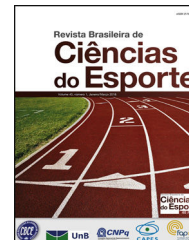




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## ORIGINAL ARTICLE

# Measuring the perception of quality physical education in Latin American professionals



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## KEYWORDS

Quality Physical Education;  
Perception and framework in physical education;  
Exploratory factor analysis;  
Core value of physical education;  
Maximum likelihood method

**Abstract** An unsteady plan for curriculum development and supportive issues in physical education (PE) has created confusion among professionals. The purpose of this research is to investigate the factors perceived as important in the development of quality physical education (QPE) by professionals in Latin American (LA) countries. A questionnaire consisting of 24 items based on QPE was responded by 468 professionals collected from 6 LA cities. An exploratory factor analysis (EFA) of the 24 items using ML extraction and direct oblimin rotation were applied, and the retained 17 items were clustered in a three factor solution referred to as, Development and Supportive Elements for QPE in School (DSFQPE) ( $\alpha = .935$ ), Core Value of QPEtabl (CVPE) ( $\alpha = .890$ ), and Curriculum Arrangement of Physical Activities (CAPA) ( $\alpha = .850$ ). The retained items indicated excellent properties and the basic framework as perceived by professionals from PE in LA countries as important in the investigation of QPE.

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**PALAVRAS-CHAVE**

Educação Física de Qualidade;  
Percepção e enquadramento em educação física;  
Análise fatorial exploratória;  
Valor fundamental da educação física;  
Método de máxima verossimilhança

**PALABRAS CLAVE**

Educación Física de calidad;  
Percepción y marco en la educación física;  
Análisis factorial exploratorio;  
Valor fundamental de la educación física;  
Método de máxima verosimilitud

**Medindo a percepção de profissionais latino-americanos sobre a qualidade da educação física**

**Resumo** Um plano instável para o desenvolvimento de currículos e questões de apoio na educação física (PE) criou confusão entre os profissionais. O objetivo desta pesquisa é investigar os fatores percebidos como importantes no desenvolvimento da educação física de qualidade (QPE) por profissionais de países da América Latina (AL). Um questionário composto por 24 itens com base no QPE foi respondido por 468 profissionais coletados em 6 cidades da América Latina. Uma análise fatorial exploratória dos 24 itens usando extração ML e rotação oblínar direta foram aplicados, e os 17 itens retidos foram agrupados em uma solução de três fatores denominada Elementos de Desenvolvimento e Suporte para QPE na Escola (DSFQPE) ( $\alpha = 0,935$ ), Valor essencial do QPE (CVPE) ( $\alpha = 0,890$ ) e Arranjo Curricular das Atividades Físicas (CAPA) ( $\alpha = 0,850$ ). Os itens retidos indicaram propriedades excelentes e o referencial básico percebido pelos profissionais de EF em países da América Latina como importante na investigação do PEQ. © 2018 Colégio Brasileiro de Ciências do Esporte. Publicado por Elsevier Editora Ltda. Este é um artigo Open Access sob uma licença CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

**Midiendo la percepción de profesionales latinoamericanos acerca de la Calidad de la Educación Física**

**Resumen** Un plan inestable para el desarrollo curricular y aspectos de apoyo para la educación física (EF) han creado confusión entre los profesionales. El propósito de esta investigación es investigar los factores percibidos como importantes en el desarrollo de la educación física de calidad (EFC) por profesionales en países de América Latina (AL). Un cuestionario que consta de 24 ítems basados en EFC fue respondido por 468 profesionales recolectados en 6 ciudades de LA. Se aplicó un Análisis factorial exploratorio de los 24 ítems que utilizan extracción ML y rotación oblicua directa, y los 17 ítems retenidos se agruparon en una solución de tres factores denominada Elementos de desarrollo y de apoyo para EFC en la escuela (EDAFC) ( $\alpha = 0,935$ ); Valor principal de EFC (CVPE) ( $\alpha = 0,890$ ) y Arreglo del plan de actividades físicas (CAPA) ( $\alpha = 0,850$ ). Los ítems retenidos indicaron excelentes propiedades y el marco básico es percibido por los profesionales de EF en los países de AL como importante en la investigación de EFC. © 2018 Colégio Brasileiro de Ciências do Esporte. Publicado por Elsevier Editora Ltda. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

