Ho et al., *Cogent Education* (2017), 4: 1408945
https://doi.org/10.1080/2331186X.2017.1408945

cogent education

EDUCATIONAL ASSESSMENT & EVALUATION | REVIEW ARTICLE

Professionals' perception of quality physical education learning in selected Asian cities

Walter King Yan Ho[1]*, Md. Dilsad Ahmed[1], Nyit Chin Keh[2], Selina Khoo[3], Cheehian Tan[4], Mitra Rouhi Dehkordi[5], Mila Gallardo[6], Kicheon Lee[7], Yasuo Yamaguchi[8], Jian Wang[9], Min Liu[1] and Fan Huang[1]

Received: 18 June 2017
Accepted: 20 November 2017
First Published: 24 November 2017

*Corresponding author: Walter King Yan Ho, Faculty of Education, University of Macau, Room 2020, E33, Av. da Universidade, Taipa, Macau, China
E-mail: walterdilsad@gmail.com

Reviewing editor:
Sammy King Fai Hui, The Education University of Hong Kong, Hong Kong

Additional information is available at the end of the article

Abstract: Numerous studies have been published heralding the benefits of physical education in school education. Sport and physical activities form the major content in learning and the arrangement serves as the major source of development in students. This paper identifies "quality" as an internationally concerned issue and within the concept, the perceptual framework in learning is then placed with focus. To conduct this study, a sample of *N* = 799 *(11 Asian cities)* physical education professionals working in different levels were invited to participate in a questionnaire survey with 37 items designed to forge the conceptualization of quality learning in physical education. Results from statistical analysis showed 24 items grouped in 3 subfactors being retained after EFA, of 37 items that were framed through content analysis to assess the quality physical education learning among the PE professionals. The retained three factors from the EFA were further assessed with robust confirmatory factor analysis (CFA). The 3-factor model demonstrated a good fit with the data (CMIN/DF = 7.367, NFI = .888, CFI = .901, PCFI = .748, RMSEA = .089). In this sample, the QPEL demonstrated an acceptable three-factor structure, internal consistency and inter-factor correlation. These items were appropriate to provide the necessary understanding of the diversified practice in the learning of quality physical education.

Walter King Yan Ho

ABOUT THE AUTHORS

The authors are group of professionals in physical education who have similar interests to promote the development of teaching in physical education in Asia. Thanks for the kind help of ISCPES, TAFISA and Pan-Asian Society of Sport and Physical Education, the group of professional were able to come and contribute in this research work. This is part of the works of the study of Quality Physical Education (QPE). There will have few more papers written under the topic of QPE in the shortcoming time.

PUBLIC INTEREST STATEMENT

There are strong desires to develop Quality Physical Education (QPE) in schools. The urge probably relates to the current concern on the increase in physical inactivity and obesity rate in students. Many surveys were conducted in the last 15 years and these studies illustrated the differences between countries on QPE development in curriculum, teaching, assessment and time for lessons. Although this information enriches our understanding in QPE, it tells little about what to do in teaching the subject. This paper focused on elements that were essential to the study of learning in physical education in Asia. 799 physical education professional from 11 Asian cities were invited to participate in a questionnaires survey. The study helped to identify three important dimensions to the study of learning in physical education. These dimensions related to areas of Cognitive Growth, Sport Proficiency, Health Learning and Habit in Exercises, and develop problem solving techniques.

cogent oa

© 2017 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

Subjects: Physical Education; Primary Physical Education; Sport Education

Keywords: cognitive growth; generic proficiency; exploratory and confirmatory factor analysis

1. Introduction

Learning has been a prominent issue within the physical education research for some time. In the past few decades, "learning" has become a refrain in discussions about physical education (Nyberg & Larsson, 2014). Achieving quality learning in physical education requires a careful selection in the development of curriculum, pedagogy and assessment in education however, the meaning of this development relies on a cultural, social and institutional interpretation of these terms in schools (Penney, Brooker, Hay, & Gillespie, 2009). Thus, when the "what-aspect" is discussed in physical education, it is sometimes vague as different society may have different interpretation. This understanding motivates the current research works in the study of what should be considered as important knowledge and what the students were actually supposed to learn from the different activities. Some worldwide organizations such as United Nation Education, Scientific and Cultural Organization (UNESCO), International Council for Sports Science and Physical Education (ICSSPE), International Society for Comparative Physical Education and Sports (ISCPES), and National Association for Physical Education and Sport (NASPE) are interested in this debate and the provision of recommendations from these organizations standardize the present debate of the teaching and learning works in physical education.

NASPE, for example, mentioned about the importance of curriculum, instruction and assessment and a High Quality Physical Education Programme is characterized with ample of time in learning. 150 min of instructional time per week for elementary schools students and 225 min per week for students in middle and secondary schools are the suggested times and physical education class size should be consistent with that of other subject areas under a qualified physical education specialist who will provide a developmentally appropriate programme (NASPE, 2004). If standards are the gauge for quality, teachers need to have the professional knowledge and flexibility to observe the difference in a particular school in terms of the extent to which students can achieve the standards. International Council of Sport Science and Physical Education (ISCPES, 2010) introduced a position statement that defines the needs of highly qualified physical education teacher as the centre of change. Effective teachers provide a critical link to student achievement and success, so ensuring that teachers are of the highest quality has become a national priority to establish quality leaning in physical education. Research has made clear that certified physical education specialists can provide more and longer opportunities for students to meet physical activity guidelines compared with classroom teachers trained to teach physical education (McKenzie et al., 2001). Moreover, when teachers are taught strategies to encourage vigorous- or moderate-intensity physical activity in physical education class, a significant increase in physical activity can be expected and could make the professional development successful as well as what success might mean in terms of teachers' instructional practices and feelings about change (Lonsdale et al., 2013; McCaughtry, Martin, Hodges Kulinna, & Cothran, 2006). Research has established that both students and teachers rate "fun" at or near the top of their lists of goals for physical education (Dismore & Bailey, 2011). In addition, fun is considered one of the most important reasons that children are involved in physical activity, and a lack of fun is one of the critical reasons why children and adolescents stop participating in physical activities (Barr-Anderson et al., 2008; Gråstén, Jaakkola, Liukkonen, Watt, & Yli-Piipari, 2012). A majority of the research proved that participation in an activity with fun and enjoyment brings benefits that include enhancing learning and improving skills, being with friends, experiencing success and winning, and improving fitness and health (Allender, Cowburn, & Foster, 2006; Biddle & Armstrong, 1992; Biddle, Whitehead, O'Donovan, & Nevill, 2005; Van der Horst, Paw, Twisk, & Van Mechelen, 2007). As enjoyment is recognized as a key factor for motivated behaviour and sustained involvement in youth sport (Scanlan, Carpenter, Lobel, & Simons, 1993). Again, conversely, the research conducted by the Office for the Minister of Children and Youth Affairs (2007) showed that a lack of enjoyment was the main reason given for dropping out of sports and recreation. Therefore, fun is a

critical factor that must be better understood for better learning if we are to understand children's initial and continued engagement in physical activity. Problematic to a better understanding of fun is the disagreement on how to define slow learning and lack of motivation for participation in physical activities (Griffin, Chandler, & Sariscsany, 1993). Risto, Heimo, and Maurice (2005) investigated the relationship between lifestyle and physical activity among 12- and 15-year-old boys and girls in Belgium and Finland. The data came from an extensive comparative study, "Sporting Lifestyle, Motor Performance and Olympic Ideals of European Youth". The results showed that there were significant differences in physical activity between the lifestyle groups and that high physical activity was related to more than one lifestyle group. Those who were only interested in computer games and TV-watching were the most inactive, although many computer game players were also physically active. Perceived physical competence and task orientation were positively related to a physically active lifestyle. It was concluded that if the aim of physical education is to enhance an active lifestyle, then a variety of characteristics should be considered in teaching.

