4 improving my skills
3	learning but also having fun at the same time	learning	fun	learning	fun		
4	Being competitive and pushing yourself	competitive	pushing yourself	competion	effort		5 competion
5	always having fun	fun		fun			
6	Having an open mind	open mind		open mind			
7	meaningful education to me means being with my friends	being with friends		friends			6 being with friends
8	Be able to work with others and try new things	work with others	try new things	working with others	trying new things		7 trying new activities
9	Trying my hardest, and giving 110%	trying my hardest		effort			8 working with others
10	working together	working together		working with others			
11	sportsmanship	sportsmanship		sportsmanship			9 demonstrating sports-personship
12	learning from my mistake	learning from mistakes		learning			10 being competitive
13	Learning from your mistake						
14	Learning from your escape						
15	Leadership	leadership		leadership			11 practicing leadership
16	Being a Leader	leadership		leadership			
17	Cobra Kai						
18	being a leader and working hard	leader	working hard	leadership	effort		12 working hard
19	Teacher should make fair teams	fair teams		fair teams			13 equality
20	being like a dad						
21	Sportsmanship	sportsmanship		sportsmanship			
22	Supportive	supportive		support			14 showing support for my classmates
23	Good spirit	good spirt		teamwork			
24	Kai kinda sus						
25	Playing soccer wit da boys	playing soccer		sports			15 playing sports
26	Never Giving Up	never give up		effort			
27	Doing The Best You Can Do	doing your best		effort			
28	Competitive	competitive		competion			
29	working hard	working hard		working hard			
30	Yash kinda cute ngl						
31	G.O.A.T						
32	competition and fun	competition	fun	competion	fun		
33	Having fun :)	fun		fun			
34	winning	winning		winning			16 winning
35	being goated						
36	Winning	winning		winning			
37	doing the best	doing the best		winning			

Focus Prompt: When I think of MPE, one thing that matters to me is...							Focus Prompt: When I think of MPE, one thing that matters to me is...
Statement number	Statement	Keywords 1	Keywords 2	CODE WORDS			Synthesized Statement Set
38	Having fun	fun		fun			
39	telling jokes	humor		humor			17 laughing with my classmates & teachers
40	Contribution	contributing		student voice			18 having my thoughts and opinions heard
41	Sleeping with my teddy bear						
42	staying safe and not getting sick	safety		safety			19 safety
43	Domination			winning			
44	Giving Everything You Have	trying your hardest		effort			
45	Teamwork	teamwork		teamwork			20 everyone demonstrating teamwork
46	When I think of Meaningful Physical Education (MPE), one thing that matters to me is...						
47	Domination			winning			
48	doing diffrent activities and having fun	variety	fun	variety	fun		21 participating in a variety of activities
49	not voleyball			variety			
50	110%	effort		effort			
51	staying safe and following covid precautions	safety	COVID precautions	safety	COVID precautions		22 following COVID-19 safety precautions
51	everyone trying	effort	trying	effort			
53	When I think of meaningful physical education i think of a soccer drill	soccer drill		sport			
54	Winning	winning		winning			
55	Working Together	working together		working together			
56	being a leader	leadership		leadership			
57	Competitive Competition	competition		competition			
58	trying as hard as you can	trying		effort			
59	working as a team (teamwork)	teamwork		teamwork			
60	having fun	fun		fun			
61	Effort	effort		effort			
62	doing good	improving		improvement			
63	Fun	fun		fun			
64	my friends having fun	fun		fun			
65	Competitive Spirit	competition		competition			
66	Effort	effort		effort			
67	I want to play different sports in gym. New sprts5 that I haven't played	variety		variety			
68	teamwork and competition	teamwork	competition	teamwork	competition		
69	Futsal			sport			
70	Soccer			sport			
71	Fun	fun		fun			
72	My friends because they are very helpful and push me to try my best	friends	effort	effort	friends		
73	looking cool			skill			
74	Futsal			sport			
75	soccer			sport			
76	Exercise	exercise		exercise			23 exercising
77	Soccer			sport			

	Focus Prompt: When I think of MPE, one thing that matters to me is...							Focus Prompt: When I think of MPE, one thing that matters to me is...
Statement number	Statement	Keywords 1	Keywords 2		CODE WORDS			Synthesized Statement Set
	When I think about Meaningful Physical Education I think							
78	about everyone being treated equal	equality			equality			
79	playing wth friends	friends			friends			
80	Soccer				sport			
81	Soccer				sport			
82	Competition	competition			competition			
83	Soccer				sport			
84	Fortnite funny				humour	laughing		
85	having fun	fun			fun			
86	Surfing				sport			
87	Playing soccer at school				sport			
88	Soccer				sports			
89	Everyone working hard and focusing for gym class	working hard	focus		effort	focus	attention	24 focusing on the activity
90	Skydiving off my cou5							24 paying attention to the instructions
91	Funny monkey	humour			humour			
92	Team spirit, effort	team spirit	effort		effort	teamwork		
93	scoring				skill			
	When I think of meaningful I think of my medals because they							
94	mean something and the resemble a tournament I won	winning			winning			
95	Soccer ball				sports			
96	dunking on kai				sports			
97	teamwork	teamwork			teamwork			
98	Eating food that good sports yes	food	sports		food	sports		
99	Dominating my competition	competition	winning		competition	winning		
100	A soccer ball because it lets me play my favourite sport				sports			25 being outdoors
101	Playing sports with peers outdoors	peers	outdoors		sports	peers	outdoors	
	I also thing of a soccer ball because that is the main thing that							26 being with peers
102	brings my team together	team	friends		sports	teammates/ peers		27 making new friends
103	hitting threes				skill			
104	having fun	fun			fun			
105	Working hard	working hard			working hard			
106	Golf Club				equipment			28 having the proper equipment
		teachers; trying my						
107	Teachers because they help me improve and try my best	best	improvement		teachers	effort	improvment	29 being taught by quality teachers
108	Soccer Ball				equipment			
	When I think of meaningful physical education I think of good teachers or qualified coaches who know what they are doing, I also think of competitiveness between the students or players	good teachers; competition	qualified coaches; everyone involved		quality teachers and coaches	competition	inclusion	30 including everyone in the activites
109	and everyone is involved in the activity that they are doing							
110	Good equipment	proper equipment			equipment			
111	A soccer ball				equipment			
	It is not necessarily the activity that is meaningful it is the group that matters and it really helps if you like the activity just				friends/groupype			
112	a heads up.	group/friends/peers			rs			
113	winning	winning			winning			
114	Playing good	skill			skill			
115	Playing water polo with Karsen				playing			

Focus Prompt: When I think of MPE, one thing that matters to me is...											Focus Prompt: When I think of MPE, one thing that matters to me is...
Statement number	Statement	Keywords 1	Keywords 2			CODE WORDS					Synthesized Statement Set
116	fun	fun				fun					
117	I would like to learn different strategies and tactics to use in all sorts of sports. I want to discover sports that I enjoy	strategies	tactics			learning	sports	variety			31 practicing strategies & tactics
118	effort	effort				effort					
119	That everyone should work as a team and should put work	teamwork	effort			teamwork	effort				
120	When I think of meaningful physical education I think of my sport soccer and how everyone should be treated the same.	equality	sports			equality	sports				
121	A mask because I can do gym with my friends without spreading the virus.	COVID precautions				safety					
122	teamwork	teamwork				teamwork					
123	Being a good athlete	athleticism	skill			skill	athleticism				32 demonstrating athleticism
124	Effort	effort				effort					
125	Everyone should be treated the same no matter the skill level and	equality				equality					
126	When I die I am going to want sports in it graveyard	sports				sports					
127	playing a variaty of sports	variety	sports			variety	sports				
128	Dominating	winning				winning					
129	A soccer ball because I love that sport and it is the one of the things that	love/joy/delight				love/enjoy	equipment	skill			33 doing activities that I love
130	Being a athlete good alot	skill	athletics			athleticism	skill				
131	Everyone trying hard so it's fun	trying your best	fun			effort	fun				
132	Winning	winning				winning					
133	I want to be safe from covid???????????	COVID precautions				COVID	safety				
134	Effort	effort				effort					
135	I dont wanna play in a mask										
136	Basketball	sports				sports					
137	I want to play basketball	sports				sports					
138	I want to do sports	sports				spr					
139	Ekliqmd3i										
140	Learning sports, and being active	learning	sports			being active	learning	sports			35 being active
141	Working hard to become better or do my best in each activity I do in gym	working hard	improvment			doing my best	working hard	improvement			
142	\(. .)/										
143	when I think of meaningful I think of people who get treated the same no matter what skill level they are at.	equality				equality					
144	Paying attention	paying attention				focus	attention				
145	people arent sitting in a corner and talking	participation				participation					36 group participation
146	people who are not on level with the better kids should not be with them in the first place	equality	appropriate level of competition			appropriate level of challenge	equality				37 being challenged
147	everyone has an opinion	student voice				student voice					
148	people are good sports	skill				skill					
149	everyone puts in effort	effort				effort					
150	people aren't on there phones	focus				focus	attention				
151	people are listening	listening				listening					
152	everyone works as a team	teamwork				teamwork					
153	trying lots of different sports	variety	sports			variety	sports				

Focus Prompt: When I think of MPE, one thing that matters to me is...								Focus Prompt: When I think of MPE, one thing that matters to me is...	
Statement number	Statement	Keywords 1	Keywords 2		CODE WORDS				Synthesized Statement Set
154	kids on one team.)	equality			equality				
155	having lots of fun	fun			fun				
156	everyone is treated equally	equality			equality				
157	no one is shamed for their level of physical activity.	no one is shamed	respect		respect	kindness		38	being treated with respect
158	being with people	social interaction			being with others			39	being treated with kindness
159	everyone tries their best	effort			effort				
160	playing games with frends	friends	games		friends	games			
161	try to have fun	fun			fun				
162	teamwork	teamwork			teamwork				
163	playing games	games			games				
164	having fun	fun			fun				
165	doing like a drawing project in class and being able to talk to friends	friends	drawing		friends				
166	being with friends	friends			friends				
167	being with friends and enjoying all the fun we have in sport fit and all the places we go to.	friends	enjoyment		fun	variety	friends enjoyment		
168	working together	working together			working together				
169	Playing games I really enjoy	games	enjoyment		games	enjoyment			
170	learning a bit of every sport	learning	sport		learning	sports			
171	listen	listening			listening				
172	get along well	getting along			getting along				
173	Having fun and making lots of friends	fun	friends		fun	friends		40	getting along with others
174	playing games	fun	games		fun	games			
175	getting to know people	getting to know people			getting know people			41	getting to know people
176	Teamwork	teamwork			teamwork				
177	have fun	fun			fun				
178	all the sports we do	sports			sports				
179	having friends to talk to during sports	friends	sports		friends	sports			
180	being on your phone	technology			technology			42	using technology in class
181	Having fun	fun			fun				
182	being very active	being active			being active				
183	being happy	being happy			happy			43	being happy in class
184	Being active	being active			active				
185	good teachers	good teachers			teachers				
186	being active	being active			active				
187	Being with friends	friends			friends				
188	Being active	being active			active				
189	om =0|o|pu| -|2k -23|powekdp -9u2r								
190	creating positive memories	positive memories			positive memories			44	making positive memories
191	making friends	making friends			making friends				
192	having fun	fun			fun				
193	clothes								

Focus Prompt: When I think of MPE, one thing that matters to me is...												Focus Prompt: When I think of MPE, one thing that matters to me is...
Statement number	Statement	Keywords 1	Keywords 2		CODE WORDS							Synthesized Statement Set
194	gaming	technology			technology							
195	being with friends	friends			friends							
196	fun	fun			fun							

Appendix K

Synthesized Statement Set

Table K1

Synthesized Statements

1. being treated with respect	12. being outdoors	23. working with others	34. having my thoughts and opinions heard
2. laughing with my classmates & teachers	13. focusing on the activity	24. learning	35. improving my skills
3. winning	14. being taught by quality teachers	25. participating in a variety of activities	36. being competitive
4. being with peers	15. being challenged	26. having fun	37. making new friends
5. everyone demonstrating teamwork	16. using technology in class	27. making positive memories	38. playing sports
6. trying new activities	17. exercising	28. demonstrating athleticism	39. group participation
7. working hard	18. including everyone in the activities	29. demonstrating sports-personship	40. doing activities that I love
8. getting along with others	19. being treated with kindness	30. showing support for my classmates	41. competition
9. being with friends	20. paying attention to the instructions	31. having the proper equipment	42. trying my hardest (demonstrating effort)
10. equality	21. practicing leadership	32. being happy in class	43. getting to know people
11. being active	22. practicing strategies & tactics	33. safety	44. following COVID-19 safety precautions

Appendix L

Activity 3 – Sorting

- In this activity you will categorize statements into piles according to your view of their meaning.

- To do this, you will sort each statement into piles in a way that makes sense to you. Group the statements on how similar in meaning they are to one another.

- First, read through all the statements in the unsorted cards list below.

- Next, sort each card into a pile as you create your own version of how these ideas are related.

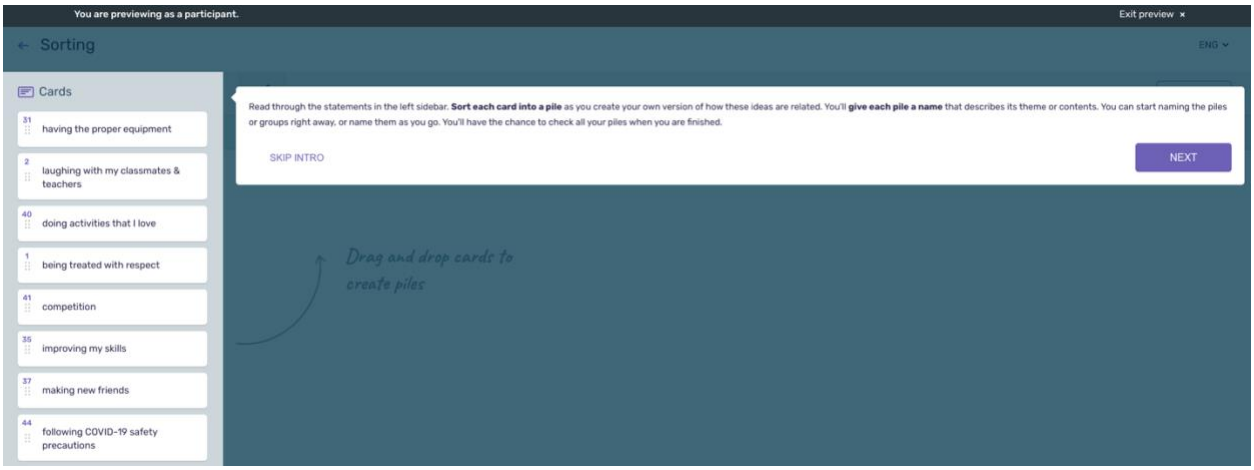
- You'll give each pile a name that describes its theme or contents. You can start naming the piles or groups right away, or name them as you go. You'll have the chance to check all your piles when you are finished.