**Introduction**

Quality physical education involves various developmental aspects in education, such as content knowledge in sport activities, curriculum, instruction and assessment, as well as the development of supportive factors, such as venues, training of professional personnel, opportunities for extended learning, policy for inclusion, gender balance and equality in education. The complexity in coordinating these aspects for quality reform programs in PE requires careful planning, understanding and experimental processes in schools. “How well?”, “what has been achieved?” and “what are the essential elements for quality works?” are questions that should be frequently considered. The desire to obtain these answers has motivated the search for quality improvement, which comprises the area of concerns. There is a common justification for the role of PE in the school curriculum based on its contribution to children’s health and fitness (Ahmed Dilsad et al., 2017); however, the extent to

which this rationale is accurate is arguable (Ahmed Dilsad et al., 2016, 2017) and has seldom been investigated. Nevertheless, in support of this statement, there appears to be some truth in the supposition because PE is commonly highlighted as a significant contributor to help young individuals achieve their daily engagement in physical activity (Ahmed Dilsad et al., 2017; López Sánchez et al., 2017). Therefore, many worldwide organizations, such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), World Health Organization (WHO), International Society for Sports Sciences and Physical Education (ICSSPE), and International Society for Comparative Physical Education and Sports (ISCPES) have developed recommendations regarding how to jointly solve this problem worldwide to ensure a common strategy could be upheld.

When these questions are posed to examine the developmental condition of PE in Latin American countries, the recent studies provide evidence with good legislative support to protect children’s rights to PE. In Venezuela, for

example, physical education is a compulsory academic subject in the national curriculum and is included in all levels of the Bolivarian education system (López et al., 2014). Physical education became an important subject in Brazil when the Ministry of Education published a document in late 1990s to encourage the development of physical education in schools as an appreciation of a body movement culture in different regions of the country (Guimaraes, 2009). In Cuba, the right of all citizens to have access to sport activities is clearly stated in the 1976 Cuban Constitution, which indicates that "Everyone has the right to PE, sports and recreation.

## Current research

In the evaluation of the work on curriculum, teaching and other associated educational elements, the development in Latin American countries reflected hesitance. For example, Hardman (2008) reported the comment from Venezuelan delegates that there was "national policy (but) the government did not take care of it; there were laws but they were not followed (p. 9)". He also commented on the implementation of the PE curriculum in Latin American countries, and although PE was "a compulsory subject", as a timetable allocation was included, it was not legally enforced; thus, the presentation of PE in schools was "generally minimal or low" (ICSSPE, 2015, p. 3, Bravo et al., 2016). Latin America countries indicated that the practice of PE was "without fixed rules" in the allocation of curriculum time for PE. The UNESCO (2013) report regarding the status of physical education in schools is presented in Table 1. The time allocated for PE substantially varies according to the country, with as much as 183 min per week in Cuba to as little as 75 min per week in Mexico. The overall arrangement for Latin American countries ranked behind Europe. The time allocated for PE in Latin American countries is comparable with Asian and African countries. However, European countries exhibit consistent time allocations for PE among all countries represented.

The World Wide Survey of School PE (UNESCO, 2013) reported 96% on the prescribed National PE Curricular in Latin America, which was the highest percentage in all continents investigated, with Europe at 94%, the Middle East at 93% and Asia at 90%. Nevertheless, there appears to be a lack of guidance within the Latin American countries to inform teachers regarding how schools may function in the best approach to achieve these goals. Opportunities for exercises were available; however, the cancelation rate for PE classes negates these initiatives. Latin American countries had the highest cancelation rate (52%) for PE lessons compared with countries in Europe (31%) and Asia (33%) (UNESCO, 2013).