Again, in a study conducted by Nyberg and Larsson (2014) where they were trying to show a need for explicating of "what" to be learn in physical education with a particular focus on learning to move, they discussed the "bodily knowing" from the perspective of practical epistemology. As an initial overview of the research suggested, there is an imminent need to systematically develop a language for learning in physical education. This language should include where and what to learn, and where this "what" should not be restricted to superficial knowledge about health issues or physical skills. Furthermore, they explored the "knowing how" aspect of learning, which will highlight potential "knowing" in human movement. Following the concept "knowing", as in line with Ryle's "knowing how", the mental and physical skills serve as an analytical tool and starting point for articulating examples of "knowing" as objects of learning and thus providing opportunities to conceptualize human movement in terms of knowing and learning (Nyberg & Larsson, 2014).

Some policies have contributed to the substantial reduction in the opportunities for school-age children to be physically active, such as by shortening or eliminating physical education classes. These reductions can be attributed to budget cuts and increased pressure for schools to meet academic standards imposed by the federal government. Morgan and Bourke (2008) classify barriers that hinder schools from implementing quality physical education programmes as either institutional (outside the teacher's control) or teacher related (arising from teacher behaviour). Dwyer et al. (2003) examined Toronto teachers' perspectives on why children were not engaged in daily physical education. They identified three categories of barriers: lower priority for physical education relative to other subjects, lack of performance measures for physical activity and lack of sufficient infrastructure. Finally, Gallo, Sheehy, Patton, and Griffin (2006) found that the greatest process barriers to assessing students in physical education were grading students on skill levels and abilities, time constraints, class size, and record keeping, particularly when assessing students on skills, cognitive knowledge and fitness. It has been argued that, while reversing the obesity epidemic is not solely the responsibility of schools, the trend is unlikely to change without schools' assistance (Siedentop, 2009). Mahar (2011) states that children's physical activity levels are directly related to the opportunities they have to be active. Bernstein, Morabia, and Sloutskis (1999) describe sedentarism in terms of energy expenditure, while Ricciardi (2005) defines it in terms of what it is not, that is, not engaging in physical activity. Schools have the potential to influence the physical activity behaviours of their students through various opportunities in addition to physical education (e.g. recess periods, classroom physical activity breaks, active transport to and from school. Two key barriers to physical education identified in the studies summarized above are staffing and funding (NASPE, 2004).

Hence, a comprehensive physical education curriculum is utmost important to explore the quality issue in physical education as learning contains more information than just a "physical education curriculum". This issue came out as a crucial point of discussion among the sports pedagogy area. A number of physical education lessons were observed in schools in the high income Asian countries with the aim of exploring what constitutes important knowledge in physical education and the processes of teaching and learning that occur in the subject. In this present decade, in most Asian

countries (Japan, Malaysia, Singapore, South Korea, including Special Administrative Regions (SAR) such as Hong Kong, Macau, etc.), it has been recognized that physical education has been given great importance and has become an integral subject from early classes onward, but its status regarding quality learning remains questionable. Worldwide organizations in sports pedagogy are continuously endorsing and providing recommendations to bring about uniformity in the discipline. The purpose of this article is to share with the reader some of the basic understanding upon which the definition of the Quality Physical Education Learning is constructed. Although there may be many elements that can help to define the Quality Physical Education Learning, the authors of this article believe that all of the elements would fall under one of three main fundamental categories. These categories are (1) Cognitive Growth, (2) Sport Proficiency, Health Learning and Habit in Exercises and (3) Generic Proficiency.

2. Method

2.1. Participant

A scale was developed as a strategy for data collection. Physical education teachers and universities faculty were invited to participate in the study. A sample of 799 *(Male = 500 and Female = 299)* professionals from 11 Asian cities participated in this study (see Tables 1 and 2).

The project was supported by funding from the University of Macau, and a survey was conducted in 2013. After ethical approval was granted by University of Macau (first author's institution), the Principal Investigator (PI) discussed the methodology and purposes of the study with their co-authors and colleagues. The co-authors proposed the research to their own university and received permission from all other universities/schools/institutions in their city to collect data from the identified professionals. The data collection included information sheets for participants, a consent form and questionnaires. The PI phoned and emailed all possible contacts in Asia to invite them to participate. The PI also discussed the project in detail with professionals during conferences prior to data collection. Participants were asked to return the questionnaires directly to the researchers within four weeks by either using the envelopes provided by the research team or personally giving them to the researcher in their own city.

Table 1. Number of participants in the QPE survey in Asia in respect of their country (city), age and professional status

No.		Cities	Primary school physical education teachers	Secondary school physical education teachers	Teachers in universities	Total
1.	Macau	Macau SAR	18	18	24	60
2.	Taiwan	Taipei	16	66	17	99
3.	China	Changsha	7	25	58	90
4.	China	Chengdu	24	21	40	85
5.	India	Amravati	20	26	37	83
6.	Iran	Teheran	20	20	40	80
7.	Israel	Tel Aviv	4	3	10	17
8.	Japan	Kobe	27	20	40	87
9.	South Korea	Seoul	15	20	39	74
10.	Malaysia	Kuala Lumpur	17	20	46	83
11.	Philippines	Mawari	7	7	27	41
	Total		175	246	378	799

Table 2. Gender-based descriptive information of participants in respect of their ages and professional status

	Professional status	Mean	SD	*N*
Male, *N* = 500	Primary school PE teacher	41.59	9.66	105
	Secondary school PE teacher	43.21	8.69	145
	University teachers	40.71	10.25	250
	Total	41.62	9.74	500
Female, *N* = 299	Primary school PE teacher	41.28	8.23	50
	Secondary school PE teacher	42.85	9.79	104
	University teachers	41.77	9.96	145
	Total	42.07	9.62	299

2.2. Item generation and instrument development

An instrument, the Professional Perceptions Toward Quality Physical Education (PPTQPE), was developed for this study based on the reviewed literature of Song and Chen (2012), Keating and Silverman (2004), Subramaniam and Silverman (2007) and Arar and Rigbi (2009) and verified using a content validity procedure suggested by Lynn (1986). Existing instruments were not considered because they tend to have been constructed within a particular cultural environment and setting, which could create idiosyncratic problems due to the formulation of items related to that particular culture (Poortinga, 1989). This instrument contained different parts in investigation. The first part focused on the perception of Quality Physical Education. The second part investigated the perception of Quality Physical Education Learning.

Items in the present study were descriptive statements (Ex., *Demonstrate the basic understanding of the importance of physical activities and health*). Panel members reviewed the existing literature and then referred to the scenario of their own country before the construction of these items in the present study. For example, items such as "Basic motor skills within the context of appropriate physical activities of low organization", "Demonstrate the basic understanding of the importance of physical activities and health", "Master fundamental movements and perform sequences of skills with creativity and imagination", "Demonstrate a habit of regular exercises" and "Teach students how important activity is to the process of growth" were identified as relevant content to reflect the essential criteria for the study of Quality Physical Education Learning. Furthermore, to develop the scale, the research group used references from the Quality Physical Education Guidelines (NASPE, 2004), the UNESCO (2005) report on Quality Physical Education, the ICSSPE (2010) International Position Statement on Physical Education and the preliminary works of ICSP (2010) on the development of International Benchmarks for Physical Education Systems. The content validity of the scale (PPQPEL) in this study was established to ascertain whether all important aspects were covered and identified and to exclude items undesirable to a particular construct domain (Straub, Boudreau, & Gefen, 2004). Lynn's (1986) two-stage process for content validity was adopted. The two-stage process included a developmental and judgement stage.

2.2.1. The developmental stage

The first stage focused on defining Quality Physical Education Learning (QPEL), generating content domains in each component and developing an item pool for each domain. Two methods were employed to generate content domains and relevant items. The first method required pooling relevant items from previous studies on the topic and then generating new items. The second method began by gathering items and domains from target respondents. The advantage of employing both methods to generate content domains and the items in each domain is that it ensures that all relevant items and possible content domains are considered at the beginning of the instrument development (Keating & Silverman, 2004). Because the items were descriptive statements, the authors reviewed the items in the literature extensively and then related them to the context of their own country.

This process resulted in the initial subscales proposed, i.e. Cognitive Growth *(CG),* Sport Proficiency, Health Learning and Habit in Exercises *(SPHLHE),* and Generic Proficiency *(GP)*. Items from the literature reviews were then generated to enable the assessment of each of the three content domains.