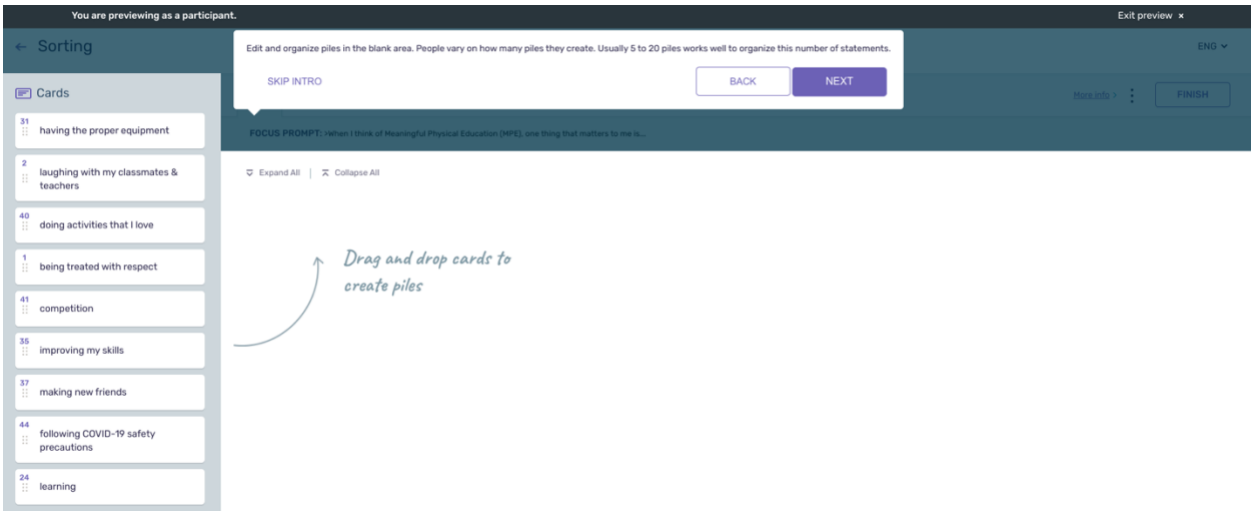
- Switch to the Piles view to create, edit and organize the piles you created. People vary on how many piles they create. Some participants use as few as 5, and others may make up to 20. Use the arrangement that fits the ideas, from your point of view.

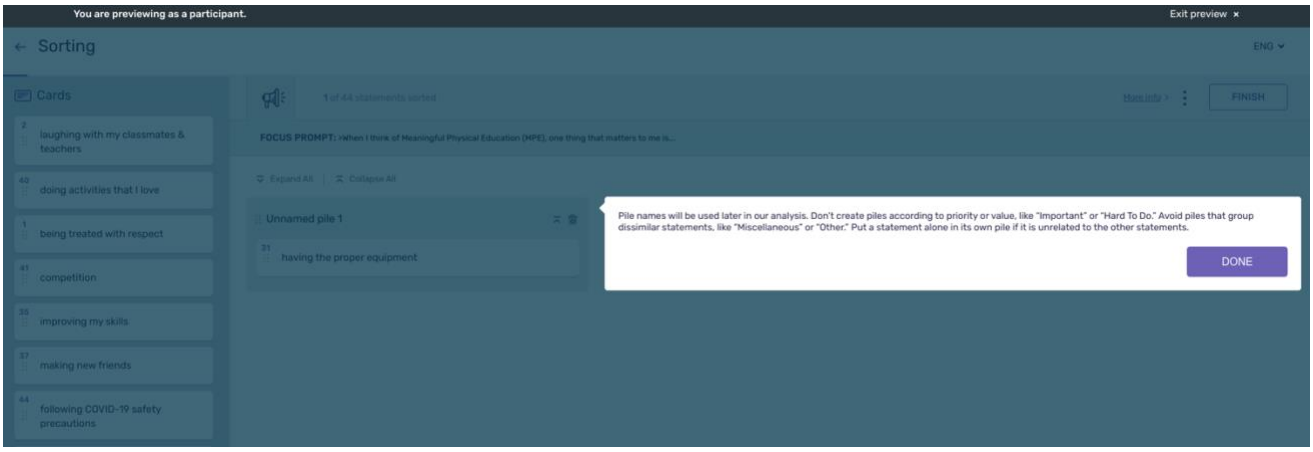
- Pile names are an essential part of analysis. Please name piles by the topic that the ideas have in common. Don’t create piles according to priority or value, such as “Hard To Do” or piles that group together dissimilar statements such as “Other.” Put a statement alone in its own pile if it is unrelated to the other statements.

Figure N1

Participant View - Sorting Activity







Appendix M

Activity 4 - Rating

The following instructions appeared in the online platform:

- Rate each statement on a four-point scale in terms of the importance of these Meaningful Physical Education statements.

Please complete the grid for each statement. You must click one choice for each row.

Importance of statement
1 relatively unimportant
2 slightly important
3 moderately important
4 very important

- Rate each statement on a four-point scale in terms of the frequency of these Meaningful Physical Education statements.

Please complete the grid for each statement. You must click one choice for each row.

Frequency of statement
1 never see evidence
2 rarely see evidence
3 often see evidence
4 very often see evidence

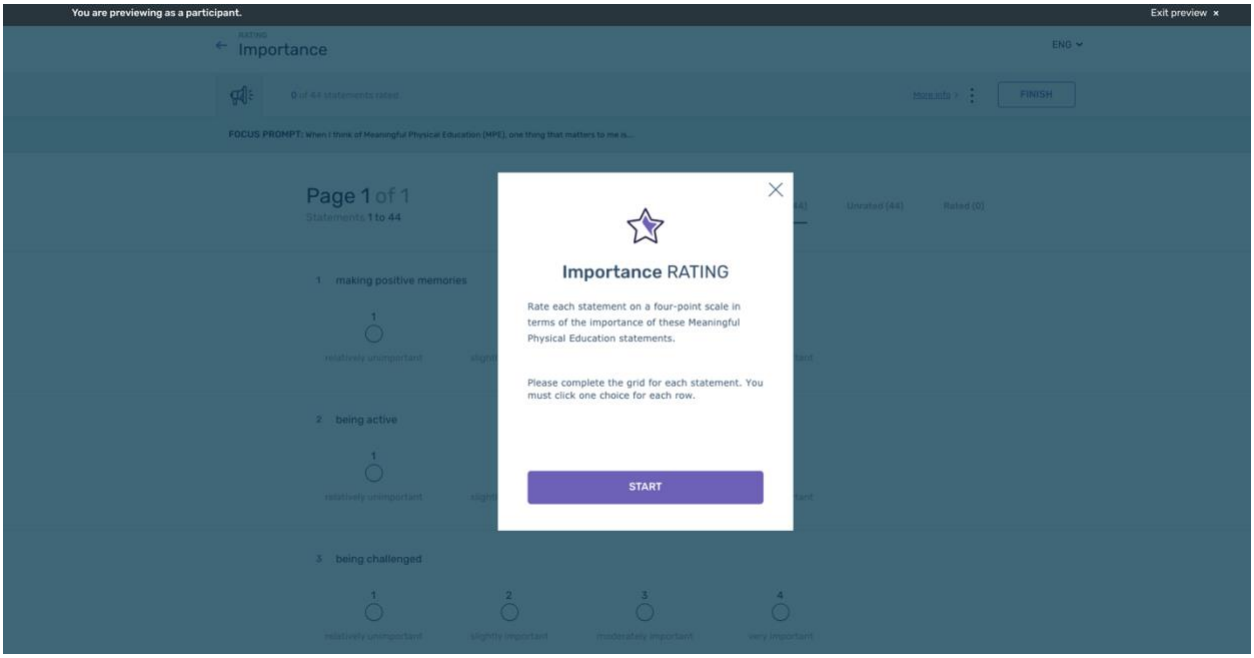
- Rate each statement on a four-point scale in terms of the possibility of these Meaningful Physical Education statements.

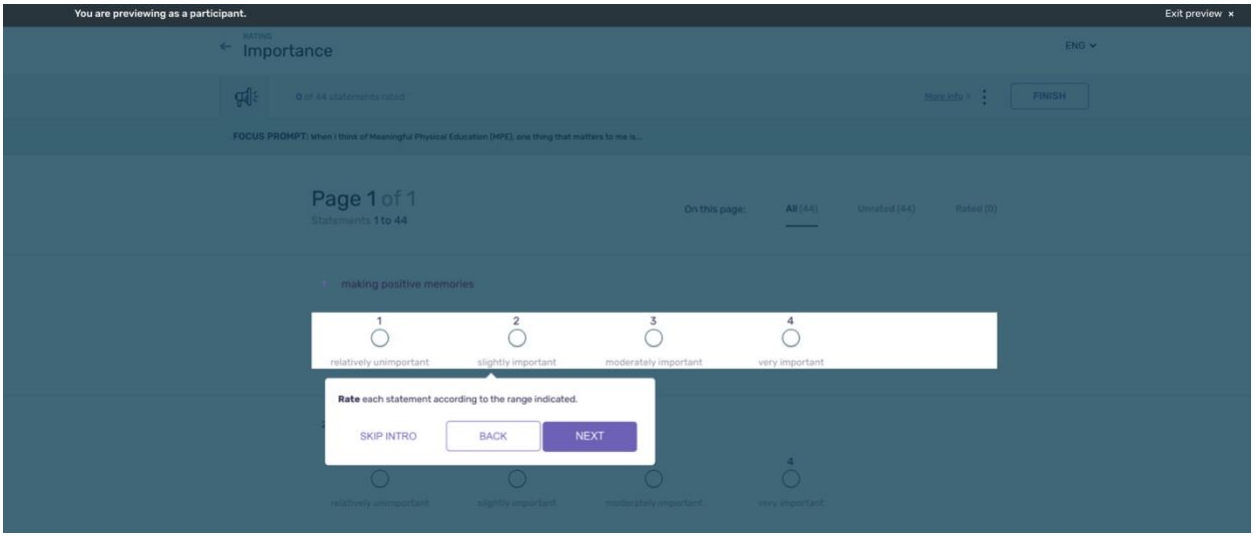
Please complete the grid for each statement. You must click one choice for each row.

Possibility of statement
1 almost impossible
2 slightly possible
3 moderately possible
4 extremely possible

Figure G1

Participant View - Rating Activity





Appendix N

Quality Review and Approval Criteria

A quality review of the GCM sorting and rating data should include a systematic review of each data set from each of the participants (Kane, 2020). When approving the sorting data quality control include removing piles titled “miscellaneous, other, or I don’t know” (Kane, 2020, slide 34). If a sorter completed a dichotomous sort (all statements were only sorted into two piles) these should not be included in the analysis (Kane, 2020). When approving the rating data, attention needs to be paid to rating variations. For example, looking to see that the participant did not simply use only 4s (most important). Another consideration for rating data is if only a partial rating was completed. For example, if only the first 17 out of 45 statements were rated then these results should not be approved for data analysis (Kane, 2020).

The group concept mapping data that was manually reviewed approved by the researcher for this research project via the GroupWisdom® Concept Mapping (2021) platform demonstrated both validity (approximation of truth) and reliability (the repeatability of scores based on an assumed correct response) (Rosas & Kane, 2012) as per GCM conducted within a constructivist framework. Validity in GCM “refers to the degree to which the conceptualized model reflects the judgements made by the participants in organizing information to produce the model” (Rosas & Kane, 2012, p. 237). The stress value generated for the Meaningful PE point map was 0.2396 which is below the upper limit of 0.39 (Rosas & Kane, 2012). This indicates that the resultant point map reflects the sorting results of the participants and there is a less than 1% chance that the point map was a random configuration (Rosas & Kane, 2012) deeming the GCM results valid.

Reliability within the GCM methodology does not conform to reliability definitions

typically applied in the social sciences (Rosas & Kane, 2012). "Conventional means of assessing reliability focus on estimating the repeatability of test items or total scores, based on some known or assumed correct response. Sort data in concept mapping is different" (Rosas & Kane, p. 237). GCM does not assume an a priori correct response, therefore using generic reliability measures would be ineffective with GCM. Rather, the reliability of GCM results should be examined in ways unique to the GCM approach (Rosas & Kane, 2012) such as 1) the number of participants, 2) completion rates for sorting and rating (participant attrition is expected), 3) the number of synthesized statements, 4) sorting and cluster results, 5) sorting reliability, and 6) rating reliability (Rosas & Kane, 2012). See table P1 for the reliability evaluation of the Meaningful PE data.