Within this context, this research aims to determine how PE professionals in Latin America perceived the quality issues regarding PE, their knowledge and priority of essential elements in quality programs and their perceptions of the teaching, planning, decision making and preparation of professionals who are training as teachers in PE. The present paper focused on what and how to prioritize the process for improvements and recommendations to structure quality PE programs in Latin America.

## Methods

### Participants

A survey was conducted in 2013. After ethics approval was granted by the University of Macau (first author's institution), the Principal Investigator (PI) discussed the methodology and purposes of the study with co-authors and colleagues from Latin America. Thereafter, the co-authors proposed the research to their own university and receive permission from all other universities/schools/institutions in their city to collect data from the identified professionals. A scale was developed as a strategy for data collection. Physical education teachers and sport professionals from schools and universities were invited to participate in the study. The data collection included information sheets for participants, a consent form and the questionnaires. Four hundred sixty-eight participants completed the questionnaire. The details of the sample according to the city of origin are presented in Table 2.

### Item generation and content validity

An instrument, the Professional Perceptions Toward Quality Physical Education (PPTQPE), was developed for this study based on the reviewed literature of Arar and Rigbi (2009), Guan et al. (2005), Ho et al. (2017), Keating and Silverman (2004), Song and Chen (2012) and Subramaniam and Silverman (2007); it was verified using a content validity procedure as suggested by Lynn (1986). Existing instruments were not considered because they tend to be constructed within a specific cultural environment and setting, which may create idiosyncratic problems as a result of the formulation of items that relate to the specific culture (Poortinga, 1989). To develop the questionnaire, the research group used references as primary literature sources from the QPE Guidelines developed by the National Association for Sport and PE in 2004, the Technical Information on Quality Physical Education and Practical Works of PE in class from the NASPE (2004), the 2005 UNESCO report on QPE, the ICSSPE, 2010 International Position Statement on Physical Education and the preliminary works of the ICSP in 2010 on the development of International Benchmarks for PE Systems. The content validity of (PPTQPE) in this study was assessed to determine whether all important aspects were covered, identified or essential, as well as to exclude items undesirable to a particular construct domain (Straub et al., 2004). Lynn's (1986) two-stage process for content validity was adopted. The two-stage process included *developmental* and *judgment stages*.

*The developmental stage.* The first stage focused on defining PPTQPE, 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 requires pooling relevant items from previous studies on the topic and subsequently generating new items. The second method is initiated by gathering items and domains from target respondents. The advantage of employing both methods to generate content domains and items in each domain is that it ensures that all

**Table 1** Allocation of PE curriculum time in regions (mean minutes per week).

Latin America	Min per week	Europe	Min per week	Asia	Min per week	Africa	Min per week
Brazil	110	Luxembourg	142	China	105	Ethiopia	225
Chile	135	Andorra	165	Kazakhstan	115	South Africa	58
Colombia	120	Poland	156	Hong Kong	90	Gabon	150
Cuba	183	England	120	India	60	Guinea	100
Mexico	75	France	220	Japan	125	Lesotho	110
Venezuela	90	Germany	135	South Korea	120	Libya	125

Source: UNESCO-NWCPEA: World-wide Survey of School PE (2013).

**Table 2** Number of participants in the QPE survey.

Country	City	Primary school PE teacher	Secondary school PE teacher	Teacher in universities	Total
Brazil	Campinas	3	7	48	58
Brazil	Minas Gerais	14	18	57	89
Colombia	Bogotá & Pereira	11	4	56	71
Cuba	Havana	13	12	29	54
Mexico	Monterrey	18	20	42	80
Venezuela	Maracay	34	34	48	116

relevant items and possible content domains are considered at the initiation of instrument development (Ho et al., 2017; Keating and Silverman, 2004). The items comprised descriptive statements; thus, the authors extensively reviewed the items in the existing literature and subsequently related them to the context in their own country. This process resulted in the initial dimensions proposed, namely: the PE status, PE curriculum in schools, physical education teachers and their qualifications, infrastructure required for running PE, teaching in PE, benefits of PE, and current challenge for PE. Items from the literature reviews were subsequently generated to enable the assessment of each of the seven content domains, and 24 items regarding the (PPTQPE) were identified by the authors. The items generated were also assessed in terms of their clarity and readability.