The authors identified 37 items regarding QPEL. The items generated were also examined in terms of their clarity and readability. Thirty-seven items were agreed upon by the researchers, and the items recommended by the authors represented content validity. As a secondary process, six student volunteers *(who were familiar with the concept of quality physical education in school settings)* from the university of Macau were asked to ascertain whether the items generated by the authors in each statement were sufficiently clear and relevant to describe QPEL, to verify whether important aspects or domains had been omitted, or whether a statement should be excluded from the existing items. The six students included one PhD student, two final-year master's students, two sophomores and one freshman. Three of them studied physical education, and three were in the field of QPEL. According to their recommendations, one statement was added, two were revised and one was omitted. Hence, 37 items were kept.

2.2.2. The judgement stage

The judgement stage focused on item validity and domain validity. Three external experts (physical education professors other than the authors) from other universities and the six aforementioned student participants were invited to participate in this judging process. The three professionals were invited to determine face validity and to indicate whether the scale provided an appropriate description regarding the study purpose and content area. The team also evaluated the scale in terms of feasibility, readability, consistency of style, formatting, the clarity of the language used and domain validity. The adoption of these procedures was introduced by Haladyna (1999), Trochim (2001) and DeVon et al. (2007). A quantitative sorting process was conducted to examine whether the statements fit with the instrument in assessing QPEL and whether the statements were in line with the three corresponding dimensions. Participants were asked to indicate on a 3-point scale – with 1 = *No*, 2 = *Maybe* and 3 = *Yes* – whether the statement should be included and second, how confident they were about the inclusion of an item (i.e. *1 = Not very sure*, 2 = *Sure* and *3 = Very sure*). A minimum of two of the three judges had to agree that a statement belonged to the instrument (where 3 = *yes*), and the mean confidence score had to be greater than 2.0 (where 2 > *sure*). The judges were also asked to associate each of the 37 items with one of the four factors and to indicate how confident they were that their selection was related to the particular content domain.

The rating scales and criteria for domain validity were the same as the item validity criteria. As a result, two items were revised, and one of the items was moved to a different content domain. Hence, 37 items were kept in the instrument and classified into the seven original factors. The six student volunteers were then invited to verify item validity and domain validity based on the experts' classification. The same procedures and regulations were adopted. As a result, no modifications were required for any item.

The QPEL scale comprised two sections. The first section had 37 items regarding QPEL, and participants were asked to indicate how strongly they agreed with each statement related to quality physical education in schools in their respective Asian country. They were asked to respond on a six-point positively packed agreement-rating scale. This response scale included two negative and four positive agreement responses with identical scores (i.e. strongly disagree = 1, mostly disagree = 2, slightly disagree = 3, moderately agree = 4, mostly agree = 5 and strongly agree = 6). Positively packed rating scales are known to generate discrimination in the context of social desirability (Brown, 2004; DeVellis, 2003; Lam & Klockars, 1982; Song & Chen, 2012). The second section comprised the personal demographic information of the participants.

Furthermore, Confirmatory Factor Analysis (CFA) using AMOS 21.00 (IBM) was conducted to examine the retained four-factor structure from exploratory factor analysis. The overall model fit was evaluated using multiple goodness-of-fit indexes including the Chi-square value, Comparative Fit

Index (CFI), Bentler-Bonett Normed Fit Index (NFI), *Parsimony comparative fit index* (PCFI), the Root Mean Square Error of Approximation (RMSEA) accompanied by its 90% confidence interval (90% CI). Although much debate surrounds the selection of precise thresholds of fit, particularly relevant within the field of theory-based multi-item/factor CFA testing (Markland, 2007; Marsh, Hau, & Wen, 2004), it is commonly accepted that thresholds of > .90, close to (or less than) .08 (Bentler, 1995) and up to .08 (Bollen, 1989; Browne & Cudeck, 1993) for the CFI and RMSEA are indicative of acceptable model fit.

2.3. Data analysis

The response rate of the participants was very high (98.98%) with only a small portion of the participants' responses having missing data (1.02%). This procedure followed the description suggested by Dempster and Laird (1977) on missing values at 5%. The data were verified and deemed acceptable for further analysis.

Both statistical and empirical techniques were used to select the items. A total of 37 items were subjected to descriptive and frequency analysis. Using SPSS 20, the research team examined the data quality in terms of its frequency distribution and item discrimination. Exploratory factor analysis (EFA) with maximum likelihood extraction and direct oblimin rotation was adopted to examine the structure of Quality Physical Education Learning and to define a set of factors that accounted for the common variance among items. These items were then evaluated by their loading on each factor.

The second phase of analysis was conducted to confirm the different subscales and the structure of the 37 items. Reliability analysis (Cronbach's alpha) was performed to examine the contribution of each item to its respective factor. When items were deemed to be statistically equivalent, the authors were asked to determine which items to retain and place under appropriate categories to reflect their close conceptual meaning. Table 3 presents the 37 questions with the mean and standard deviation scores of each item.

2.4. Preliminary analysis

The major concern of the present study was to identify and explore a possible framework for the study of Quality Physical Education Learning and subsequently to determine a structure for its analysis. To achieve the primary purpose of the study, i.e. to define a set of factors that would account for quality physical education, a number of extraction and rotation methods were conducted through Exploratory Factor Analysis, however finally the results of a maximum likelihood extraction with direct oblimin rotation methods were used to run the analyses. To determine the number of factors, several criteria, including the differences between adjacent eigenvalues, a scree plot (see Figure 1) and differences in the percentage of variance accounted for, were used. The purpose was to account for the adjacent factors and more importantly, to take into consideration the factor structure. A solution with three factors (subscales) was presented. Factor one was called "Cognitive Growth *(CG)*", factor 2 was called "Sport Proficiency, Health Learning and Habit in Exercises *(SPHLHE)*", and factor 3 was called "Generic Proficiency *(GP)*". These factors had eigenvalues of 12.758, 2.998 and 1.048, respectively, explaining 65.925% of the variance.

It seems that the Asian professionals perceived the core values (such as Cognitive Growth (CG)) as most important in the development of Quality Physical Education Learning because this factor had the highest mean followed by Sport Proficiency, Health Learning and Habit in Exercises (SPHLHE). They perceived Generic Proficiency (GP) being the lowest factor.

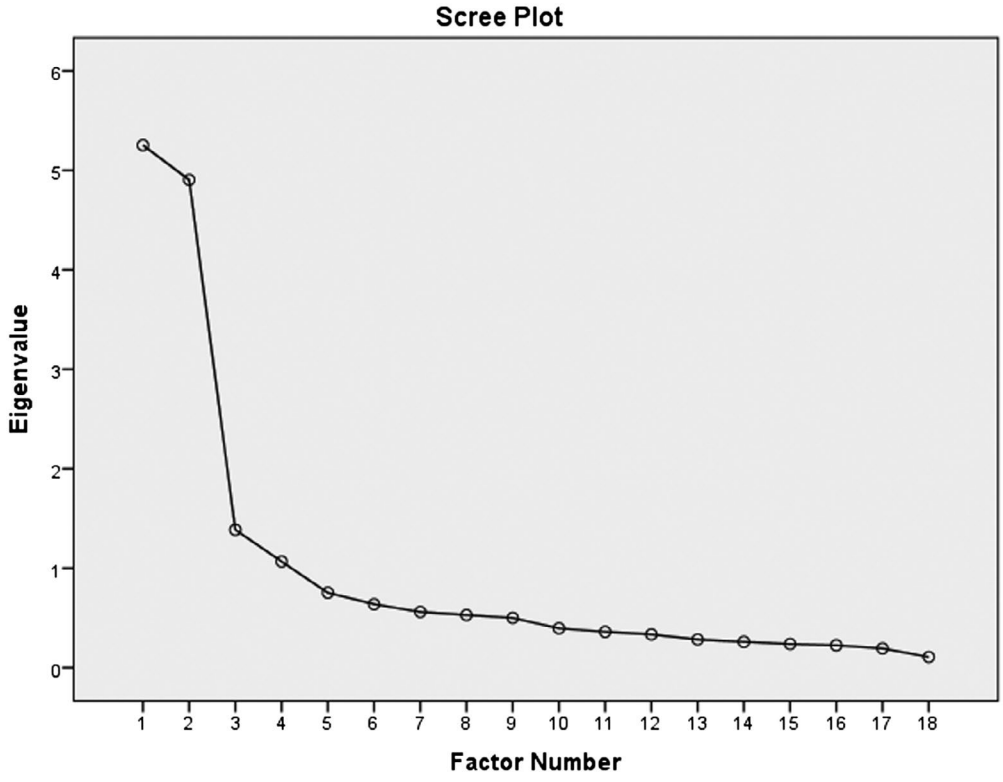
The internal consistency (Cronbach's alpha coefficient) for the three subscales was calculated. Based on the item statistics, eight items from the first factor, eleven items from the second factor and five items from the third factor were selected and retained due to their good internal consistency (Table 3). Of the 37 items, 13 with low factor loading were excluded from the analysis. Thus, the original set of 37 items was reduced to 24 items, which are listed in Table 3 for reference.