Table P1

Reliability Evaluation of the Meaningful PE data

GCM Reliability Measures	Acceptable values	Meaningful PE data
Number of participants	Between 15 and 30 participants (Jackson & Trochim, 2002; Rosas & Kane, 2012)	55 Student participants 3 Teacher participants Total n = 58
Completion rates for sorting and rating	Greater than 50%	Students: 67% (n = 37/55) Teachers: 100% (n = 3) Overall 69% (n = 40/58)
Number of synthesized statements	Less than 100 (Kane & Trochim, 2007)	44 synthesized statement
Sorting and cluster Results	Conceptual consistency is found when the final cluster solution is similar to the average number of sorting piles created by the participants (Rosas & Kane, 2012).	Average number of sorting piles by participants: 4.7 Final cluster solution: 4
Sorting reliability	The minimum percentage of sorters is 44%, however "more sorters may	Sorting task 66% completion

	yield more reliable sorting data" (Rosas & Kane, 2012, p. 242).	
Rating reliability	Larger statement sets (to a maximum of 100) and larger percentages of raters (minimum 44%) yield higher reliability.	Importance Rating: 71% completion Frequency rating: 57% completion Possibility rating completion: 50%

Based on Rosas & Kane's (2012) pooled analysis of 69 concept mapping studies, the resultant Meaningful PE task completion data is well within the ranges that demonstrate strong internal representational validity, strong sorting reliability and strong rating reliability. Finally, in alignment with the theoretical framework of constructionism it is important to note that there was no hypothesis to be proven or disproved. In this study students' and teachers' qualitative data was used to develop Meaningful PE concepts to articulate which ideas are most important and could provide Meaningful PE experiences, thus confirming and/or transforming pedagogical assumptions held prior to data collection (Merriam, 1998). As a constructionist researcher using the mixed-methodology of GCM it was my responsibility to provide a synthesis of the collected data that was relevant to the staff and students of SASS for future implementation in their PE classes.

Appendix O

Student & Teacher Cluster Presentation PowerPoint Slides

Meaningful Physical Education Research

Which cluster map best represents YOU?

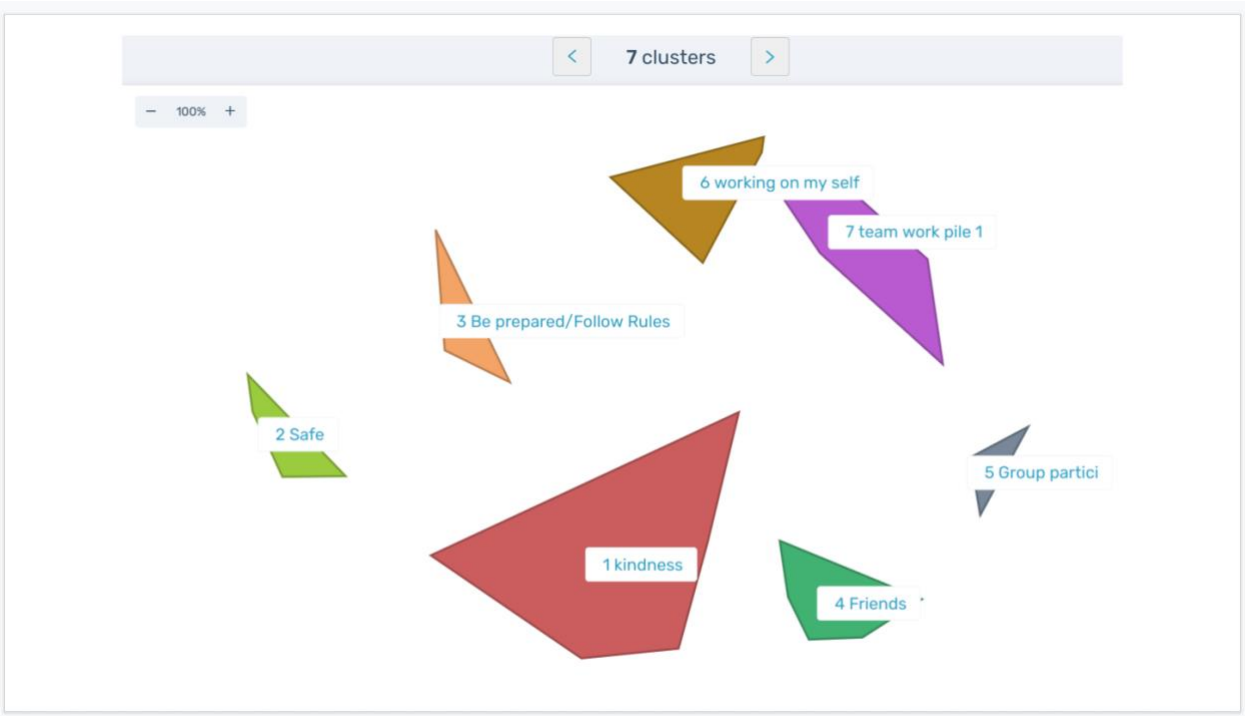
Choosing the Cluster Map that best represents YOU.

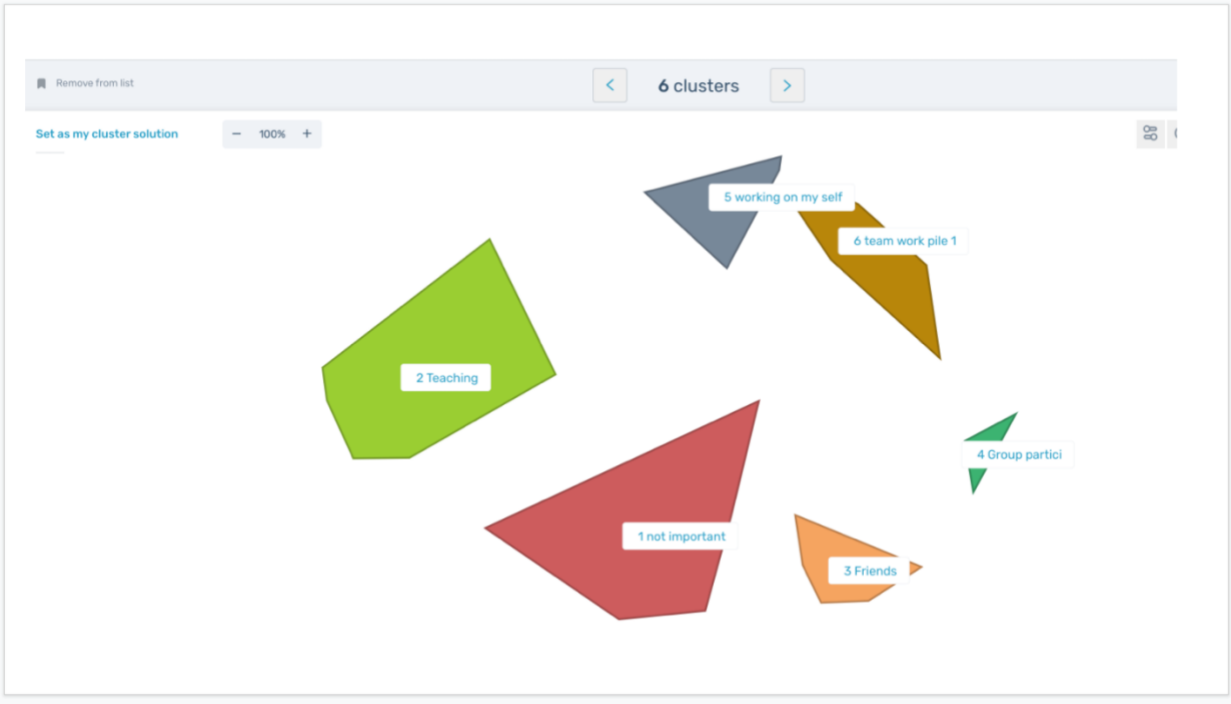
Goal: Select one cluster map.

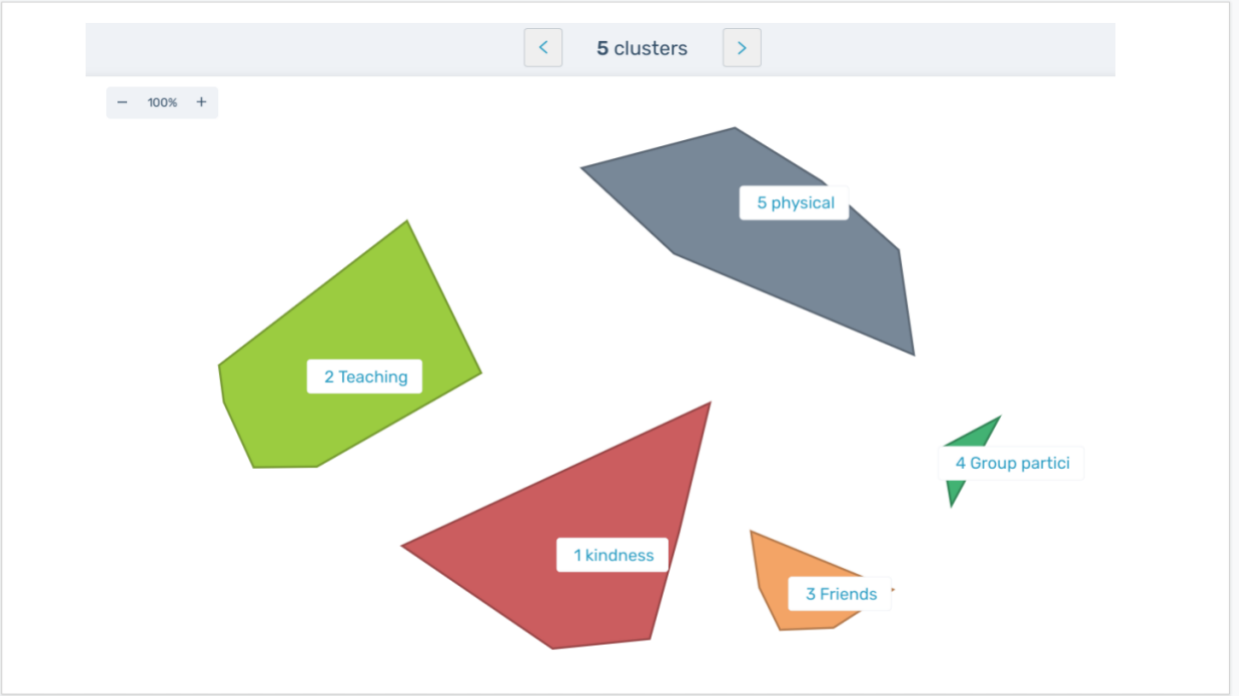
Criteria: Stop when your agreements with the cluster merges turn into disagreement.

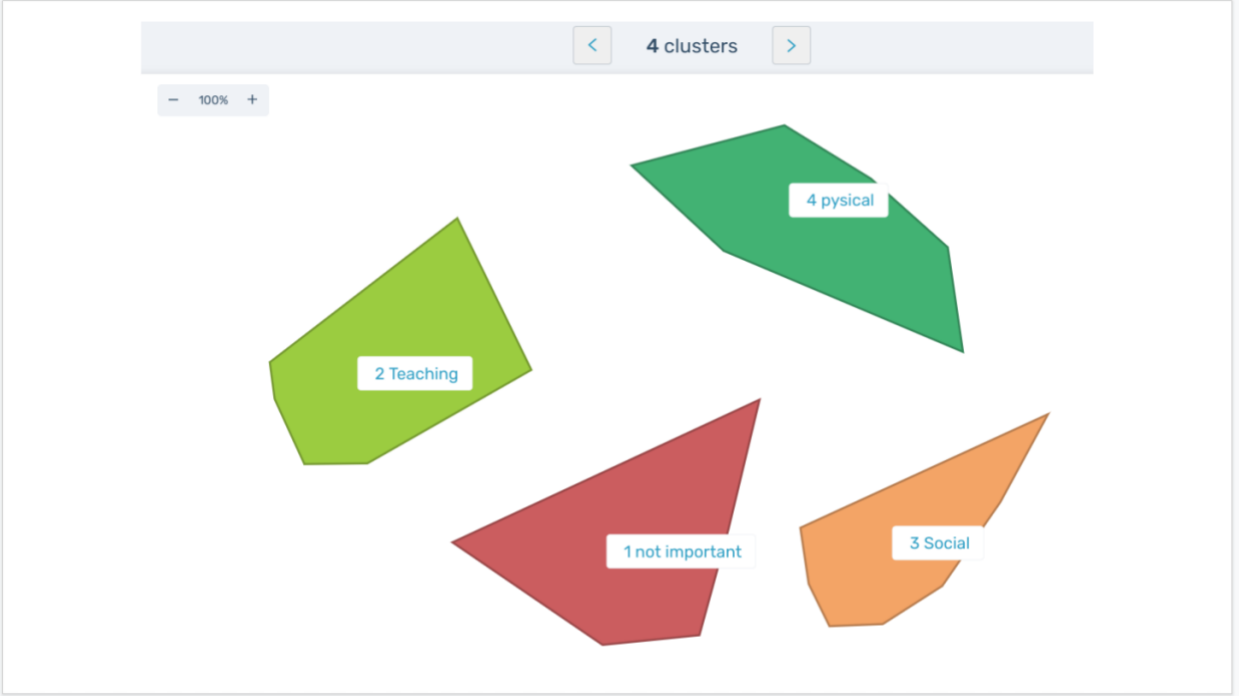
Use this google form to submit your answers:
https://forms.gle/FNo6LaBBzqEDYizz8

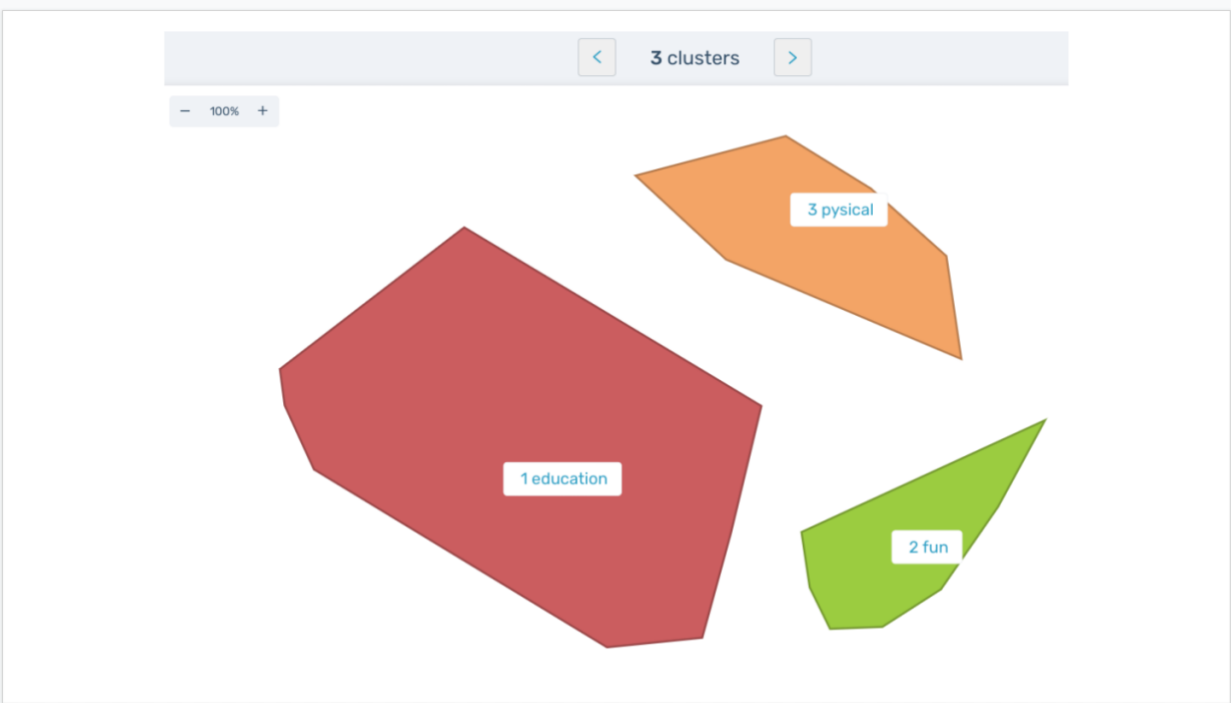
Upload your audio recording here:
https://drive.google.com/drive/folders/1zOHtzIf1u_yo3M5YVhQjPaisOB81OLgO?usp=sharing


7 clusters
100%
6 working on my self
7 team work pile 1
3 Be prepared/Follow Rules
2 Safe
5 Group partici
1 kindness
4 Friends


Remove from list
6 clusters
Set as my cluster solution
100%
5 working on my self
6 team work pile 1
2 Teaching
4 Group partici
1 not important
3 Friends


5 clusters
100%
5 physical
2 Teaching
4 Group partici
1 kindness
3 Friends


4 clusters
100%
4 pysical
2 Teaching
1 not important
3 Social



Goal: Select one cluster map.