*The judgment stage.* The three professionals were invited to determine the face validity and to indicate whether the questionnaire provided appropriate descriptions regarding the study purpose and content area. The team also assessed the questionnaire in terms of the feasibility, readability, consistency of style, formatting, clarity of the language used and domain validity. The adoption of these procedures was introduced by DeVon et al. (2007), Haladyna (1999) and Trochim (2001). A quantitative sorting-process was conducted to determine whether the statements fit the instrument in regards to the assessment of the PPTQPE school settings and whether the statements were consistent with the seven corresponding dimensions. They were asked to indicate whether the statement should be included using a 3-point scale with 1 = No, 2 = Maybe, and 3 = Yes, as well as how confident they were regarding the inclusion of an item (1 = Not Very Sure; 2 = Sure; and 3 = Very Sure). A minimum of two of the three judges were required to agree that a statement belonged to the instrument (where 3 = Yes), and the mean confidence score was required to be greater than 2.0 (where 2 > Sure) (Ho et al., 2017). The judges were also asked to associate each of the 24

items with one of the seven dimensions 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. Thus, 24 items were maintained in the instrument and classified into the seven original dimensions. The six volunteer students were subsequently invited to verify the item validity and domain validity based on the experts' classification (Ho et al., 2017). The same procedures and regulations were adopted. As a result, no modifications were required for the items.

It comprises two sections. In the first section, they were asked to indicate how strongly they agreed with each statement with regards to Quality Physical Education in schools in their respective Latin America country. They were asked to respond on a 6-point, positively packed, agreement rating scale. This response scale included two negative and four positive agreement responses with identical scores (e.g., Strongly Disagree = 1, Mostly Disagree = 2, Slightly Disagree = 3, Moderately Agree = 4, Mostly Agree = 5, and Strongly Agree = 6). Positively packed rating scales have been demonstrated to generate discrimination in the context of social desirability (Brown, 2004; DeVellis, 2003; Ho et al., 2017; Lam and Klockars, 1982; Song and Chen, 2012). The second section comprised the personal demographic information of the participants.

## Data analysis

In the complete data set, only .46% was missing cases, and 99.54% of the available data were subjected to statistical analysis. This procedure followed the description as suggested by Dempster et al. (1977) regarding 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. Twenty-four items were subjected to descriptive and frequency analyses. An Exploratory Factor Analysis (EFA) with Maximum Likelihood extraction and Direct Oblimin rotation was adopted to examine the structure. A reliability analysis (Cronbach's alpha) was performed to assess the contribution of each item to its respective factor. Table 3 presents the 24 questions with the mean and standard deviation scores of each item.

## Results

### Preliminary analysis

To determine the number of factors, several criteria, including the differences between the adjacent eigenvalues, scree plot and differences in the percentage of variance accounted for, were used. A solution with three factors