Table 3. Descriptive statistics and item-wise data descriptions

Sl. No.	Description of the items	Mean	SD	Skew.	Kurt.	h^2
Item 1	Basic motor skills within the context of appropriate physical activities of low organization	4.60	1.27	−.723	−.090	.577
Item 2	Master fundamental movements and perform sequences of skills with creativity and imagination	4.39	1.25	−.502	−.480	.670
Item 3	Demonstrate the basic understanding of the importance of physical activities and health	4.41	1.27	−.481	−.524	.652
Item 4	Communicate ideas, feelings effectively with others	4.33	1.21	−.365	−.527	.703
Item 5	Learn and develop basic skills of different physical and sport activities	4.67	1.16	−.771	.190	.745
Item 6	Develop appropriate health and fitness understanding that includes setting and achieving personal goals for healthy living	4.52	1.17	−.562	−.199	.744
Item 7	Demonstrate basic skills in decision-making, communication, etc.	4.37	1.21	−.461	−.388	.735
Item 8	Learn to respect others' rights and cooperate in teamwork	4.70	1.14	−.653	−.153	.651
Item 9	Understand basic movement concepts	4.63	1.13	−.722	.160	.695
Item 10	Develop basic competence/proficiency in selected physical activities	4.72	1.09	−.670	−.052	.677
Item 11	Develop necessary skills of participation in and out-of-school programmes available within the community and which have potential for lifelong involvement and participation	4.52	1.20	−.658	.053	.632
Item 12	Develop advanced proficiency in different physical and sport activities	4.59	1.19	−.779	.152	.681
Item 13	Demonstrate a habit of regular exercises	4.54	1.23	−.625	−.211	.795
Item 14	Demonstrate suitable decisions on actions for maintaining healthy living	4.53	1.19	−.629	−.123	.803
Item 15	Understand the relationship between physical and sport activities and personal and social development	4.49	1.20	−.477	−.400	.745
Item 16	Take up suitable responsibilities to serve sports clubs or other related activities in school or community	4.41	1.24	−.562	−.253	.645
Item 17	Help students to develop socially acceptable moral thinking and Conduct	4.49	1.18	−.598	−.083	.579
Item 18	Help students to develop their critical thinking skills	4.19	1.25	−.294	−.561	.631
Item 19	Enhance students' ability in problem-solving	4.29	1.21	−.363	−.547	.627
Item 20	Draw students' attention and curiosity in physical activities	4.52	1.15	−.502	−.367	.639
Item 21	Raise students' innovative thinking	4.17	1.27	−.254	−.640	.699
Item 22	Enhance students' self-confidence	4.63	1.14	−.548	−.356	.661
Item 23	Raise students' independent thoughts	4.36	1.17	−.412	−.315	.656
Item 24	Help students to develop a habit in attending sport activities after school and to use their spare time in sport wisely	4.47	1.20	−.574	−.238	.664
Item 25	Give students enough time to develop their fitness	4.17	1.28	−.411	−.440	.613
Item 26	Help students to develop health-related knowledge	4.38	1.21	−.435	−.511	.672
Item 27	Provide students with chances to enhance their creativity	4.15	1.24	−.312	−.445	.729
Item 28	Provide students with chances to develop their aesthetics understanding	4.08	1.28	−.245	−.621	.728
Item 29	Help students to understand how their bodies work	4.38	1.14	−.345	−.510	.637
Item 30	Enhance their physical skills	4.65	1.10	−.557	−.326	.659
Item 31	Enhance students' decision-making in choosing their future careers	3.97	1.30	−.202	−.630	.645
Item 32	Enhance students' knowledge in different activities	4.48	1.17	−.544	−.276	.681
Item 33	Provide students with chances in taking part in different physical Activities	4.58	1.16	−.600	−.349	.716
Item 34	Enhance students' knowledge of sport-related terms	4.42	1.19	−.508	−.351	.653
Item 35	Help students to indicate their strength and weaknesses in the subject and to set goals for progression	4.27	1.14	−.299	−.382	.621
Item 36	Teach students how important activity is to the process of growth	4.54	1.16	−.664	.140	.643
Item 37	Give students chances to learn and interact with classmates	4.66	1.13	−.696	.010	.510

cogent education

Figure 1. Scree plot for factor analysis.



3. Underlying structure of the quality physical education and school sports programme (QPE)

The results of the factor analysis indicated that the 24 items listed in the final version of the scale demonstrated sound and good inter-correlation results, as evidenced by the high value (.960) of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) and Bartlett's test of sphericity, which was significant. MSA is an index used to quantify the degree of inter-correlation among items and the appropriateness of the factor analysis. A measure that calculated a value above .50 for either the entire matrix or an individual variable would indicate the appropriateness of acceptance (Field, 2000). The results of the factor analysis are presented in Tables 4 and 5.

As indicated in Table 3, all items with factor loadings higher than .50 were retained. When the pattern matrix *(factor and structure matrix were considered because of cross-loading)* was considered, it seemed that the three subscales were determined to retain and to reflect the conceptual framework. These three basic subscales were Cognitive Growth *(CG)*, Sport Proficiency, Health Learning and Habit in Exercises *(SPHLHE)* and Generic Proficiency *(GP)*.

The internal consistency reliability coefficients (α) for the three factors ranged from .919 to .937, with a mean of .73 (see Table 5).

The internal consistency reliability coefficients (Cronbach's alpha) for each subscale were computed. As Table 5 shows, Cronbach's alpha coefficient was .937 for the Cognitive Growth *(CG)* scale, .948 for Sport Proficiency, Health Learning and Habit in Exercises *(SPHLHE)*, and .919 for Generic Proficiency *(GP)*.

These values indicated that the items were consistent within each factor and the factors were consistent within the model to permit meaningful further analysis. The inter-correlations between the four major practices were moderate, ranging from −.532 to .551, with an average of −.713, which indicated that the concepts were relatively independent of each other.

The three factors related to quality physical education learning – Cognitive Growth *(CG)*, Sport Proficiency, Health Learning and Habit in Exercises *(SPHLHE)* and Generic Proficiency *(GP)* were strongly correlated.

Descriptive results regarding factor mean scores were calculated. In general, professionals reported the most positive attitudes towards Sport Proficiency, Health Learning and Habit in Exercises (*SPHLHE*; *M* = 49.37, SD = 10.80), and Cognitive Growth (CG; *M* = 36.25, SD = 7.72). The lowest mean was observed in "Generic Proficiency" (GP; albeit still positive, *M* = 21.53; SD = 5.36; see Table 1, Figure 2).