Criteria: Stop when your agreements with the cluster merges turn into disagreement.

Use this google form to submit your answers: https://forms.gle/FNo6LaBBzqEDYizz8

Upload your audio recording here: https://drive.google.com/drive/folders/1zOHtzlf1u_yo3M5YVhQjPaisOB81OLgO?usp=sharing

Appendix P

Semi - Structured Interview Guides - Teachers

Please note: these interviews were conversational and unstructured; however, the following questions serve as an example regarding the types of questions that were asked to help guide the conversation.

Community of Practice (CoP) 1

- What are you general beliefs about physical education? What do you think its main role is for students?
- Why are you interested in using the MPE approach in your classroom?
- What are your thoughts/expectations regarding implementing the MPE model at the moment?
- Are there specific things you have found particularly helpful for your teaching in PE?
- Are there specific things you are looking forward to?
- Are there specific things you feel will be challenging?

CoP 2

- What are your thoughts on the email format and readings so far?
- Which class(es) will try to implement MPE with and why?
- What is your vision for MPE in your respective classes? With support from us and the resources, what would you like to emphasize in the planning of your MPE unit? How do you plan to introduce it?
- What else do you need from me (the researcher) to support you in this

CoP 3

(CoP virtual meeting to present synthesized statements and explain activities 3 & 4)

- Any questions regarding GCM platform or process thus far?
- Present activities 3 & 4 and steps once the activities were complete.
- Set timelines for next steps.

CoP 4

(CoP virtual meeting to present initial cluster maps & data)

- Show the point map, point rating map, and cluster map solutions.
- What are your thoughts on the process of presenting these to the students?
- Are you willing to assist with technology set up? Vote counting? And discussion facilitation?
- Is the Google Slide presentation format clear and student friendly?
- Possible dates for presenting to the students?

CoP 5

(CoP virtual meeting to present final cluster solution)

- Show the point map, point rating map, cluster map, cluster rating map, pattern matches & Go-Zones.
- Share an electronic copy of the 44 statements within clusters (Table 6)
- Any surprises, thoughts or questions about the maps?
- Any thoughts about what your students felt was most important?
- What do you think about their frequency responses?
- What do the Go-Zones mean to you?
- What are some of your initial thoughts about implementing these concepts?
- What does ALL of this mean for you as teachers, going forward? What do we do now?

Appendix Q

Semi - Structured Interview Guides - Students

Please note: these interviews were conversational and unstructured; however, the following questions serve as an example regarding the types of questions that were asked to help guide the conversation.

These interviews will be video & audio recorded then transcribed.

Meeting 1

- Explain the Meaningful PE research process and activities.
- Describe the difference between meaning and meaningful.
- Outline step by step activities 1 & 2 using GCM platform and screenshare via Google Meet.
- Identify next steps.

Meeting 2

- Explain activities 3 & 4.
- Demonstrate activities 3 & 4 using GCM platform and screenshare via Google Meet.

Meeting 3
(virtual meeting to present initial cluster maps & data)

- Show the cluster maps from the 7 cluster solution to the 3 cluster solution (Appendix Q).
- If the need arises to clarify a label, wording or choice, a majority vote will be used.
- The prompt was "When I think of Meaningful PE, one thing that matters to me …."
- Do these 7 clusters best answer that question for you? Why or why not?
- If we go from 7 clusters to 6 clusters, do you agree with the merger of the statements? Why or why not? What are your thoughts about the label title?
- Do you agree with the merger of the statements from 6 clusters to 5 clusters? Why or why not? What are your thoughts about the label title?

- Do you agree with the merger of the statements from 5 clusters to 4 clusters? Why or why not? What are your thoughts about the label title?
- Do you agree with the merger of the statements from 4 clusters to 3 clusters? Why or why not? What are your thoughts about the label title?

Meeting 4
(virtual meeting to present final cluster solution)

- Show the point map, point rating map, final cluster map, cluster rating map, pattern matches & Go-Zones (Appendix S).
- If the need arises to clarify a cluster label, or overall choice, a majority vote will be used.
- Any thoughts, surprises, comments, or questions about the kindness cluster?
- Any thoughts, surprises, comments, or questions about the physical activity cluster?
- Any thoughts, surprises, comments, or questions about the fun cluster?
- Any thoughts, surprises, comments, or questions about the quality education cluster?

Appendix R

Final Cluster Presentation PowerPoint Slides

MPE Concept Mapping Results

January & February 2021

Synthesized MPE Statements

1	being treated with respect
2	laughing with my classmates & teachers
3	winning
4	being with peers
5	everyone demonstrating teamwork
6	trying new activities
7	working hard
8	getting along with others
9	being with friends
10	equality
11	being active
12	being outdoors
13	focusing on the activity
14	being taught by quality teachers
15	being challenged
16	using technology in class
17	exercising
18	including everyone in the activities
19	being treated with kindness
20	paying attention to the instructions
21	practicing leadership
22	practicing strategies & tactics
23	working with others
24	learning
25	participating in a variety of activities
26	having fun
27	making positive memories
28	demonstrating athleticism
29	demonstrating sports-personship
30	showing support for my classmates
31	having the proper equipment
32	being happy in class
33	safety
34	having my thoughts and opinions heard
35	improving my skills
36	being competitive
37	making new friends
38	playing sports
39	group participation
40	doing activities that I love
41	competition
42	trying my hardest (demonstrating effort)
43	getting to know people
44	following COVID-19 safety precautions


41
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33
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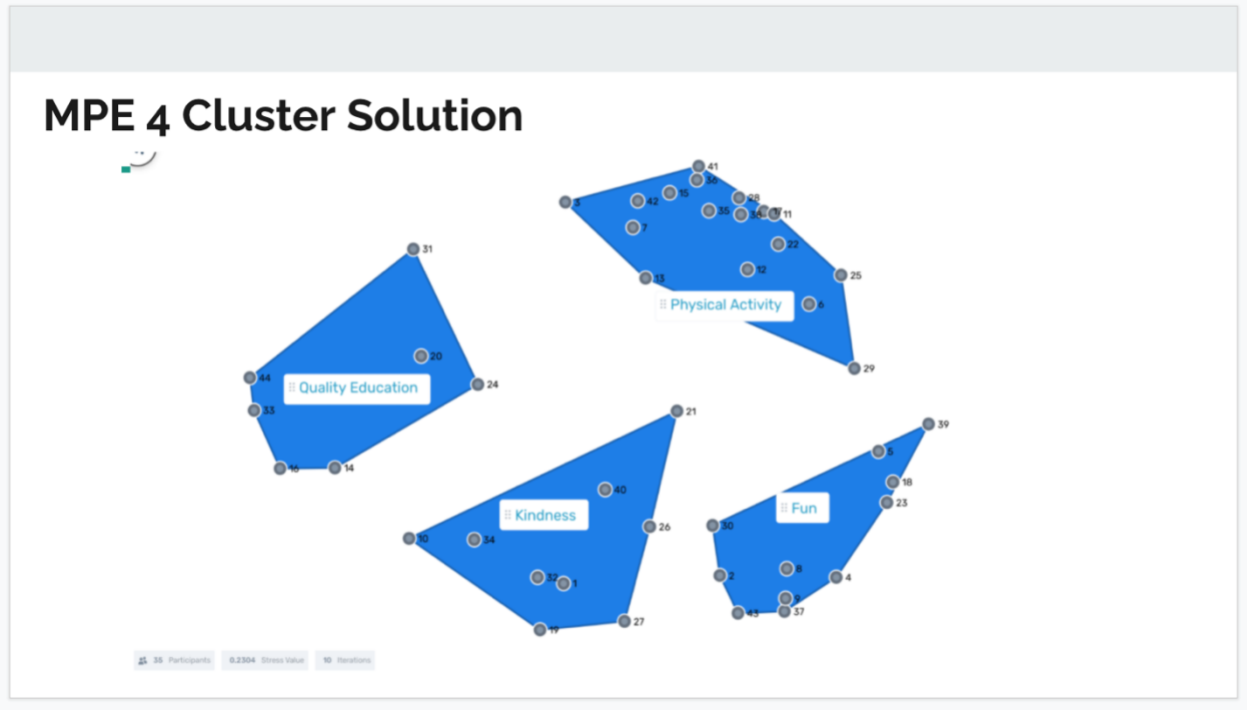
39
5
16
14
18
40
23
26
30
10
34
8
32
1
2
4
9
43
37
27
19
35 Participants
0.2304 Stress Value
10 Iterations


MPE 4 Cluster Solution
Physical Activity
Quality Education
Kindness
Fun

MPE Clusters With Statements

Cluster & Statement Ratings for Importance

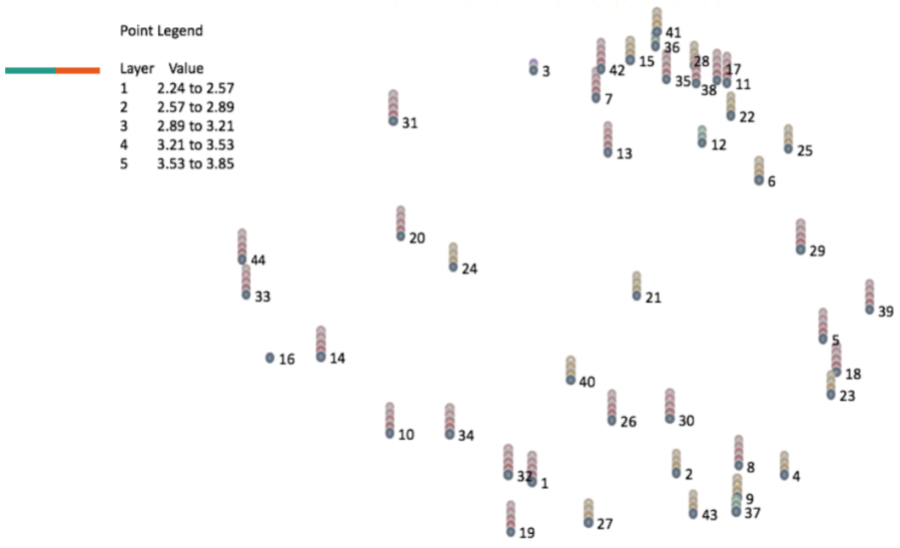
Cluster 1	Kindness	Cluster Avg 3.63
Statement #		
1	being treated with respect	3.85
26	having fun	3.80
10	equality	3.78
19	being treated with kindness	3.73
32	being happy in class	3.61
34	having my thoughts and opinion	3.53
40	doing activities that I love	3.51
21	practicing leadership	3.46
27	making positive memories	3.39

Cluster 2	Physical Activity	Cluster Avg 3.48
Statement #		
7	working hard	3.80
11	being active	3.78
17	exercising	3.76
29	demonstrating sports-personship	3.71
35	improving my skills	3.71
42	trying my hardest (demonstrating effort)	3.70
38	playing sports	3.68
13	focusing on the activity	3.63
15	being challenged	3.45
25	participating in a variety of activities	3.43
22	practicing strategies & tactics	3.40
28	demonstrating athleticism	3.38
6	trying new activities	3.37
41	competition	3.25
36	being competitive	3.15
12	being outdoors	3.08
3	winning	2.83