**Table 3** Descriptive statistics and item-wise descriptions of data.

Items no.	Items descriptions	Mean	SD
1	Physical Education is the most effective means of equipping children with the skills, attitudes, values, knowledge	5.36	1.01
2	Physical Education should be accessible to all children, whatever their ability/disability, sex, age, culture, race/ethnicity, religious, social or economic background.	5.81	.665
3	Physical education should be a compulsory subject in school for all children	5.79	.692
4	The school should have safe and suitable equipment for physical education lessons	5.81	.620
5	The school should have safe and suitable facilities for physical education lesson	5.81	.611
6	The School should have safe and suitable environment for physical education lessons	5.82	.583
7	The Teacher should be qualified to teach physical education	5.90	.482
8	Different types of physical activities and associated knowledge should form the content through which young people learn	5.67	.685
9	Health knowledge should be regarded as one of the major areas of learning	5.32	.958
10	Positive sport related attitudes and values should form a major focus in learning	5.64	.713
11	The teaching and learning of physical education should be fun and enjoyable	5.67	.731
12	Students should be given opportunities for active learning in physical education lesson	5.77	.623
13	Extension physical activity opportunities after-school or extra-curricular/co-curricular activities are essential components in helping students to extend their learning experiences in sport and physical activities	5.52	.898
14	Physical education is a compulsory subject in schools	4.62	1.48
15	All schools have safe and suitable equipment for physical education lessons	2.42	1.13
16	All schools have safe and suitable facilities for physical education lessons	2.38	1.08
17	All schools have safe and suitable environment for physical education lessons	2.52	1.15
18	All teachers are qualified to teach physical education	3.23	1.44
19	Different types of physical activities and associated knowledge form the major content in learning	3.94	1.39
20	Health knowledge is regarded as the major content in learning	3.30	1.46
21	Positive sport related attitudes and values are taught and form the major content in learning	4.05	1.46
22	The teaching and learning of physical education is fun and enjoyable	4.39	1.26
23	Students are given opportunities for active learning in physical education lessons	3.99	1.41
24	Extension physical activity opportunities, after-school or extra-curricular/co-curricular activities are available to all students to extend their learning experiences in sport and physical activities	3.20	1.49



(subscales) based on Maximum Likelihood extraction with Direct Oblimin rotation was presented. The factors were identified and referred to as "Development of Supportive Elements for Quality Physical Education in School (DSE-QPE)", "Curriculum Arrangement of Physical Activities (CAPA)", and "Core Value of Quality Physical Education (CVQPE)". These factors had Eigenvalues of 5.031, 4.328 and 1.533, respectively, which explained 57.610% of the variance in the data. The internal consistency (Cronbach's alpha coefficient) for the three subscales was calculated. Of the 24 items, seven items with low factor loadings were excluded from the analysis. Thus, the original set of 24 items was reduced to 17 items, which are listed in Table 3 for reference.

#### Underlying structure of the quality physical education and school sports program (QPES)

The identified 17 items demonstrated good inter-correlation results, as evidenced by the high value (.872) of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) and a significant Bartlett's test of sphericity. The MSA is an index used to quantify the degree of inter-correlation among items and the appropriateness of a factor analysis. A measure that calculates a value greater than .50 for the entire matrix or an individual variable indicates the appropriateness of acceptance (Field, 2000). The results of the factor analysis are presented in Tables 4 and 5. As indicated in Table 4, all items with factor loadings greater than .50 were retained. When the Pattern Matrix (*factor and structure matrix were considered because of cross-loading*) was considered, it appears that the three subscales were determined to retain and reflect the conceptual framework.

#### Internal consistency regarding the perception of quality physical education and sport

The internal consistency reliability coefficients ( $\alpha$ ) for the three factors ranged from .850 to .935 with an average mean of 2.44 (Table 5). As shown in Table 4, the Cronbach's alpha coefficients were .935 for the (DSEQPE) scale, .890 for the (CAPA) and .850 for the subscale of (CVQPE). These values indicate that the items were sufficiently consistent within each factor and the model permit meaningful further analysis. The inter-correlations between the three major practices were moderate and ranged from  $-.010$  to  $.475$ , with an average of  $-.010$ , which indicates that the concepts were relatively independent of each other. The two factors related to quality physical education, including the DSEQPE and the CVQPE, were strongly correlated ( $r = .475$ ). Descriptive results regarding the factor mean scores were calculated. In general, the professionals had overall positive perceptions.

#### Discussion of findings

The overarching aim of the study was to determine the perceptions of physical education and sport professionals in 6 Latin American cities regarding quality physical education in school settings. More specifically, the present study was conducted to investigate a framework of analysis for quality physical education and how it was perceived by

Latin American professionals. Statistical interpretation of the results indicated that of the 24 items, only 17 items were retained, and the remaining 7 items were excluded from further analysis because of low factor loadings.