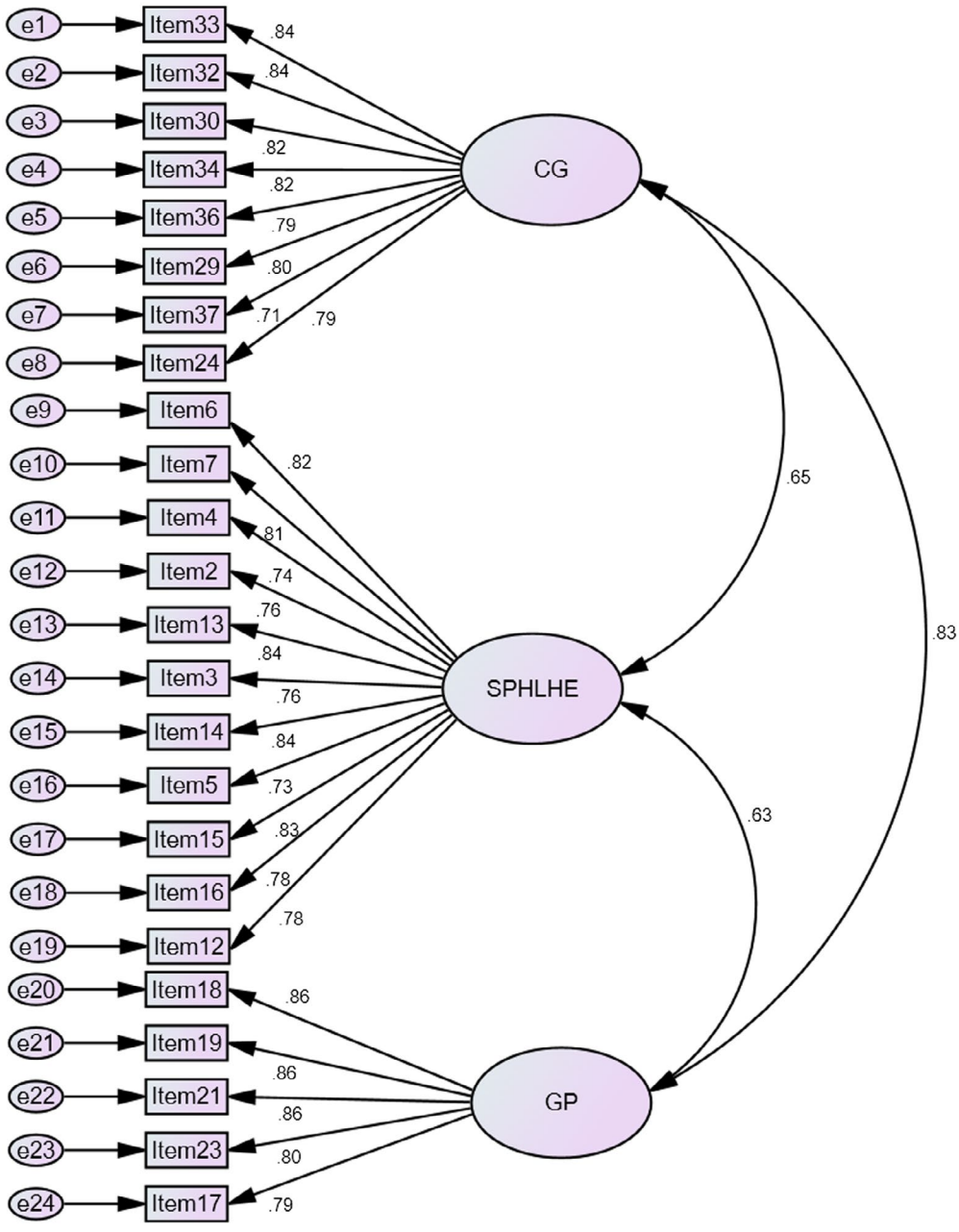


Figure 2. Measurement model for QPE.

Table 4. Factor loadings based on pattern matrix and communalities (*h*2) of the 24 items retained after exploratory factor analysis

Sl. No.	Description of the items	1	2	3	h^2
	Cognitive Growth (CG)	Factor			
Item 33	Provide students with chances in taking part in different physical Activities	.826			.925
Item 32	Enhance students' knowledge in different activities	.824			.925
Item 30	Enhance their physical skills	.821			.926
Item 34	Enhance students' knowledge of sport-related terms	.815			.926
Item 36	Teach students how important activity is to the process of growth	.620			.928
Item 29	Help students to understand how their bodies works	.605			.929
Item 37	Give students chances to learn and interact with classmates	.600			.934
Item 24	Help students to develop a habit in attending sport activities after school and to use their spare time in sport wisely	.537			.931
	Sport Proficiency, Health Learning and Habit in Exercises (SPHLHE)				
Item 6	Develop appropriate health and fitness understanding that includes setting and achieving personal goals for healthy living		.861		.941
Item 7	Demonstrate basic skills in decision-making, communication, etc.		.851		.942
Item 4	Communicate ideas, feelings effectively with others		.781		.944
Item 2	Master fundamental movements and perform sequences of skills with creativity and imagination		.780		.944
Item 13	Demonstrate a habit of regular exercises		.774		.942
Item 3	Demonstrate the basic understanding of the importance of physical activities and health		.771		.944
Item 14	Demonstrate suitable decisions on actions for maintaining healthy living		.746		.942
Item 5	Learn and develop basic skills of different physical and sport activities		.739		.945
Item 15	Understand the relationship between physical and sport activities and personal and social development		.729		.942
Item 16	Take up suitable responsibilities to serve sports clubs or other related activities in school or community		.704		.944
Item 12	Develop advanced proficiency in different physical and sport activities		.681		.944
	Generic Proficiency (GP)				
Item 18	Help students to develop their critical thinking skills			−.851	.894
Item 19	Enhance students' ability in problem-solving			−.784	.894
Item 21	Raise students' innovative thinking			−.740	.895
Item 23	Raise students' independent thoughts			−.673	.908
Item 17	Help students to develop socially acceptable moral thinking and Conduct			−.645	.909

Notes: a. Rotation converged in nine iterations; Extraction Method: Maximum Likelihood; Rotation Method: Oblimin with Kaiser Normalization.

To check the retained factors' item loading, a measurement model was evaluated using multiple goodness-of-fit indexes including Chi-square value, CFI, NFI, PCFI, PNFI and RMSEA accompanied by its 90% confidence interval (90% CI). The results of the robust CFA using maximum likelihood estimation method (see Table 6) suggest that the four-factor model provided an adequate fit to the data.

Table 5. Internal consistency of the perception of quality physical education learning *(QPEL)*

Factor	1	2	3	α	Mean	Variance	SD	No. of items
Cognitive growth *(CG)*	1.000	.551	−.732	.937	36.25	59.63	7.72	8
Sport proficiency, health learning and habit in exercises *(SPHLHE)*		1.000	−.532	.948	49.37	116.76	10.80	11
Generic proficiency *(GP)*			1.000	.919	21.53	28.78	5.36	5

Note: 1- Cognitive Growth *(CG)*, 2- Sport Proficiency, Health Learning and Habit in Exercises *(SPHLHE)*, 3- Generic Proficiency *(GP)*; Extraction Method: Maximum Likelihood. Rotation Method: Oblimin with Kaiser Normalization.

Table 6. Model fit indices for the data collected using QPE

	Model H_0
N	799
X^2	1834.429
CMIN	1834.429
DF	249
CMIN/DF	7.367
CFI	.901
NFI	.888
PCFI	.748
PNFI	.737
RMSEA	.089

Notes: Legend: Model H_0 = the hypothesized model; *N* = sample size; CMIN = minimum discrepancy; DF = degrees of freedom; CFI = comparative fit index; NFI = normed fit index; RMSEA = root mean square error of approximation.

4. Discussion

The main purpose of the study was to know the perception of Quality Physical Education Learning among the professionals. In other words, it expects to study about the framework of learning under the concept of quality physical education in school by Asian physical education professionals. Interpretation of Statistical results retained 24 items after exploratory factor analysis, and the remaining 13 items were not included in further analysis because of low factor loading. The reason of the low factor loading on these items is not known. Nevertheless, the discussion expects to focus on issues that are supported in area of Cognitive Growth *(CG)*, Sport Proficiency, Health Learning and Habit in Exercises *(SPHLHE)* and Generic Proficiency *(GP)*.