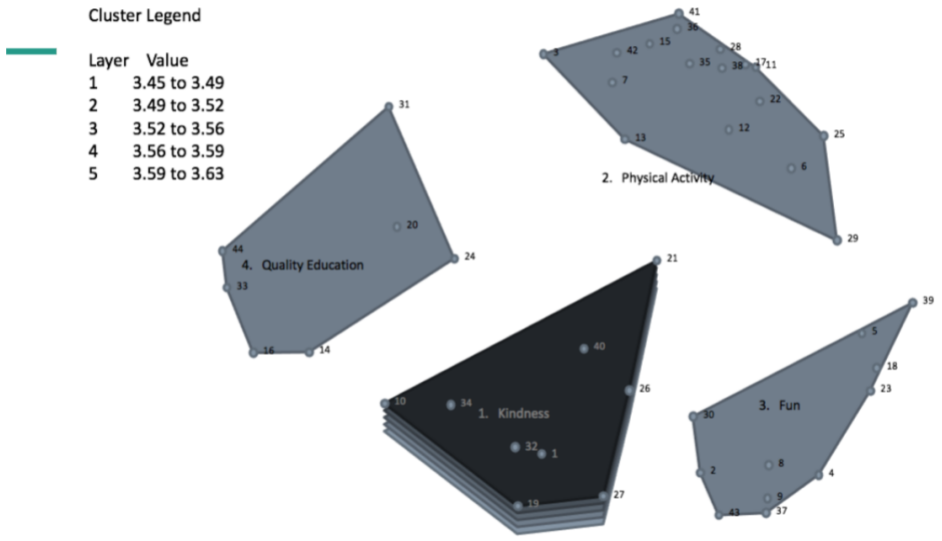
Cluster 3	Fun	Cluster Avg 3.45
Statement #		
18	including everyone in the activities	3.73
8	getting along with others	3.65
30	showing support for my classma	3.64
5	everyone demonstrating teamw	3.61
39	group participation	3.60
9	being with friends	3.44
23	working with others	3.41
2	laughing with my classmates & teachers	3.27
4	being with peers	3.27
43	getting to know people	3.23
37	making new friends	3.17

Cluster 4	Quality Education	Cluster Avg 3.45
Statement #		
44	following COVID-19 safety precautions	3.83
20	paying attention to the instructi	3.76
33	safety	3.73
14	being taught by quality teacher:	3.63
31	having the proper equipment	3.53
24	learning	3.46
16	using technology in class	2.24

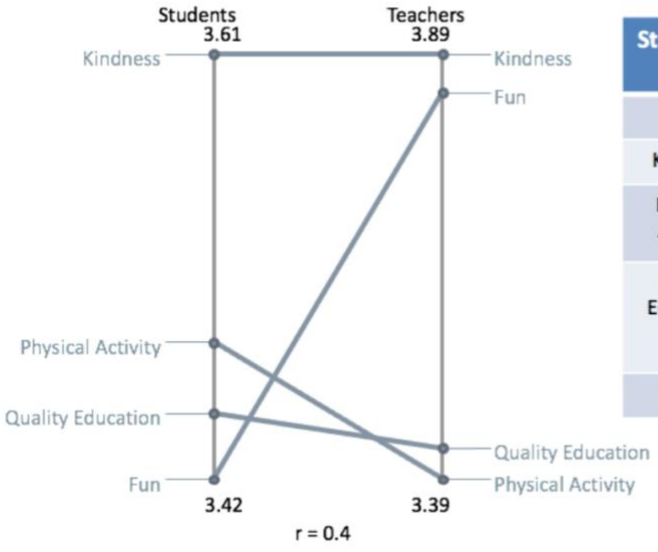
MPE Point Rating Map - visual of slide 5



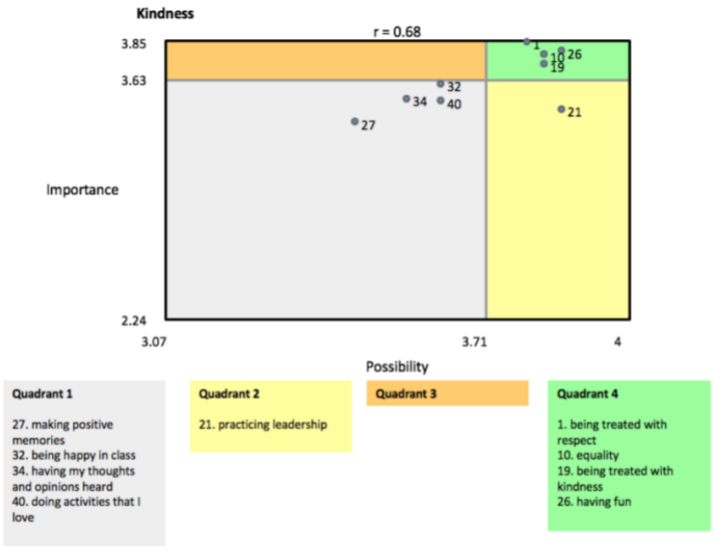
Cluster Rating Map - Importance



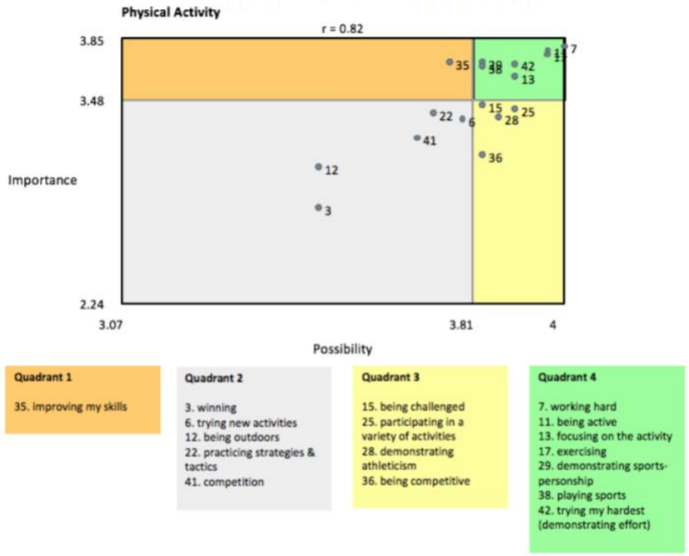
Pattern Matching Display for Students and Teachers Importance Ratings



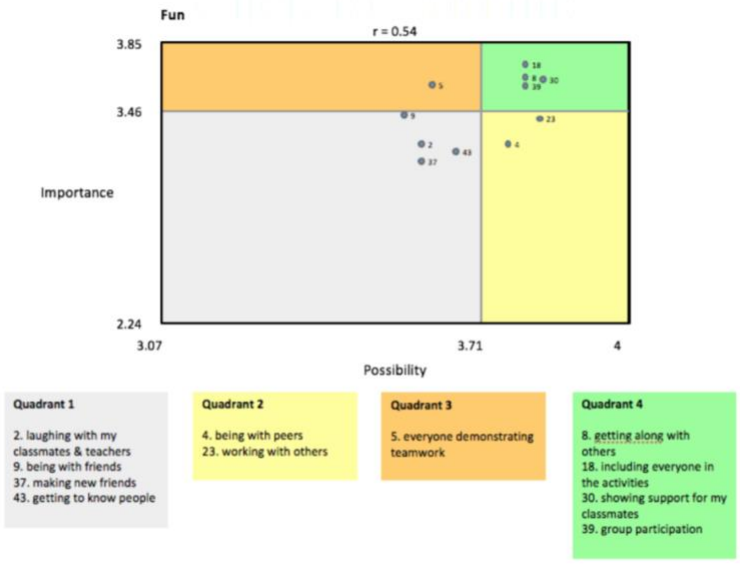
Student – Teacher Pattern Match for Importance		
	Students	Teachers
Kindness	3.61	3.89
Physical Activity	3.42	3.84
Quality Education	3.48	3.39
Fun	3.42	3.39



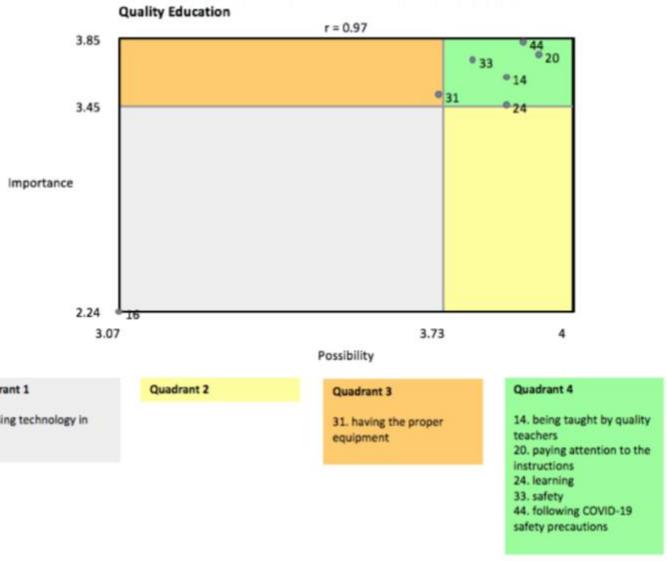
Kindness GoZones



Physical Activity GoZones



Fun GoZones



Quality Education GoZones

Thoughts?

Do these represent you?

What are some practical ways for *how* you and your teachers can plan for MPE using these results?

Thank you!

Appendix S

LAMPE's Pedagogical Case #4

PEDAGOGICAL CASE #4

Using metaphors to think about the features of meaningful experiences

Experienced teachers need to consider how the Meaningful PE approach fits with their current approaches, priorities, practices and beliefs. You might ask yourself: are there aspects of the Meaningful PE approach that resonate or align with what I already do? If I take up the Meaningful PE approach, would this require tweaking or radically changing my practice?

Below we share two metaphors – images or illustrations – that might be helpful to get you thinking about how the Meaningful PE approach fits with what you already do or can help you see how you might use it the future. In particular, the metaphors provided showcase how two teachers have thought about the integrated nature of the features of Meaningful PE (i.e., social interaction, challenge, fun, motor competence, and personally relevant learning) and prioritize certain features over others.

A metaphor used by the blogger and secondary PE teacher @ImSporticus is thinking of the features as the controls on an equalizer, which can be moved up and down (you know those things on stereos?). His reason for using the metaphor of the equalizer is because during teaching, we often "need to tune into what is happening and consider the pitch of the lesson. This requires stepping back and observing from a distance allowing us to see the balance of the lesson… Many times our lessons are balanced but sometimes they aren't and they require us to strengthen or dampen one or a number of the features to make it more meaningful".

Here is an example where @ImSporticus felt the features and his thinking of them as an equalizer had an impact on how he changed his practice and his students' experience. In the example, the role of each feature is given a score out of 10, which represents the level at which it was set on the equalizer:

Grade 9 Gymnastics – Vaulting

- Social Interaction 3/10 – spotting the performer was the only real social interaction
- Fun 5/10
- Challenge 1/10 – pupils had to perform the vault that I said we were working on
- Motor Competence 3/10 – lots of lines and waiting
- Relevance 1/10

For @ImSporticus, using the metaphor of the equalizer allowed him to observe how his students were experiencing each of the features. In his teaching philosophy, **Motor Competence** is his priority, which in the metaphor could be represented by the volume dial. This then has a trickle down impacts on other parts of the equalizer that require adjustment. After considering the levels of each feature he made the following changes in the next lesson, and noted the outcomes on other features: Animal walks back from the vault (↑Motor Competence and Fun); Essential Movement Challenge to complete with partner whilst waiting to vault (↑Motor Competence and Social Interaction); vault criteria developed in class and a judge gave score and feedback after

each vault (↑Social Interaction).

This metaphor can help us think about the integrated nature of the features. For example, cranking everything up to 10 does not necessarily result in the best sound quality. When you put the volume up too high it can compromise the quality of the sound, and other components need to be adjusted. A challenge of 10/10 means things might be perceived as nearly impossible, so getting to a 7 or 8 might represent the "sweet spot" where you get clear or optimal sound quality.

Ms. P uses the metaphor of a clock mechanism, where the different cogs that work together inside the casing represent each feature. For Ms. P, the feature of **Social Interaction** represents the largest cog because she is a firm believer that being with or making new friends can be a driving reason to engage in physical activities and sport. Other reasons social interaction might represent the larger cog is because as students feel comfortable with and supported by peers and the teacher, they might feel encouraged to take risks and challenge themselves because they feel safe to make mistakes in the classroom. This is one of the reasons she begins the year for all her classes with a unit on cooperative and adventure games. Students need to work together to solve problems, which means they must negotiate, take on roles as leaders and/or followers, be empathetic, good listeners, and so on.

In the metaphor, once social interaction is positive, it causes the other cogs to turn. For example, once students feel comfortable socially, the cog representing the challenge feature might be turned because students feel safe to challenge and push themselves toward new boundaries. This might then also start turning the cog that represents competent movement (because learners feel encouraged to persevere with and practice tasks that are not too easy or not too difficult), which in turn may lead the learner to have more fun, and see greater relevance in physical education. Importantly, no matter the size of the cog, they all play a part in making experiences meaningful. Depending on individual philosophies or visions for teaching physical education, others might prioritize the importance of challenge and so that feature would represent the largest cog in the watch mechanism. But as with Ms. P's example, it is important to think about how that cog (or feature) drives and influences students' engagement with the other cogs.

It is important to note that these metaphors are not meant to be ones we feel are the best or of most value: they are metaphors that help these particular teachers think about how the features of meaningful PE are integrated, and can be represented in a way that helps them make decisions in their teaching.

- What might be your metaphor for thinking about the integrated nature of the features?
- What feature/s would you prioritize? Would this differ according to the content or students being taught? Should you choose the priority based on what you want to do or on what your students want?

Meaningful Physical Education in Practice:

- Developing a personally relevant metaphor can serve as a useful framework for teachers who are thinking about how to incorporate an approach that prioritizes meaningful PE into their own teaching practice.
- The features that guide the MPE framework should be thought of as being interconnected rather than as existing in isolation. Each of the features, regardless of the degree to which they are prioritized, will play a role in making an experience meaningful.
- In accordance with the previous point, teachers should be aware that the degree to which one feature is prioritized in a lesson will also have a trickle down effect that may affect how students experience other features. For example, prioritizing challenge in a lesson may compromise how students experience the feature of fun.