Further down to the sub-factors extracted by the EFA, Ahmed Dilsad et al. (2016) stress two main goals of physical education: (1) prepare children and youth for a lifetime of physical activity and (2) engage them in physical activity during physical education. These goals represent the lifelong benefits of health-enhancing physical education that enable children and adolescents to become active adults throughout their lives. Therefore, the core value in the development of a quality program for physical education requires the need for students to realize the essence of real physical education and its related principles. The factor Curriculum Arrangement of Physical Activities (CAPA) was associated with the highest concern in this survey. The factor mean ( $M \pm SD$ ) was ( $5.76 \pm .652$ ). The factor also had high reliability ( $\alpha = .890$ ). A high mean and high reliability indicated its utmost importance in the realm of quality physical education by professionals. The factor was best described as "inevitable essentialities" in this observation for the significant role of curriculum arrangement in the development of learning motives, goal achievement and habit development in the participation of sport and physical activities. The items included content knowledge, learning quality, positive attitudes and values, opportunities for active learning and possibility of extension of learning experiences through after-school or extra-curricular/co-curricular activity participation. In conjunction with this finding, various studies have demonstrated the impact of physical activity and physical education on student attendance, participation and enthusiasm for academic subjects and motivation to learn, as well as reduced problems in discipline and other delinquent issues (Pellegrini et al., 1995; Strong et al., 2005). Le Masurier and Corbin (2006) identified 10 reasons in support of physical education, in which regular physical activity helps prevent disease, promotes lifetime wellness, combats obesity and promotes lifelong physical fitness. These 10 reasons were similar to the current items in which Quality Physical Education provided unique opportunities for activity, self-management and motor skill development. In the review of these factors of understanding, Latin American professionals in physical education have indicated the importance of these factors in development. Thus, the question arises as to whether government officers are working toward these requests with suitable strategies.

The second factor was referred to as the Core Value of Quality Physical Education (CVQPE) and included items with issues on safety and suitable environments for physical education, fun and enjoyment in learning, opportunities for active participation, suitable sport related content in learning, roles of physical education in schools and after school sport programs. The factor indicated a ( $Mean \pm SD$ ) of ( $3.70 \pm 1.49$ ), as well as a reliability of ( $\alpha = .890$ ). These factors exhibited suitable reliability; thus, it was expected to be demonstrated by professionals that they were also important to the establishment of quality physical education in schools. The "Core Values" may be best viewed as attributes for quality physical education. More specifically, these attributes comprise the prerequisites for the

**Table 4** Factor loadings based on the Pattern Matrix and communalities (h<sup>2</sup>) of the 24 items retained following the Exploratory Factor analysis.

Items no.	Descriptions of the factors and their items description	Descriptive statistics			Component		
		Mean	SD	1	2	3	h <sup>2</sup>
	<b>Development of Supportive Elements for Quality Physical Education in School (DSEQPE)</b>						
Item 16	All schools have safe and suitable facilities for physical education Lessons			<b>.942</b>			.869
Item 15	All schools have safe and suitable equipment for physical education lessons			<b>.891</b>			.801
Item 17	All schools have safe and suitable environment for physical education lessons			<b>.855</b>			.832
	<b>Curriculum Arrangement of Physical Activities (CAPA)</b>						
Item 7	The Teacher should be qualified to teach physical education				<b>.823</b>		.681
Item 12	Students should be given opportunities for active learning in physical education lesson				<b>.765</b>		.585
Item 6	The School should have safe and suitable environment for physical education lessons				<b>.753</b>		.576
Item 4	The school should have safe and suitable equipment for physical education lessons				<b>.752</b>		.593
Item 8	Different types of physical activities and associated knowledge should form the content through which young people learn				<b>.691</b>		.476
Item 2	Physical Education should be accessible to all children, whatever their ability/disability, sex, age, culture, race/ethnicity, religious, social or economic background.				<b>.643</b>		.413
Item 3	Physical education should be a compulsory subject in school for all children				<b>.637</b>		.417
Item 10	Positive sport related attitudes and values should form a major focus on learning				<b>.636</b>		.420
Item 11	The teaching and learning of physical education should be fun and enjoyable				<b>.620</b>		.395
	<b>Core Value of Quality Physical Education (CVQPE)</b>						
Item 21	Positive sport related attitudes and values are taught and form the major content in learning					<b>.807</b>	.607
Item 19	Different types of physical activities and associated knowledge form the major content in learning					<b>.772</b>	.585
Item 20	Health knowledge is regarded as the major content in learning					<b>.722</b>	.607
Item 23	Students are given opportunities for active learning in physical education lessons					<b>.678</b>	.471
Item 24	Extension physical activity opportunities, after-school or extra-curricular/co-curricular activities are available to all students to extend their learning experiences in sport and physical activities					<b>.575</b>	.465

Extraction method: maximum likelihood.