Regarding the subfactors extracted by EFA, the first factor was named Cognitive Growth (CG). All the statements indicated in this factor earned a (Mean ± SD) of (36.25 ± 7.72) to indicate the perceptions of these statements or items as important aspects in determining Quality Physical Education Learning by the Asian physical education professionals. Additionally, the factor had high reliability (α = .937), which included the items, such as how physical education should provide students with chances in taking part in different physical activities, knowledge in different activities and sports-related terms, how important activity is to the process of growth and to understand how their bodies works, physical skills, chances to learn and interact with classmates and to develop a habit in attending sport activities after school and to use their spare time in sport wisely. From here, we could define Cognitive Growth (CG) as "the awareness about bodily movement a powerful medium for learning through which students can acquire, practice, and refine personal, interpersonal, behavioural, social & cognitive skills, self-efficacy and dispositions to advocate for, and positively influence, their own and others' wellbeing in creating a sustainable future". Nevertheless, the support of development of Cognitive Growth depends on the amount of time allocated in learning at formal and informal class setting. Recess then turned to be an important element in investigation. Evidences from the research of Ridgers, Stratton, and Fairclough (2006) claimed a decrease of 40% physical activity

during recess as compare to normal days. Recess, according to Pellegrini, Huberty, and Jones (1995), is the time of day set aside for students to take a break from their class work; engage in play with their peers; and take part in independent, unstructured activities. Recess is most common in elementary schools and is rare during the secondary years. While separate and distinct from physical education, recess is an essential component of the total educational experience for elementary-age children (Ramstetter, Murray, & Garner, 2010). In addition to providing children the opportunity to engage in physical activity, develop healthy bodies and develop an enjoyment of movement, it provides them with a forum in which they are able to practice life skills, including conflict resolution, problem-solving, communicating with language, cooperation, respect for rules, taking turns and sharing. Moreover, it serves as a developmentally appropriate outlet for reducing stress in children (National Association for the Education of Young Children, 1998). The American Academy of Pediatrics (AAP) recently released a policy statement in support of recess and free play as "fundamental component[s] of a child's normal growth and development" (Council on School Health, 2013, p. 188). The AAP (2013) further asserts that cognitive processing and academic performance depend on regular breaks from concentrated class work. Nevertheless, the AAP believes that recess is a complement to but not a replacement for physical education. Physical education is an academic discipline while recess can serve as a counterbalance to sedentary time and contribute to the recommended 60 min or more of vigorous or moderate-intensity physical activity per day, and peer interactions during recess are a unique complement to the classroom. The lifelong skills acquired for communication, negotiation, cooperation, sharing, problem-solving and coping are not only foundations for healthy development but also fundamental measures of the school experience.

The second factor was named Sport Proficiency, Health Learning and Habit in Exercises *(SPHLHE)* and included items such as develop appropriate health and fitness understanding for achieving personal goals for healthy living, basic skills in decision-making, communication, communicate ideas and feelings effectively with others, master fundamental movements and perform sequences of skills with creativity and imagination, habit of regular exercises, impart the importance of physical activities and health, establishing strong relationship among sport activities, health, & social development; decisions on actions for maintaining healthy living, basic skills of different physical and sport activities, responsibilities to serve sports clubs or other related activities in school or community, and develop advanced proficiency in different physical and sport activities. The factor received the highest score (Mean ± SD) of (49.37 ± 10.80) as well as high reliability ($\alpha = .948$). As these factors showed high reliability, it was expected to be seen by professionals that they were equally important to the establishment of quality physical education in schools. From all the extracted items, Sport Proficiency, Health Learning and Habit in Exercises *(SPHLHE)* could be best defined as "how sports and active participation in physical activity enhances a balanced lifestyle by creating and embedded a balanced health related environment whereby people could ameliorate their positive habits and skills". In conjunction with the same line of the proposed domain i.e. *(SPHLHE)*, Le Masurier and Corbin (2006) has identified 10 reasons in support of physical education, where in one of the points he mentioned that regular physical activity helps prevent disease, promotes lifetime wellness, prevents obesity, promotes lifelong physical fitness, caters unique opportunities to develop motor skills by doing various physical activities as well as to learn how to develop self-management among students. Physical education is meant to enhance an active lifestyle, so a variety of characteristics should be taken into account in teaching (Risto et al., 2005). Physical activity may prevent obesity, increase bone density and diminish cardiovascular risk at a young age, but in general, the evidence for the health-promoting effects of physical activity among children and adolescents is not strong (Ahmed et al., 2017; Ahmed, Ho, & Yong, 2016).

The results support the literature suggesting that quality PE should emphasize not in the production of health outcomes, but outcomes but that of establishing regular exercise habits that will persist throughout life (Ahmed et al., 2016; Riddoch, 1998). Therefore, that could be a reason why this factor has come out with high reliability among the professionals. Research supports the use of Sports, Play and Active Recreation for Kids (SPARK) as a platform for improving the quality of physical activity instruction in schools. The SPARK curriculum has demonstrated the ability to improve

student activity levels, increase the number of minutes of vigorous- or moderate-intensity physical activity for students, and provide sustainable and positive change in a school district (Myers-Schieffer & Thomas, 2012). In one study, researchers found that "the children were positive about this specific curriculum". This is gratifying because one of the goals of the programme was to engender positive feeling. The aim of SPARK, a research-based curriculum, is to improve the health, fitness and physical activity levels of youth by creating, implementing and evaluating programmes that promote lifelong wellness. Each SPARK programme "fosters environmental and behavioural change by providing a coordinated package of highly active curriculum, on-site teacher training, extensive follow-up support, and content-matched equipment focused on the development of healthy lifestyles, motor skills and movement knowledge, and social and personal skills" (SPARK, 2013).

The third factor was named Generic Proficiency *(GP)*. All the statements indicated in this factor earned a (Mean ± SD) (21.53 ± 5.36). The factor also had the high reliability (α = .919). High mean and high reliability indicated its utmost importance in the realm of quality physical education learning by professionals. The items which are included in the factor are how quality physical education earning could help students to develop their critical thinking skills and ability in problem-solving, innovative thinking and independent thoughts and to develop socially acceptable moral thinking and conduct. With the context of the extracted items, the factor Generic Proficiency *(GP)* is defined as how participation in quality physical education enhances logical interpretation for life activities, socialization and moral among children.

Various research studies have well supported and indicated how physical education results are promising to enhance the level of Generic Proficiency among children. Learning of quality physical education enhances cooperative learning among children and develops more socially acceptable behaviour in them. In general, education, researchers have found that cooperative learning can have positive effects on academic achievement, self-esteem, active learning, social skill development and equity achievement (Bailey et al., 2009) as the National Association for Sport and Physical Education (1995) established motor, cognitive and social goals for physical education programmes. Ennis (2000) presented Sport for Peace as a constructivist curriculum that could augment contemporary sport-based physical education: "The curriculum is socially interactive by design and emphasizes the interdependent role of the individuals within a cooperative environment or community" (Dyson, 2002). Physical education encourages individual as well as team development. It encompasses a broad range of human feelings, emotion and experiences. "Sport" is a collective noun and usually refers to a range of activities, processes, social relationships and its positive outcomes (Coalter, 2001). Analysis of the evidence from the research of Bailey et al. (2009) critically review that participation in physical education and sports activities, identified a distinctive role for acquisition and development of children's movement skills and physical competence. Further, unsurprisingly, persuasive evidence also support a significant impetus enhancing children's concentration and arousal, which might indirectly benefit academic performance. Succinctly, reported from various published studies have clearly asserted the contribution of physical education and sports skill leads us to question any simple equations of participation and beneficial outcomes for young people (Bailey et al., 2009). In another study, a SPARK intervention is credited with exposing students to an increase in motor skills drills, which in turn led to a higher level of manipulative motor skills acquisition (Bailey et al., 2009). Martin, McCaughtry, Hodges-Kulinna, and Cothran (2008) found that, following a variety of professional development experiences and follow-up sessions, teachers showed increases in their efficacy in attaining motor skills objectives, physical activity and fitness knowledge objectives, and personal and social objectives. In the above factor, therefore, "physical education and sport" is used as a generic term for the wide range of activities and specifically to the curriculum areas and associated educational outcomes.

In addition, the results from the CFA on the 24 QPE items revealed a desirable goodness-of-fit between the proposed 3-factor model and the data collected from this substantial sample of participants in diverse types of QPEL in the context of large cities in Asia. Furthermore, the high, unmediated effects of the latent variables on the observed variables indicated that the items are actually measuring what they have been assigned to measure. Hence, the results reported here suggest that

the hypothesized model in the current study fitted the data well, lending support to the initial validity of the QPEL. It can be claimed that the present results support the applicability of this scale as a measure of a wide range of Quality Physical Education Learning among professionals in the diversified context of learning in physical education.

