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Viciano Ramírez, Jesús; Blanco Vega, Humberto; Mayorga-Vega, Daniel  
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## Psychometric properties of the influences on planning decision-making in physical education questionnaire (CIPEF)

### Propiedades psicométricas del cuestionario de las influencias en la planificación de la toma de decisiones en educación física (CIPEF)

### As propriedades psicométricas do questionário de influências em decisões de planejamento em educação física (CIPEF)

Jesús Viciano Ramírez<sup>1\*</sup>, Humberto Blanco Vega<sup>2</sup> y Daniel Mayorga-Vega<sup>1</sup>

<sup>1</sup>Department of Physical Education and Sport, University of Granada, Spain, <sup>2</sup>Autonomous University of Chihuahua, Mexico

**Abstract:** Introduction. The present study analyzes the psychometric properties of the Influences on the Planning Decision-Making in Physical Education Questionnaire (CIPEF). Literature had contributed instruments for measuring beliefs and value orientations toward Physical Education, but there are no instruments that measure the influence of specific factors on teachers' decision-making when planning Physical Education. Method. The sample consisted of 335 Andalusian teachers (238 men and 97 women, average age = 29.85 ± 10.94 years). Exploratory and confirmatory analyses were conducted in order to analyze the factorial structure of the questionnaire. Results. The results showed the viability and adequacy of an eight-factor structure (curriculum standards, preservice training, physical environment, teaching experiences, physical activities experiences, socialization by other teachers, material and equipment, and level of preparation in the subject matters) with adequate fit indices of reliability and validity, and showing strong evidences of stability of the obtained factorial structure. Discussion. This instrument could be used in the analysis of teachers' planning decision-making, which has been studied mainly through qualitative approaches up till now. Further research is recommended in order to corroborate these findings.

**Keywords:** Instrumental study, validity, reliability, factor structure.

**Resumen:** Introducción. El presente estudio analiza las propiedades psicométricas del cuestionario de Influencias en la planificación de la Educación Física (CIPEF). En la literatura previa se han desarrollado instrumentos de medida de creencias y valores hacia la Educación Física, pero no existen instrumentos que midan la influencia de determinados factores en el momento en que planifican los profesores la Educación Física. Método. La muestra se compuso de 335 profesores andaluces (238 hombres y 97 mujeres, con una edad media de 29.85 ± 10.94 años). Se realizaron análisis factoriales exploratorio y confirmatorio para analizar la estructura factorial del cuestionario. Resultados. Los resultados mostraron la viabilidad y adecuación de una estructura con ocho factores (currículo nacional, formación

inicial, entorno físico del centro, experiencia docente, experiencias en actividad física, socialización del profesor, material e instalaciones, y nivel de preparación en los contenidos de Educación Física) con adecuados índices de ajuste de validez y fiabilidad, mostrando evidencias consistentes de la estructura factorial obtenida. Discusión. Se espera usar el cuestionario en grandes muestras que analicen la toma de decisiones del profesor de cuando planifica la Educación Física, que hasta ahora se había estudiado a través de casos e investigación cualitativa. Se recomiendan futuras investigaciones para constatar estos resultados.

**Palabras clave:** Estudio instrumental, validez, fiabilidad, estructura factorial.

**Resumo:** Introdução. O presente estudo analisa as propriedades psicométricas do questionário de Influências sobre a Tomada de Decisão no planejamento em Educação Física (CIPEF). A literatura contribuiu instrumentos para medir as crenças e orientações de valor em relação à Educação Física, mas não há instrumentos que medem a influência de fatores específicos sobre a tomada de decisão dos professores no planejamento da Educação Física. Método. A amostra foi composta de 335 professores da Andaluzia (238 homens e 97 mulheres, idade média = 29.85 ± 10.94 anos). Análises exploratórias e confirmatórias foram realizadas a fim de analisar a estrutura factorial do questionário. Resultados. Os resultados mostraram a viabilidade e adequação de uma estrutura de oito fatores (padrões curriculares, formação antes do serviço, ambiente físico, experiências de ensino, experiências nas atividades físicas, socialização por outros professores, materiais e equipamentos e nível de preparação nas matérias) com índices de confiabilidade e validade satisfatórios, e mostrando fortes evidências de estabilidade para a estrutura factorial obtida. Discussão. Este instrumento poderia ser utilizado na análise do planejamento de tomada de decisão dos professores, que tem sido estudado principalmente através de abordagens qualitativas até agora. Pesquisa adicional é recomendada a fim de corroborar essas descobertas.

**Palavras-chave:** Estudo do instrumento, prazo de validade, confiabilidade, estrutura factorial.

## Introduction

Education in a scholar setting is a continuous decisional process in which teachers try, through their decisions, to adapt

their teaching to the characteristics and necessities that each particular moment and educational setting requests of them. The context around Physical Education (PE) is very special, with physical movements in multiple conditions that depend on a big number of decisions and factors in order to deve-

Dirección para correspondencia [Correspondence address]: J. Viciano, Ph. D., Department of Physical Education, University of Granada, Ctra. Alfácar s/n, 18011, Granada (Spain). E-mail [jviciano@ugr.es](mailto:jviciano@ugr.es)

lop and perform them in a correct way. These decisions have been studied in PE since Housner and Griffey (1985) verified that planning and interactive decision-making were different between experienced teachers and novice teachers, and consequently the resulting PE was also different. Research in education suggests that teachers do in classroom what they are thinking prior in their decision-making process when planning (Clark & Yinger, 1987).