Rotation method: Oblimin with Kaiser normalization.

Rotation converged in 4 iterations.

In bold, items loading.

establishment of healthy physical education lessons. These attributes are substances that have relationships with opportunities, such as schools should have safe and suitable equipment, facilities, and a suitable environment. [Rink](#)

[et al.](#) indicated that in Schoolwide Physical Activity (2010): "The cornerstone of a comprehensive school effort to increase the physical activity levels of students is a good physical education program". As a school subject, physical

**Table 5** Factor correlation matrix.

Factor	DSEQPE	CAPA	CVQPE	Cronbach's $\alpha$	Mean	SD	No. of items
DSEQPE	1.000	-.050	.475	.935	2.44	1.12	3
CAPA		1.000	-.010	.890	5.76	.652	9
CVQPE			1.000	.850	3.70	1.49	5

DSEQPE: Development of Supportive Elements for Quality Physical Education in School; CAPA: Curriculum Arrangement of Physical Activities; CVQPE: Core Value of Quality Physical Education.

Extraction method: maximum likelihood.

Rotation method: Oblimin with Kaiser normalization.

education is focused on teaching school-aged children the science and methods of physically active, healthful living. It is an avenue for engaging in developmentally appropriate physical activities designed for children to develop their fitness, gross motor skills, and health (Ahmed Dilsad et al., 2016).

The final factor was referred to as the Development of Supportive Elements for Quality Physical Education in School (DSEQPE). The factor earned a (Mean  $\pm$  SD) of (2.44  $\pm$  1.12). To interpret this information, it is necessary to determine how the statements were asked. The statements asked whether all schools have suitable and safe facilities, equipment and environments for physical education. It appeared that the participants made an unenthusiastic response to indicate their disagreement. Furthermore, the factor had high reliability ( $\alpha = .935$ ) to indicate consistent perceptions among the professionals. Equipment and infrastructure building are essential and basic to physical education development. Poor facilities induce negative feelings and the development of incentive for quality improvements in physical education. This perception may lead to the adaption of the environment in a negative way and reduce the sensitivity toward courage for the quality improvement of physical education. Moreover, negative feelings should be avoided to provide positive incentives for physical education professionals to remain in the job with hope and prospects.

## Conclusion

Physical education is considered an important subject in the school curriculum, which aims to contribute to the development of children's physical competence and enhance their social, emotional, cognitive and affective skills (Bailey et al., 2009; Ennis, 2011). Nevertheless, research evidence in Latin America suggests that this criterion is somewhat ambitious and, as a consequence, is rarely achieved during regular physical education lessons (Fairclough, 2003; Ho et al., 2016). This observation likely relates to the narrowness of thought on the quality issue. The quality work of physical education should not be restricted to the thinking of educational factors in curriculum, teaching and assessment; rather, it must arrive with wider consideration of holistic planning from educational factors to supportive issues, policies for inclusion, gender and equality, opportunities for exercises after school hours and the provision of sufficient professionals with suitable knowledge to work in the field. These facts may be reflected in this study as important perspectives if quality issue was the goal of development in

the future. Overall, this study was conducted in only 6 Latin American cities, and many metropolitan cities, such as Sao Paulo, Caracas, Lima, and Mexico City, or islands, such as Jamaica and Haiti, were excluded. As a result of the limited sample size, the observations cannot be applied or generalized as common phenomena for quality physical education in Latin America. Nevertheless, this study highlights the concerns regarding and approaches to construct quality physical education in schools, as well as responses to improve the quality.

## Conflicts of interest

The authors declare no conflicts interest.

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