5. Conclusion

The QPEL can be used as an instrument to help understand professionals' perception about the concept of quality learning in physical education as well as to determine its status in their countries and development of the profession. This study presented the properties that are associated with the validity and reliability of a scale measuring professionals' perceptions of quality physical education. It further identified the factors that regarded by professionals as important in the provision of quality learning in physical education in schools. It can be used as the basis for recommending types to the institution, government and concerned authorities. In addition, the QPEL would be suitable for research and applied work conducted in the study of learning in physical education. Cronbach's alpha coefficients indicated good internal consistency for the overall measure as well as the retained subfactors. It had a good fit with the data using the CFA approach on the 3-factor model. Nevertheless, the research team had the original assumption that all 37 items could be retained after EFA, but 13 items were excluded because of low factor loading. The reason for these low loadings is not clear and requires further discussion to locate the cause.

Funding
This work was supported by the research grant from University of Macau.

Author details
Walter King Yan Ho[1]
E-mail: walterdilsad@gmail.com
Md. Dilsad Ahmed[1]
E-mail: dilshadsportspsychology@gmail.com
Nyit Chin Keh[2]
E-mail: e08010@ntnu.edu.tw
Selina Khoo[3]
E-mail: selina@um.edu.my
Cheehian Tan[4]
E-mail: tanchee@salam.uitm.edu.my
Mitra Rouhi Dehkordi[5]
E-mail: mitrarouhi@gmail.com
Mila Gallardo[6]
E-mail: lmside@yahoo.com
Kicheon Lee[7]
E-mail: kclee@korea.ac.kr
Yasuo Yamaguchi[8]
E-mail: yauso@main.h.kobe-u.ac.jp
Jian Wang[9]
E-mail: jianwang2058@163.com
Min Liu[1]
E-mail: Tianwu1020@126.com
Fan Huang[1]
E-mail: hefu411@126.com
[1] Faculty of Education, University of Macau, Room 2020, E33, Av. da Universidade, Taipa, Macau, China.
[2] Department of Physical Education, National Taiwan Normal University, Taipei, Taiwan.
[3] Sports Center, University of Malaya, Kuala Lumpur, Malaysia.
[4] Faculty of Sports Science and Recreation, Universiti Teknologi, Kuala Lumpur, Malaysia.
[5] Anghiab Sport Complex, Farhangian University, Teheran, Iran.
[6] College of Sports, Physical Education and Recreation, Mindanao State University, Mawari, Philippines.
[7] Department of International Sports Studies, Korea University, Seoul, South Korea.
[8] Department of Human Behavior, Division of Sport Sciences, Kobe University, Kobe, Japan.
[9] Faculty of Physical Education, Tianjin University of Sport, Tianjin, China.

Citation information
Cite this article as: Professionals' perception of quality physical education learning in selected Asian cities, Walter King Yan Ho, Md. Dilsad Ahmed, Nyit Chin Keh, Selina Khoo, Cheehian Tan, Mitra Rouhi Dehkordi, Mila Gallardo, Kicheon Lee, Yasuo Yamaguchi, Jian Wang, Min Liu & Fan Huang, *Cogent Education* (2017), 4: 1408945.

References

AAP (American Academy of Pediatrics). (2013). The crucial role of recess in school. *Pediatrics, 131*(1), 183–188.
Ahmed, D. M., Ho, W. K. Y., Niekerk, R. L. V., Morris, T., Elayaraja, M., Lee, K.-C., & Randles, E. (2017). The self esteem goal orientation and health related physical fitness of active and inactive adolescent students. *Cogent Psychology, 4*, 1331602.
Ahmed, D. M., Ho, W. K. Y., & Yong, L. J. (2016). Adolescence age transition and impact of physical activity on the perception of success, self esteem and well being. *Journal of Physical Education and Sports, 124*, 776–784.
Allender, S., Cowburn, G., & Foster, C. (2006). Understanding participation in sport and physical activity among children and adults: A review of qualitative studies. *Health Education Research, 21*(6), 826–835. https//doi.org/10.1093/her/cyl063
Arar, K. H., & Rigbi, A. (2009). To participate or not to participate?—status and perception of physical education among Muslim Arab-Israeli secondary school pupils. *Sport, Education and Society, 14*(2), 183–202. https//doi.org/10.1080/13573320902809088
Bailey, R., Armour, K., Kirk, D., Jess, M., Pickup, I., Sandford, R., & BERA Physical Education and Sport Pedagogy Special Interest Group. (2009). The educational benefits claimed for physical education and school sport: An academic review. *Research Papers in Education, 24*(1), 1–27. https//doi.org/10.1080/02671520701809817
Barr-Anderson, J., Neumark-Sztainer, D., Schmitz, H. K., Ward, S. D., Terry, L., Conway, P. C., … Pate, R. R. (2008). But I like PE: Factors associated with enjoyment of physical education class in middle school girls Daheia. *Research Quarterly for Exercise and Sport, 79*(1), 18–27.

Bernstein, M. S., Morabia, A., & Sloutskis, D. (1999). Definition and prevalence of sedentarism in an urban population. *American Journal of Public Health, 89*(6), 862–867. https://doi.org/10.2105/AJPH.89.6.862

Bentler, P. M. (1995). *EQS structural equations program manual*. Encino, CA: Multivariate Software, Inc.

Biddle, S., & Armstrong, N. (1992). Children's physical activity: An exploratory study of psychological correlates. *Social Science & Medicine, 34*(3), 325–331. https://doi.org/10.1016/0277-9536(92)90274-T

Biddle, S. J., Whitehead, S. H., O'Donovan, T. M., & Nevill, M. E. (2005). Correlates of participation in physical activity for adolescent girls: A systematic review of recent literature. *Journal of Physical Activity and Health, 2*(4), 423–434. https://doi.org/10.1123/jpah.2.4.423

Bollen, K. A. (1989). *Structural equations with latent variables*. New York, NY: John Wiley & Sons Inc. https://doi.org/10.1002/9781118619179

Brown, G. T. L. (2004). Measuring attitude with positively packed self-report ratings: Comparison of agreement and frequency scales. *Psychological Reports, 94*, 1015–1024.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Beverly Hills, CA: Sage.

Coalter, F. (2001). *Realising the potential: The case for cultural services: Sport*. London: Local Government Association.

Council on School Health. (2013). The crucial role of recess in school. *Pediatrics, 131*(1), 183–188.

Dempster, A. P., & Laird, N. M. (1977). Maximum likelihood from incomplete data via the EM algorithm rubin. *Journal of the Royal Statistical Society. Series B (Methodological), 39*(1), 1–38.

DeVon, H. A., Block, M. E., Moyle-Wright, P., Ernst, D. M., Hayden, S. J., Lazzara, D. J., … Kostas-Polston, E. (2007). A psychometric toolbox for testing validity and reliability. *Journal of Nursing Scholarship, 39*(2), 155–164. https://doi.org/10.1111/jnu.2007.39.issue-2

DeVellis, R. F. (2003). *Scale development: Theory and applications*. Applied social research method series volume 26. Sage.

Dismore, H., & Bailey, R. (2011). Fun and enjoyment in physical education: Young people's attitudes'. *Research Papers in Education, 26*(4), 499–516. https://doi.org/10.1080/02671522.2010.484866

Dwyer, J. J., Allison, K. R., Barrera, M., Hansen, B., Goldenberg, E., & Boutilier, M. A. (2003). Teachers' perspective on barriers to implementing physical activity curriculum guidelines for school children in Toronto. *Canadian Journal of Public Health/Revue Canadienne de Sante'e Publique, 94*(6), 448–452.

Dyson, B. (2002). The implementation of cooperative learning in an elementary physical education program. *Journal of Teaching in Physical Education, 22*(1), 69–85. https://doi.org/10.1123/jtpe.22.1.69

Ennis, C. D. (2000). Canaries in the coal mine: Responding to disengaged students using theme-based curricula. *Quest, 52*(2), 119–130. https://doi.org/10.1080/00336297.2000.10491705

Field, A. (2000). *Discovering statistics using SPSS for windows*. London: Sage Publications.

Gallo, A. M., Sheehy, D. A., Patton, K., & Griffin, L. (2006). Assessment benefits and barriers: What are you committed to? *Journal of Physical Education, Recreation & Dance, 77*(8), 46–50. https://doi.org/10.1080/07303084.2006.10597926

Gråstén, A., Jaakkola, T., Liukkonen, J., Watt, A., & Yli-Piipari, S. (2012). Prediction of enjoyment in school physical education. *Journal of Sports Science and Medicine, 11*(2), 260–269.