***Case developed by the LAMPE team, with contributions from and thanks to @ImSporticus for allowing us to use his post on "The Equalizer". Each metaphor can be viewed at:
https://meaningfulpe.wordpress.com/2017/09/28/using-metaphors-to-think-about-the-features-of-meaningful-experiences/
https://drowningintheshallow.wordpress.com/2017/10/22/the-equalizer/

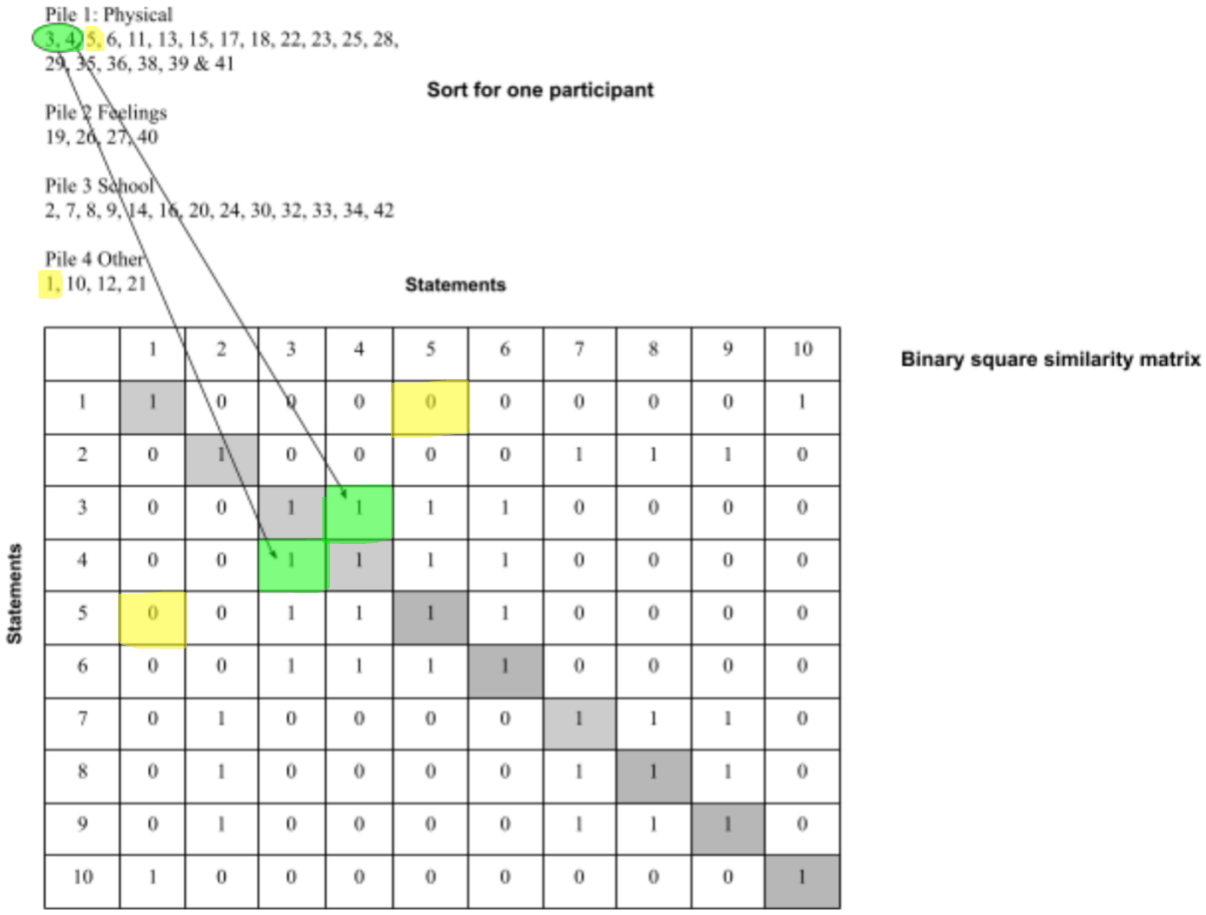
Appendix T

Creating a Similarity Matrix

The first step is to put the sorting results from each individual into a square table or matrix. Individual participant data are placed in a binary square similarity matrix (Figure T1). The term binary is used because the data within the matrix contains only two options: 0 or 1. The top and bottom halves of the square, divided by the shaded diagonal line, are mirror images of each other (symetric). Finally, similarity is demonstrated by higher numerical values.

Figure T1

Binary square similarity matrix



	1	2	3	4	5	6	7	8	9	10
1	1	0	0	0	0	0	0	0	0	1
2	0	1	0	0	0	0	1	1	1	0
3	0	0	1	1	1	1	0	0	0	0
4	0	0	1	1	1	1	0	0	0	0
5	0	0	1	1	1	1	0	0	0	0
6	0	0	1	1	1	1	0	0	0	0
7	0	1	0	0	0	0	1	1	1	0
8	0	1	0	0	0	0	1	1	1	0
9	0	1	0	0	0	0	1	1	1	0
10	1	0	0	0	0	0	0	0	0	1

The statement numbers 1 to 10 are being used for this example. The number within the cells in the table indicates whether two statements were put together or not. The digit "1" indicates that the statements were sorted together in a pile. The digit "0" indicates that the statements were not sorted together in a pile. Statements 3 and 4 were sorted into pile 1 together, therefore a 1 is placed at the intersection of row 3, column 4 and row 4, column 3. Statements 5 and 1 were not sorted together by this participant, consequently a "0" is placed at the intersection of row 1, column 5 and row 5, column 1. It is important to note that each statement is always in the same pile as itself. Therefore a "1" is placed along the diagonal and is also shaded in grey. The result is a mirror image of the top and bottom triangles.

Appendix U

TOTAL Square Similarity Matrix

The TOTAL square similarity matrix by the GroupWisdom® Concept Mapping (2021) platform as shown in Figure U1. The final square similarity matrix contains as many columns as rows. It has as many columns and rows as there are items.

Figure U1

Total Meaningful PE Similarity Matrix

TOTAL MPE_Similarity_Matrix

Statement #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1		15	7	12	15	6	8	16	15	19	5	12	11	12	8	7	5	15	25	8	12	7	9	5	8	17	19	5	10	17	9	18	12	20	7	8	12	8	10	15	7	8	16	10
2	15		10	23	15	16	9	24	26	12	9	10	8	15	8	10	9	11	11	8	11	8	18	13	9	20	17	7	8	18	7	22	7	12	6	10	22	9	14	18	9	8	21	7
3	7	10		10	11	14	16	8	11	4	16	10	13	5	18	4	16	8	2	10	6	11	7	8	7	13	10	18	11	4	9	11	5	7	17	22	7	16	9	14	23	11	6	8
4	12	23	10		18	13	4	23	27	9	10	9	7	7	5	7	10	18	12	4	10	9	22	9	11	17	21	9	11	13	7	15	4	11	8	9	24	7	15	16	9	9	25	4
5	15	15	11	18		10	9	20	16	14	9	9	15	8	10	7	9	22	11	12	15	13	21	6	13	11	7	15	19	19	7	8	6	11	9	13	13	10	23	6	13	8	13	8
6	6	16	14	13	10		16	11	12	2	22	18	17	9	16	7	23	11	6	9	10	15	18	9	21	14	12	19	12	9	14	12	7	7	21	18	13	22	12	17	16	16	10	6
7	8	9	16	4	9	16		7	8	6	21	14	19	14	22	9	21	8	5	13	13	20	11	13	14	10	7	17	11	9	11	9	9	8	22	18	7	21	12	10	17	23	7	7
8	16	24	8	23	20	11	7		24	13	6	9	12	11	7	9	6	18	13	12	14	9	21	11	5	13	12	8	11	23	8	13	11	14	7	8	26	7	13	10	7	9	24	9
9	15	26	11	27	16	12	8	24		8	7	11	9	8	8	9	7	13	12	9	9	5	16	10	6	20	24	5	6	15	7	14	8	9	6	8	24	9	12	17	5	8	26	6
10	19	12	4	9	14	2	6	13	8		6	11	9	15	6	12	6	14	21	11	17	7	10	7	8	9	8	5	12	17	10	10	12	16	5	6	10	5	13	9	6	6	12	14
11	5	9	16	10	9	22	21	6	7	6		22	17	6	24	2	33	8	4	7	10	20	10	10	20	12	10	24	12	6	15	8	4	6	26	19	7	32	11	15	21	20	7	5
12	12	10	10	9	9	18	14	9	11	11	22		14	8	18	11	20	12	7	8	12	19	8	11	19	16	12	13	9	8	19	6	8	8	18	16	9	22	11	15	17	16	10	7
13	11	8	13	7	15	17	19	12	9	9	17	14		8	18	9	18	14	9	17	13	16	12	15	13	7	9	16	14	13	10	9	9	13	20	17	6	21	11	9	14	17	7	11
14	12	15	5	7	8	9	14	11	8	15	6	8	8		11	23	6	6	11	15	13	10	8	15	8	7	8	7	7	12	15	17	16	15	8	6	10	9	10	7	6	6	10	16
15	8	8	18	5	10	16	22	7	8	6	24	18	18	11		5	25	7	5	11	10	21	7	13	15	8	8	24	12	7	15	6	9	6	23	24	7	29	9	9	23	20	6	8
16	7	10	4	7	7	7	9	9	9	12	2	11	9	23	5		3	9	8	15	11	9	9	18	8	7	9	5	6	12	13	13	16	14	6	4	8	3	9	8	3	5	9	14
17	5	9	16	10	9	23	21	6	7	6	33	20	18	6	25	3		8	4	7	9	22	10	13	19	12	10	24	12	6	15	8	5	6	25	20	6	29	11	15	22	20	6	6
18	15	11	8	18	22	11	8	18	13	14	8	12	14	6	7	9	8		15	10	16	8	19	6	10	9	10	12	20	18	8	8	9	13	8	11	12	8	23	10	8	8	14	8
19	25	11	2	12	11	6	5	13	12	21	4	7	9	11	5	8	4	15		7	13	7	13	6	8	15	20	3	8	15	5	15	11	20	5	4	14	5	8	17	3	5	17	8
20	8	8	10	4	12	9	13	12	9	11	7	8	17	15	11	15	7	10	7		17	7	10	20	10	5	4	12	16	16	11	10	15	12	12	7	8	9	11	6	5	9	7	17
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23	9	18	7	22	21	18	11	21	16	10	10	8	12	8	7	9	10	19	13	10	12	15		12	17	10	9	11	15	17	8	7	6	13	10	8	20	6	20	8	9	11	18	4
24	5	13	8	9	6	9	13	11	10	7	10	11	15	15	13	18	13	6	6	20	12	15	12		12	10	9	11	10	13	9	15	11	15	9	6	10	11	8	9	7	10	8	11
25	8	9	7	11	13	21	14	5	6	8	20	19	13	8	15	8	19	10	8	10	11	18	17	12		10	6	16	16	10	16	7	5	12	19	15	8	18	15	9	17	19	9	4
26	17	20	13	17	11	14	10	13	20	9	12	16	7	7	8	7	12	9	15	5	10	10	10	10	10		25	9	4	9	6	20	8	10	7	11	14	12	8	28	10	10	13	7
27	19	17	10	21	7	12	7	12	24	8	10	12	9	8	8	9	10	10	20	4	8	8	9	9	6	25		6	4	9	6	20	9	12	8	7	17	9	6	26	5	9	20	8
28	5	7	18	9	15	19	17	8	5	5	24	13	16	7	24	5	24	12	3	12	11	17	11	11	16	9	6		17	7	12	7	8	8	23	23	5	23	14	9	21	14	4	10
29	10	8	11	11	19	12	11	11	6	12	12	9	14	7	12	6	12	20	8	16	20	12	15	10	16	4	4	17		14	11	6	5	11	14	14	5	12	15	6	13	11	6	7
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31	9	7	9	7	7	14	11	8	7	10	15	19	10	15	15	13	15	8	5	11	8	14	8	9	16	6	6	12	11	9		3	17	8	16	16	6	15	7	9	18	17	8	16
32	18	22	11	15	8	12	9	13	14	10	8	6	9	17	6	13	8	8	15	10	10	6	7	15	7	20	20	7	6	12	3		6	18	6	8	11	8	8	20	6	6	13	5
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35	7	6	17	8	9	21	22	7	6	5	26	18	20	8	23	6	25	8	5	12	11	21	10	9	19	7	8	23	14	11	16	6	5	11		21	7	24	7	10	22	22	7	7
36	8	10	22	9	13	18	18	8	8	6	19	16	17	6	24	4	20	11	4	7	10	17	8	6	15	11	7	23	14	7	16	8	5	6	21		6	21	11	9	32	20	6	5
37	12	22	7	24	13	13	7	26	24	10	7	9	6	10	7	8	6	12	14	8	13	6	20	10	8	14	17	5	5	16	6	11	7	12	7	6		7	14	13	8	9	31	8
38	8	9	16	7	10	22	21	7	9	5	32	22	21	9	29	3	29	8	5	9	10	20	6	11	18	12	9	23	12	6	15	8	7	6	24	21	7		9	13	20	19	7	6
39	10	14	9	15	23	12	12	13	12	13	11	11	11	10	9	9	11	23	8	11	15	10	20	8	15	8	6	14	15	11	7	8	7	7	7	11	14	9		9	11	6	14	8
40	15	18	14	16	6	17	10	10	17	9	15	15	9	7	9	8	15	10	17	6	7	9	8	9	9	28	26	9	6	9	9	20	10	10	10	9	13	13	9		9	8	14	8
41	7	9	23	9	13	16	17	7	5	6	21	17	14	6	23	3	22	8	3	5	9	18	9	7	17	10	5	21	13	8	18	6	3	6	22	32	8	20	11	9		20	6	4
42	8	8	11	9	8	16	23	9	8	6	20	16	17	6	20	5	20	8	5	9	13	17	11	10	19	10	9	14	11	11	17	6	6	10	22	20	9	19	6	8	20		9	4
43	16	21	6	25	13	10	7	24	26	12	7	10	7	10	6	9	6	14	17	7	14	8	18	8	9	13	20	4	6	16	8	13	10	15	7	6	31	7	14	14	6	9		8
44	10	7	8	4	8	6	7	9	6	14	5	7	11	16	8	14	6	8	8	17	11	6	4	11	4	7	8	10	7	9	16	5	30	12	7	5	8	6	8	8	4	4	8	

The individual contribution from each participant contributes to the summation of quantitative data based on qualitative (conceptual meaning) sorts. The relationship or similarity is represented as binary, yes = 1 and no = 0. The final total weight of each relationship is based on each statement to another single statement. The value in the matrices is the sum of how many participants piled those two statements together to a maximum of the number of participants who completed the sorting activity. The larger the number of participants, the more refined the relationship.