The cognitive mediational paradigm has studied, normally from a qualitative point of view, which those decisions are in particular cases, explaining several teachers' principles of procedure in their contexts (Timken & Mars, 2009). Although qualitative methodology lets us understand and solve particular and practical problems, it does not allow us to analyze large samples in order to know generalized teaching actuations regarding those decisions, nor to identify the factors that influence in this process according to teachers' characteristics or scholar settings. It is necessary to create a measurement instrument that identifies the level of influence of each factor that intervenes within teachers' planning decision-making process.

Up till now, the developed instruments in literature has been focused on teachers' values and beliefs (Ennis & Chen, 1993; Rimm-Kaufman, Storm, Sawyer, Pianta, & LaParo, 2006; Witches & Travers, 1999; Pratt, Collins, & Jarvis-Selinger 2001), which were taken as the conceptual background toward teachers' decisions in teaching PE (Pajares, 1992). However, three considerations need to be mentioned: (a) although these beliefs and value orientations could affect some teachers' decisions, they are also influenced by other factors that affect the decision-making process of the teachers when planning; (b) those value orientations are shaped by some factors that we need to know and how much influence each factor has in redirecting the values and beliefs; and (c)

the value orientations and beliefs have the limitation of not being directly related to actions or particular decisions, but they are personal conceptions that configure the personal background that could affect or not the future decisions and PE practices.

Due to all the above mentioned reasons, a valid measurement instrument that identifies the grade of influence of several factors during the teachers' decision-making when planning PE, that is, before making contact with the students in the classroom (e.g., the election and design of objectives in an annual planning in PE) is necessary. This instrument would suppose one more step in the progress to understanding the decision-making process in planning PE and will give us the opportunity to study wide samples of teachers in different stages of their professional lives (Behets, 2001).

Following the teacher career cycle model of Burke, Christensen, and Fessler (1984) that define that the professional teacher cycles are influenced by external factors, personal dimension, and the institutional environment; and following the PE planning model of Viciano (2002) that divide the factors of influence in planning in two dimensions (personal and contextual), the structural factors of the Planning Decision-Making in Physical Education Questionnaire (CIPEF, by its acronym in Spanish) were established. Both kinds of factors, personal and professional setting, could guide the knowledge, the decision-making process, and practice in teaching (Carl-gren, Handal, & Vaage, 1994). At the same time, the influence of those factors on planning decision-making in PE were verified in literature, creating a previous conceptual system in order to assure the significance of the factors selected, and to facilitate the design of the items of the CIPEF questionnaire. In total, as shown in Table 1 of theoretical constructs, nine factors were confirmed and taken into account.

**Table 1.** Theoretical constructs and research evidences with the influence on planning decision-making in Physical Education.

| Factor of influence                         | Research evidences   |
|---|--|
| Curriculum standards                        | Chen (2006); MacPhail, Tannehill, & Karp (2013); Polikoff (2013)                                     |
| Preservice training                         | Contreras, Ruiz, Zagalaz, & Romero (2002); Curtner-Smith (2007)                                      |
| Physical environment                        | Aljadeff-Abergel, Ayvazo, & Eldar (2012); Ehlers, Huberty, & Beseler (2013)                          |
| Teaching experiences                        | Kim & Housner (2010); Rimm-Kaufman, et al. (2006)  |
| Physical activity experiences               | Juliussen, Karlsson, & Gärling, (2005); Klauswitz (2005)   |
| Socialization by another teachers           | Templin & Shempp (1989); Silverman & Ennis (2003)  |
| Materials and equipment                     | Baumgarten & Pagnano-Richardson (2010); O'Hara, Reis, Esteves, Bras, & Branco (2011); Thomson (2009) |
| Educational Center                          | Ehlers, Huberty, & Beseler (2013); Heidorn & Erin (2012)   |
| Level of preparation in the subject matters | Bray-Clark & Bates (2003); Ennis & Chen (1993)   |

The aim of this study was to construct a valid instrument that measures the level of influence of particular factors on the planning decision-making in PE. This aim entails the consistency of a fitted model of CIPEF factors, the explanation of a wide range of variance, and a high validity construct after delivered in a varied teachers sample. The results expected after the application of this questionnaire are to deduce conclusions that improve the teacher training in universities, teacher training centers, and in every continuous training program that update the teacher's education. The syllabus of those programs, the contents that we need to focus on, and the intervention of teachers' educators could be improved with a better understanding of the planning decision-making of PE teachers.