Griffin, L. L., Chandler, T. J., & Sariscsany, M. J. (1993). What does 'fun' mean in physical education? *Journal of Physical Education, Recreation, and Dance, 64*(7), 63–66. https://doi.org/10.1080/07303084.1993.10607353

Haladyna, T. M. (1999). *Developing and validating multiple-choice test items*. Mahwah, NJ: Lawrence Erlbaum Associates Inc.

ICSSPE International Council of Sport Science and Physical Education. (2010). Betting in sport, position statement developed by the International Council of Sport Science and Physical Education (ICSSPE). Retrieved from https://www.icsspe.org/sites/default/files/ICSSPE_Position_Paper_on_Betting_2010.pdf

Keating, X. D., & Silverman, S. (2004). Teachers' use of fitness tests in school-based physical education programs. *Measurement in Physical Education and Exercise Science, 8*(3), 145–165. https://doi.org/10.1207/s15327841mpee0803_2

Lam, T. C. M., & Klockars, A. J. (1982). The influence of labels and positions in rating scales. *Journal of Educational Measurement, 19*, 312–322.

Le Masurier, G., & Corbin, C. B. (2006). Top 10 reasons for quality physical education. *Journal of Physical Education, Recreation & Dance, 77*(6), 44–53. https://doi.org/10.1080/07303084.2006.10597894

Lonsdale, C., Rosenkranz, R. R., Peralta, L. R., Bennie, A., Fahey, P., & Lubans, D. R. (2013). A systematic review and meta-analysis of interventions designed to increase moderate-to-vigorous physical activity in school physical education lessons. *Preventive Medicine, 56*(2), 152–161. https://doi.org/10.1016/j.ypmed.2012.12.004

Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research, 35*, 382–385.

Mahar, M. T. (2011). Impact of short bouts of physical activity on attention-to-task in elementary school children. *Preventive Medicine, 52*, S60–S64. https://doi.org/10.1016/j.ypmed.2011.01.026

Markland, D. (2007). The golden rule is that there are no golden rules: A commentary on Paul Barrett's recommendations for reporting model fit in structural equation modelling. *Personality and Individual Differences, 42*, 851–858.

Marsh, H. W., Hau, K.-T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling: A Multidisciplinary Journal, 11*(3), 320–341. doi:10.1207/s15328007sem1103_2

Martin, J. J., McCaughtry, N., Hodges-Kulinna, P., & Cothran, D. (2008). The influences of professional development on teachers' self-efficacy toward educational change. *Physical Education and Sport Pedagogy, 13*(2), 171–190. https://doi.org/10.1080/17408980701345683

McCaughtry, N., Martin, J., Hodges Kulinna, P., & Cothran, D. (2006). What makes teacher professional development work? The influence of instructional resources on change in physical education. *Journal of In-Service Education, 32*(2), 221–235. https://doi.org/10.1080/13674580600650997

McKenzie, T. L., Stone, E. J., Feldman, H. A., Epping, J. N., Yang, M., Strikmiller, P. K., & Parcel, G. S. (2001). Effects of the CATCH physical education intervention: Teacher type and lesson location. *American Journal of Preventive Medicine, 21*(2), 101–109. https://doi.org/10.1016/S0749-3797(01)00335-X

Morgan, P., & Bourke, S. (2008). Non-specialist teachers' confidence to teach PE: The nature and influence of personal school experiences in PE. *Physical Education and Sport Pedagogy, 13*(1), 1–29. https://doi.org/10.1080/17408980701345550

Myers-Schieffer, T., & Thomas, K. T. (2012). Fifteen years of promise in school-based interventions: A meta-analysis. *Kinesiology Reviews, 1*, 155–169. https//doi.org/10.1123/krj.1.3.155

National Association for Physical Education and Sport. (2004). *Moving into the future: National standards for physical education* (2nd ed.). Reston, VA: Author.

National Association for the Education of Young Children. (1998). *The value of school recess and outdoor play*. Washington, DC: Author.

National Association of Sport and Physical Education. (1995). *Moving into the future: National Standards for Physical Education*. St. Louis: Mosby.

Nyberg, G., & Larsson, H. (2014). Exploring 'what'to learn in physical education. *Physical Education and Sport Pedagogy, 19*(2), 123–135. https//doi.org/10.1080/17408989.2012.726982

Office for the Minister of Children and Youth Affairs. (2007). *Teenspace: A national recreation policy for young people*. Dublin: Minister for Children and Youth Affairs.

Pellegrini, A. D., Huberty, P. D., & Jones, I. (1995). The effects of recess timing on children's playground and classroom behaviors. *American Educational Research Journal, 32*(4), 845–864. https//doi.org/10.3102/00028312032004845

Penney, D., Brooker, R., Hay, P., & Gillespie, L. (2009). Curriculum, pedagogy and assessment: Three message systems of schooling and dimensions of quality physical education. *Sport, Education and Society, 14*(4), 421–442. https//doi.org/10.1080/13573320903217125

Poortinga, Y. H. (1989). Equivalence of cross-cultural data: An overview of basic issues. *International Journal of Psychology, 24*, 737–756. doi:10.1080/00207598908247842

Ramstetter, C. L., Murray, R., & Garner, A. S. (2010). The crucial role of recess in schools. *Journal of School Health, 80*(11), 517–526. https//doi.org/10.1111/josh.2010.80.issue-11

Ricciardi, R. (2005, July). Sedentarism: A concept analysis. In *Nursing forum* (Vol. 40, No. 3, pp. 79–87). Blackwell Publishing Inc.

Riddoch, C. (1998). Relationship between Physical activity and health in young people. In S. Biddle, J. Sallis, & N. Cavill (Eds.), *Young and active? Young people and health-enhancing physical activity: Evidence and implications* (pp. 17–48). London: Health Education Authority.

Ridgers, N. D., Stratton, G., & Fairclough, S. J. (2006). Physical activity levels of children during school playtime. *Sports Medicine, 36*(4), 359–371. https//doi.org/10.2165/00007256-200636040-00005

Risto, T. R., Heimo, N. H., & Maurice, P. M. (2005). Physical activity among young people in the context of lifestyle. *European Physical Education Review, 11*(2), 115–137. doi:10.1177/1356336X05052892

Scanlan, T. K., Carpenter, P. J., Lobel, M., & Simons, J. P. (1993). Sources of enjoyment for youth sport athletes. *Pediatric Exercise Science, 5*(3), 275–285. https//doi.org/10.1123/pes.5.3.275

Siedentop, D. L. (2009). National plan for physical activity: Education sector. *Journal of Physical Activity and Health, 6*(Suppl 2), S168–S180. https//doi.org/10.1123/jpah.6.s2.s168

Song, L., & Chen, J. (2012). University students' conceptions of an excellent physical education teacher in China. *European Physical Education Review, 19*(1), 110–126.

SPARK (Sports, Play, and Active Recreation for Kids). (2013). What is SPARK? Retrieved March 14, 2013, from http://www.sparkpe.org/what-is-spark

Straub, D., Boudreau, M. C., & Gefen, D. (2004). Validation guidelines for IS positivist research. *Communications of the Association for Information Systems, 13*, 380–427.

Subramaniam, P. R., & Silverman, S. (2007). Middle school students' attitudes toward physical education. *Teaching and Teacher Education, 23*, 602–611. doi:10.1016/J.TATE.2007.02.003

Trochim, W. M. K. (2001). *The research methods knowledge base*. Cincinnati, OH: Atomic Dog.

UNESCO. (2005). *UNESCO seminar on quality of physical education and sport – Final report*. UN: UNESCO.

Van der Horst, K., Paw, M. J. C. A., Twisk, J. W., & Van Mechelen, W. (2007). A brief review on correlates of physical activity and sedentariness in youth. *Medicine & Science in Sports & Exercise, 39*(8), 1241. https//doi.org/10.1249/mss.0b013e318059bf35

cogent • oa

© 2017 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:
Share — copy and redistribute the material in any medium or format
Adapt — remix, transform, and build upon the material for any purpose, even commercially.
The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:
Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.
You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.