Higher numbers indicate that more participants placed that pair of statements together, implying that they are more conceptually *similar* as judged by the participants. Low numbers indicate that fewer participants placed that pair of statements together, implying that they are conceptually less similar.

For example (see Figure U1), statement 17 was sorted into the same pile as 11, by 33 participants. This would indicate that the concepts were considered to be very similar by a large number of participants. Similarly, statement 41 and 36 were sorted together 32 times.

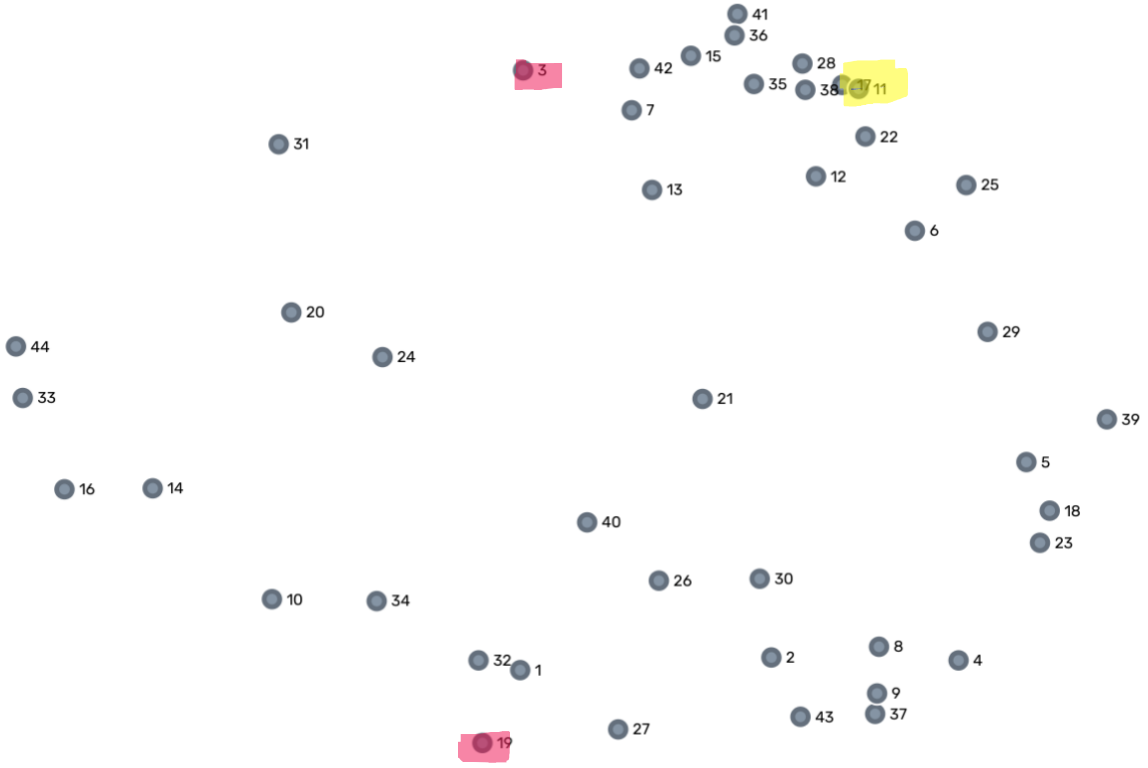
A lower combined sort was between statement 10 and 6 (Figure U1). Only 2 participants found these qualitative statements to be conceptually similar. The other pair that was only sorted together 2 times were statements 16 and 11. The implication being that statements 16 and 11 were conceptually less similar.

Appendix V

Quantitative Analysis - MDS

Figure V1

Point Map



Multidimensional scaling (MDS) uses a table of distances based on the total square matrix to produce a map (Davison, 1983; Kruskal & Wish, 1978). “Points more proximal to each other were sorted together more often and points more distal from one another were sorted together less often” (Visek et al., 2014, p. 5). *Two dimensions* are used to enhance the interpretability of real-life data (Felx., Kane., Corbière., & Lesage, 2020; Kane, 2020; Kane & Trochim, 2007; Trochim, 1989). The term *nonmetric* is in reference to Louis Guttman’s “smallest space analysis” technique using non metrics (1994, p. 139). *Multidimensional scaling* is a multivariate analysis, meaning that the output results are concerned with interrelationships

between several variables (Kane & Trochim, 2007; Visek et al., 2015). The data contains a "hidden structure" (Kruskal & Wish, 1978, p. 2) when plotted making the data easier to understand by reflecting the small similarities and the larger dissimilarities between points. The more conceptually similar statements are, the closer their X & Y coordinates will be, regardless of any other combinations. For example, statements 17 & 11 (Figure V1) are so conceptually similar, they are nearly piled directly one atop the other. Whereas, statements 3 and 19 are considered to be conceptually dissimilar based on the distance between their points.

This quantification of the qualitative statements can be diagnosed as being statistically reliable using the stress index (Cooper, 2008; Kane & Trochim, 2007; Visek et al., 2015; Trochim, 1989). "Stress measures the degree to which the distances on the map are *discrepant from* the values in the input similarity matrix" (Kane & Trochim, 2007, p.97). A low stress value suggests a good fit and the map does represent the data well (Kane & Trochim, 2007; Visek et al., 2015). A high stress value would indicate that there is a larger discrepancy between the input data and the two-dimensional map displayed. A pooled analysis from 69 group concept mapping studies found an average stress value of .28, with a range from .17 to .34 (Rosas & Kane, 2012). Kane & Trochim (2007) found that across a broad range of concept mapping projects, stress values range between 0.205 and 0.365.

Appendix W

Cluster Reduction & Selection Process

The online platform has the capability to display from 15 to 1 - cluster map solutions. "The number of clusters for a map can range from 2 to N-1, where N is the total number of statements and is decided based on a combination of statistical analysis, expert judgement, and participant feedback" (Visek et al., 2014, p. 5). The clusters presented to the teacher and student participants for feedback were selected using the following steps:

1) *Creating & Reviewing Cluster Maps.* I chose a seven - cluster solution as the upper limit and a three - cluster solution as the lower limits of cluster arrays the highest number of piles as sorted by the participants was 7 and 3 is the lowest approved number of piles during the sorting phase (Kane, 2020). A maximum of 7 and a minimum of 3 clusters was entered into the GroupWisdom® Concept Mapping (2021) platform, which then built the concept maps that displayed "each of the mergers made in order to move from the maximum number of clusters to the minimum number of clusters" (Cooper, 2008, p. 87). From those, participants were asked to recommend a final cluster solution:

> At each cluster level, rather than looking at the entire cluster arrangement, we focus only on the two clusters being merged. Most likely, at a higher number of clusters, we tend to agree with the mergers. As we move down the tree, we are likely to see merges that don't make sense because they combine areas that are perceived to have utility if kept distinct (Kane & Trochim, 2007, p. 103).

In student friendly language, I translated this to 'when you no longer agree with the merger, stop, go back, and, look at the statements again just in case'. These instructions were shared with the participants during our cluster selection meeting.

2) *Review of the bridging analysis.* The bridging analysis entails an examination of the bridging values generated by the GroupWisdom® Concept Mapping (2021) platform for each

statement *and* cluster based on 2-D (X,Y) distances. The bridging index (BI) is the numerical value which measures whether a statement was generally sorted with nearby statements (values close to 0) or with items located in other areas of the concept map (values closer to 1). BI values *do not* indicate importance, they are indicative of conceptually similar clusters (Table W1).

Table W1

Four-Cluster Solution Bridging Index Values

CLUSTER 1	KINDNESS	Avg 0.44
statement # 1	being treated with respect	0.41
10	equality	0.78
19	being treated with kindness	0.46
21	practicing leadership	0.32
26	having fun	0.28
27	making positive memories	0.42
32	being happy in class	0.39
34	having my thoughts and opinions heard	0.55
40	doing activities that I love	0.34

CLUSTER 2	QUALITY EDUCATION (QE)	Avg 0.84
14	being taught by quality teachers	0.81
16	using technology in class	0.97
20	paying attention to the instructions	0.71
24	learning	0.57
31	having the proper equipment	0.86
33	safety	0.99
44	following COVID-19 safety precautions	1

CLUSTER 3	FUN	Avg 0.38
2	laughing with my classmates & teachers	0.25
4	being with peers	0.31
5	everyone demonstrating teamwork	0.46
8	getting along with others	0.30
9	being with friends	0.29
18	including everyone in the activities	0.53
23	working with others	0.44
30	showing support for my classmates	0.33
26	having fun	0.43
37	making new friends	0.33
39	group participation	0.63
43	getting to know people	0.30

CLUSTER 4	PHYSICAL ACTIVITY (PA)	0.17
3	winning	0.50
6	trying new activities	0.27
7	working hard	0.18
11	being active	0.02
12	being outdoors	0.18
13	focusing on the activity	0.22
15	being challenged	0.08
17	exercising	0.02
22	practicing strategies & tactics	0.18
25	participating in a variety of activities	0.35
28	demonstrating athleticism	0.10
29	demonstrating sports-personship	0.43
35	improving my skills	0.02
36	being competitive	0.11
38	playing sports	0
41	competition	0.10
42	trying my hardest (demonstrating effort)	0.21

Statements are listed in numerical order

0	anchor statement; sorted most frequently with statements in the same cluster; anchored in their content on the map
1	bridging statement; sorted frequently with statements in other areas
lowest BI value in a cluster	"centroid" - most representative statement of the cluster

For example, the Quality Education (QE) cluster had an average BI of 0.84 (Table W1). This means that the statements within the QE cluster were less frequently sorted together. In fact, the QE cluster contains the bridging statement - #44 following safety protocols (BI = 1.00). A statement with a BI of 1.00 indicates a "'bridging' statement because it bridges between or links

two more distant areas on the map" (Kane & Trochim, 2007, p. 101). The participants sorted statement #44 at least once with every single other statement, thus the bridging analogy. All of the statements within the QE clusters have BIs of 0.50 or greater, which reveals that all the statements within the QE cluster had been sorted with many other statements (Figure W2).

Figure W2

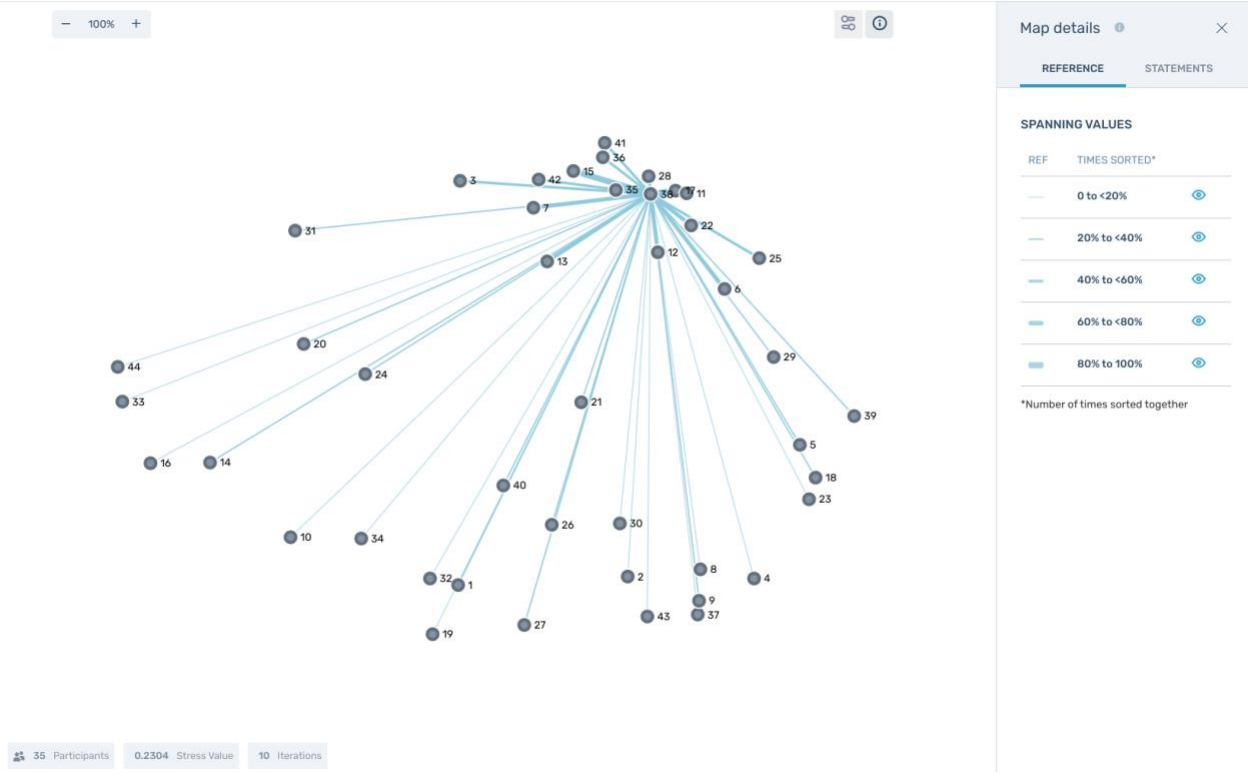
Bridging Statement

In comparison, the Physical Activity (PA) cluster had an average BI of 0.17 (Table W1). This means that the statements within the PA cluster are conceptually very similar. The PA cluster also contains the anchoring statement #38 – playing sports (Figure W3). An anchoring statement has a BI value of 0 and reflects the statements within the vicinity. Thus, statements with lower bridging indices indicate more stable, narrowly focused thematic content" (Visek et

al., 2014, p. 5). Cluster solutions with BI averages closer to zero indicate conceptually similar statements within the cluster (Cooper, 2008; Kane & Trochim, 2007; Trochim, 1989).

Figure W3

Anchoring Statement



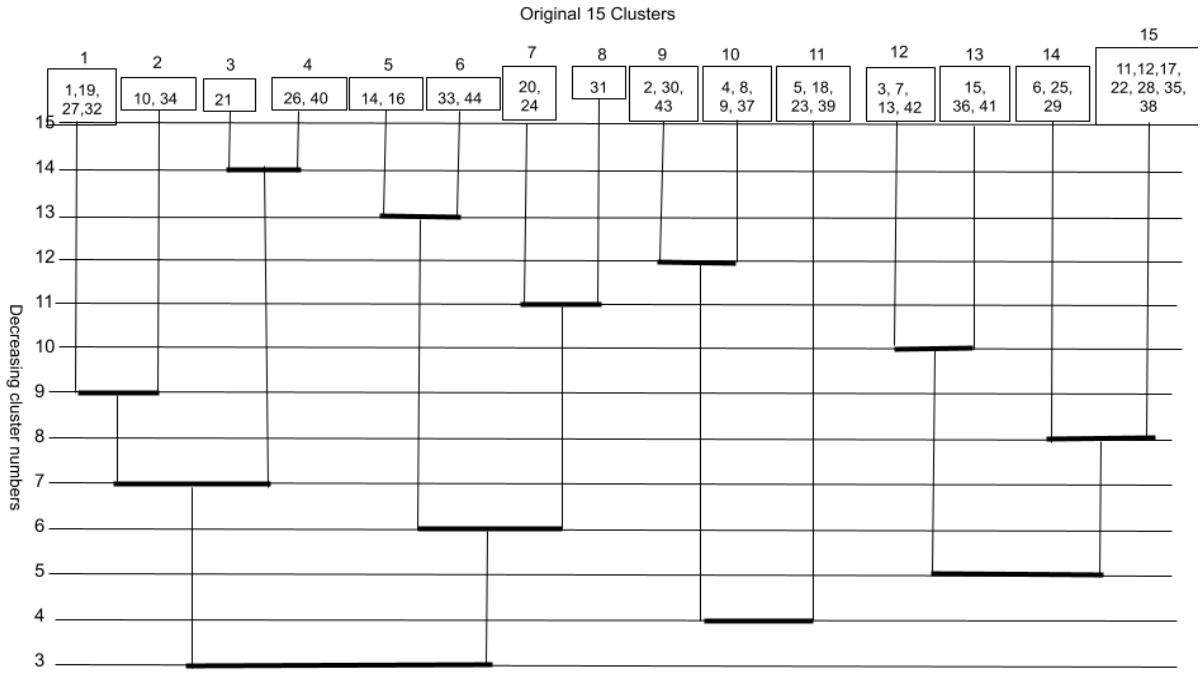
Subsequent to the BI review, I feel confident with the four-cluster array being presented to the students as a possible final Meaningful PE Map because three out of the four clusters had BI averages of less than 0.50, indicating clusters which are conceptually similar (Cooper, 2008; Kane & Trochim, 2007; Trochim, 1989).

3) *Review of the hierarchical cluster analysis mergers*. HCA is an analytical step (based on the way that the participants sorted the statements) used to create the array(s) of cluster maps of similar concepts (Kane, 2020). There are three processes performed during HCA:

- Clustering a point map into groups of ideas – quantitative
- Constructing the hierarchical cluster decision tree can completed solely by the GroupWisdom® Concept Mapping (2021) platform or by hand (Figure W4) – quantitative
- Choosing a cluster solution from the data (completed by the participants and researcher) - qualitative.

Figure W4

HCA Tree Diagram



The cluster analysis used in GCM can be further described as hierarchical, agglomerative, criteria based, and relational (Kane, 2020). The process is hierarchical because the clusters are built in a tree like method. Beginning with all of the qualitative statements at the individual (leaf) level (Figure W4). The process is agglomerative because the process builds towards all statements in one pile (trunk). The criterion used to determine the sequential cluster merges (merging of small branches to larger branches and then to the trunk) is Ward's algorithm (Kane & Trochim, 2007; Visek et al., 2014).

Ward's hierarchical cluster analysis uses the X-Y coordinates from MDS as the input data (Visek et al., 2014). The resultant output data is a tree structure - the hierarchical array of cluster possibilities without any overlap (Kane & Trochim, 2007; Visek et al, 2014). This process is relational because all statements are plotted based on their conceptual relationships as determined by the sorts/piles created by the participants.

The online GroupWisdom® Concept Mapping (2021) platform has the capability to display from 15 to 1 - cluster map solutions. "The number of clusters for a map can range from 2 to N-1, where N is the total number of statements and is decided based on a combination of statistical analysis, expert judgement, and participant feedback" (Visek et al., 2014, p. 5).

> At each cluster level, rather than looking at the entire cluster arrangement, we focus only on the two clusters being merged. Most likely, at a higher number of clusters, we tend to agree with the mergers. As we move down the tree, we are likely to see merges that don't make sense because they combine areas that are perceived to have utility if kept distinct (Kane & Trochim, 2007, p. 103).

The hierarchical analysis upon completion is used to generate a cluster map solution. The cluster map is a visual representation of the "statements on the map as they were placed by multidimensional scaling; that is statements that were placed in the same cluster would be in contiguous areas of the map" (2007, p. 99) implying that the statements are conceptually similar.

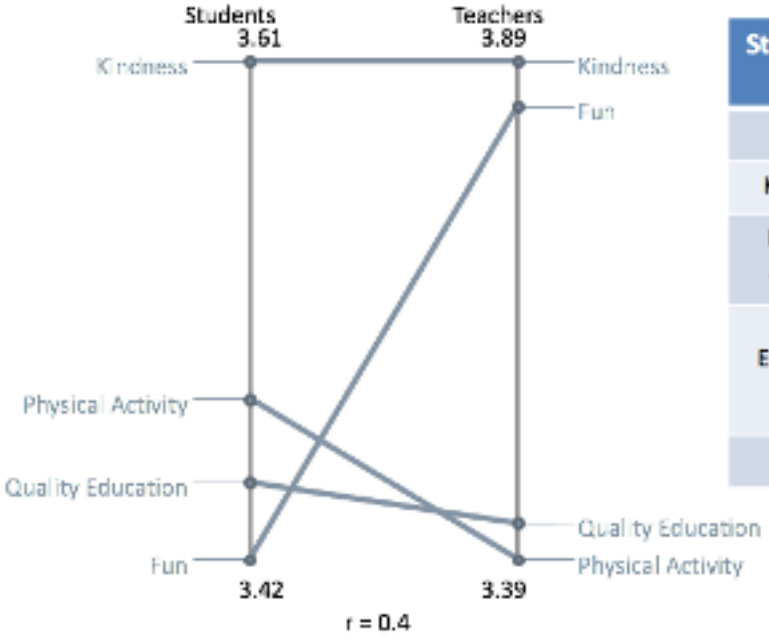
Appendix X

Pattern Match Correlations

Pattern match comparisons are made using the Pearson product-moment correlation, *r* value (Cooper, 2008; Kane & Trochim, 2007). The quantitative value indicates the strength of the relationship between two variables. Pearson's *r* value can provide quantitative evidence of an existing relationship, the strength of the relationship, and the direction of the relationship (Cooper, 2008; Hair, 2011). A coefficient of zero indicates the absence of a relationship (Cooper, 2008; Hair, 2011). The strength of a relationship and its direction are implied by a numerical coefficient between -1 and +1. A + implies a direct relationship (as one increases, the other increases; likewise, as one decreases, so too does the other). A – implies an inverse relationship (one increases, the other decreases). Direct or indirect signs (+ or -) provide the direction of the relationship. The strength of the relationship is suggested by the numerical value of *r*. The higher a positive number or the lower a negative number, the stronger the relationship between the two variables. The *r* value for Figure 19 is 0.69 implying that this pattern match between students' ratings and teacher ratings has a strong direct relationship (Hair, 2011; Kane & Trochim, 2007).

Figure X1

Meaningful PE Students & Teachers Pattern Match for Importance



Student – Teacher Pattern Match for Importance		
	Students	Teachers
Kindness	3.61	3.89
Physical Activity	3.42	3.84
Quality Education	3.48	3.39
Fun	3.42	3.39

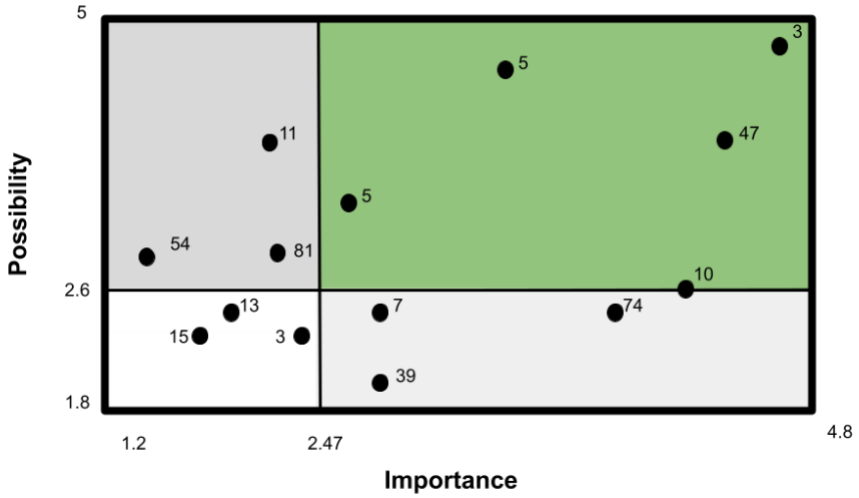
Appendix Y

Go-Zones

The go-zone is a graphical representation of a bivariate plot of the between ratings or variables (Kane & Trochim, 2007; Trochim, Milstein, Wood, Jackson & Pressler, 2004). The horizontal line (Y-axis) describes the average possibility values in the cluster. The vertical line (X-axis) describes the average importance values in the cluster. Figure Y1 is a sample go-zone display.

Figure Y1

Sample Go-Zone Display



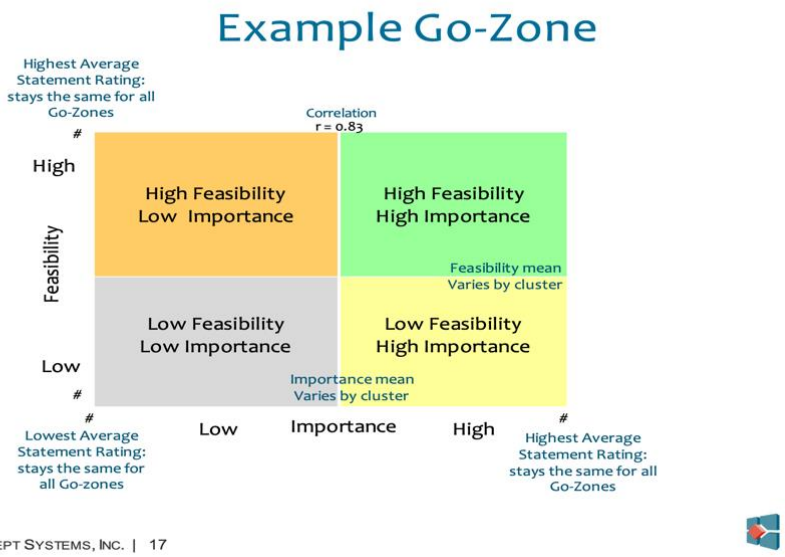
In this example, statement numbers 3 and 47 both have high possibility and high importance ratings. Therefore, these would be the most actionable items. The green quadrant is aptly named, the go-zone. Statement numbers 15, 13, and 3, in the bottom left quadrant, were rated low for possibility and low for importance. These items would be of low priority for implementation and utilisation. The top left quadrant contains statements that have a higher possibility, but lower importance. These are less likely to be used in implementation. The bottom

right quadrant presents possible challenges with implementation. For example, statement 10 was rated high for importance, but low for possibility. During the presentation and analysis of the go-zones, these quadrants will guide implementation discussions and action plans.

When presenting the go-zone to your participants it may be helpful to share with them the categories of each go-zone quadrant (Figure Y2). The right-hand side of the bivariate table will assist in focusing on the high priority ideas and identifying possible challenges (Kane & Trochim, 2007).

Figure Y2

Go-Zone Quadrant Categories



(Concept System Inc., 2020)

Appendix Z

Rating Data Summary

Statement #	Description	Importance	Frequency	Possibility
1	being treated with respect	3.85	3.59	3.78
44	following COVID-19 safety precautions	3.85	3.45	3.8
7	working hard	3.8	3.76	4
26	having fun	3.79	3.76	3.85
10	equality	3.78	3.66	3.81
11	being active	3.78	3.69	3.96
17	exercising	3.78	3.79	3.96
20	paying attention to the instructions	3.75	3.28	3.92
35	improving my skills	3.73	3.76	3.79
38	playing sports	3.73	3.76	3.85
18	including everyone in the activities	3.72	3.48	3.78
19	being treated with kindness	3.72	3.61	3.82
33	safety	3.72	3.72	3.78
29	demonstrating sports-personship	3.7	3.48	3.81
42	trying my hardest (demonstrating effort)	3.69	3.55	3.89
8	getting along with others	3.64	3.55	3.78
13	focusing on the activity	3.64	3.34	3.89
30	showing support for my classmates	3.63	3.41	3.81
32	being happy in class	3.63	3.59	3.61
14	being taught by quality teachers	3.62	4	3.85
5	everyone demonstrating teamwork	3.6	3.34	3.62
39	group participation	3.59	3.54	3.78
40	doing activities that I love	3.55	3.24	3.63
31	having the proper equipment	3.54	3.66	3.74
34	having my thoughts and opinions heard	3.51	3.38	3.52
24	learning	3.47	3.55	3.85
15	being challenged	3.46	3.38	3.81
9	being with friends	3.45	3.69	3.56
21	practicing leadership	3.45	3.38	3.86
25	participating in a variety of activities	3.44	3.61	3.89
22	practicing strategies & tactics	3.41	3.38	3.74
28	demonstrating athleticism	3.41	3.62	3.89
23	working with others	3.4	3.62	3.81
6	trying new activities	3.38	3.62	3.78

27	making positive memories	3.38	3.38	3.41
4	being with peers	3.28	3.79	3.71
41	competition	3.26	3.45	3.7
2	laughing with my classmates & teachers	3.25	3.41	3.56
43	getting to know people	3.21	3.31	3.68
37	making new friends	3.18	3.11	3.59
36	being competitive	3.15	3.62	3.81
12	being outdoors	3.1	3.24	3.52
3	winning	2.85	3.45	3.48
16	using technology in class	2.25	2.62	3.07