## Method

### Participants

The total sample consisted of 335 PE teachers. The participants were 202 pre-service teachers who had realized an annual planning in PE (men = 154, women = 48, average age =  $20.53 \pm 1.70$  years) from three different groups of an Andalusian Faculty of Sport Sciences, and 133 inservice teachers (81 belonged to public centers, and 52 to private-public centers) with between one to 34 years of experience from 55 different schools of Granada, Córdoba, Sevilla, and Cádiz (men = 84, women = 49, average age =  $39.18 \pm 8.78$  years). All participants took part voluntarily, and were informed that the confidentiality was guaranteed. After explaining the aim of the study, an informed consent was obtained from all of the participants.

### Instrument

The methodological steps for the development of the instrument were based on Carretero-Dios and Pérez (2005). After reviewing the influential factors of decision-making in planning PE and once the theoretical framework of that influence was confirmed in literature (Table 1), the following steps were conducted:

*Initial version and expert evaluation.*—The first step consisted of the elaboration of the items depending on the factors that emerged from the theories and literature that the IDP-PE is based on. A total of 68 items were initially designed according to the factors identified theoretically as influential in planning PE (curriculum standards, preservice training, physical environment, teaching experiences, physical activity experiences, socialization by another teachers, material and equipment, and educational center, and level of preparation in the subject matters). Participants rated each item using a Likert scale ranging from 1 (totally disagree) to 6 (totally agree).

The first list of items was presented to a group of experts in order to identify usability problems and its appropriateness in their factor and in the questionnaire. Seven experts took part in this process, six of them were doctors in PE, and three of them were active teachers in PE. Each expert made a qualitative assessment of each item, providing arguments about its appropriateness or not depending on his own criteria and regarding the content validity, which served as subject of interest in the discussion session carried out between all of them. After this assessment process, 55 items were selected for the first version of the CIPEF questionnaire. These items stated the influence of several aspects of each factor on the PE planning that the respondent usually does [e.g., item 13 regarding the influence of the curriculum standards: "In my annual PE planning there is a great influence of the curriculum standards" (translated into English from the original Spanish version, see Table 3)].

*Application of a pilot sample.*—With the aim of verifying the items and instructions understanding, the usability of the scale, and the rest of the technical aspects of the questionnaire by the respondents, a pilot sample of 75 teachers was initially requested (50 preservice and 25 inservice teachers). Apart from the factors' items, a new item was included at the end of the questionnaire in order to obtain a punctuation that represents the qualitative level of the language understanding by respondents. The result of that item was of  $5.29 \pm 0.94$  in the scale (one to six), demonstrating a global good understanding of the CIPEF. According to the opinion of some of the teachers, two items that seemed to overlap were eliminated, and a final version of 53 items would be applied to the final sample.

### Procedure

The questionnaires were distributed and collected by two experienced researchers during the second semester of the 2012-13 academic course. The inservice teachers were contacted and informed in a first session in their educational center, and during a second session were urged to fulfill the questionnaire. The preservice teachers were contacted in each of their classes. The participants were read the instructions and then directed to complete the CIPEF with brief demographics and background information (e.g., age, gender, teacher experience, current physical activity, educational stage). The questionnaire was filled out in approximately 15 minutes and after that all data collected was put into the computer by the main investigator for the posterior analysis.

### Data Analyses

According to Thompson (2004), two stages in the psychometric analysis were made in order to obtain the better proper-

ties for the definition of CIPEF punctuations: (1) exploratory factor analysis (EFA), and (2) confirmatory factor analysis (CFA).

The first step of the psychometric properties analysis consisted of calculating the discrimination indices for each item. The majority of the 53 items were satisfactory, with discrimination coefficients ranging from .528 for item 1 to .304 for item 28. The items 14, 16, 18, 20, 21, 22, and 53 obtained a discrimination index below .30 (considered as the acceptance criterion), and consequently they were erased from the scale along the subsequent analysis.

An EFA, using the maximum likelihood method, was conducted for the remaining 46 items in order to determine the minimum number of common factors that satisfactorily reproduce the observed correlations between all of the items, according to the Kaiser-Guttman's criterion. In order to guarantee an adequate representation of the variables (items) and after a varimax rotation, only those whose communality (proportion of explained variance by the factor solution) were above .45 were conserved (Costello & Osborne, 2005). Then, the Cronbach's  $\alpha$  coefficient with the aim of estimate the internal consistency for each retained factor as a measurement of their reliability (Elosua & Zumbo, 2008) was used.

Subsequently, a CFA was conducted with AMOS 16 (Arbuckle, 2007) in order to verify the factor structure of the CIPEF obtained from the previous EFA. The maximum likelihood method was conducted (Thompson, 2004), that is, verifying not only the theoretical model adjustment, but

comparing the fit indices of several alternative models in order to select the better one.

In the fit model assessment the chi-squared test, the adjusted goodness of fit index (GFI), the root mean square residual (RMR), the root mean square error of approximation (RMSEA), and the expected cross validation index (ECVI) were used as absolute fit indices. The adjusted goodness of fit index (AGFI), the Tucker-Lewis index (TLI), the normed fit index (NFI) and the comparative fit index (CFI) were used as incremental fit indices. The parsimony normed fit index (PNFI), the parsimony goodness of fit index (PGFI), the chi-squared fit index divided by degrees of freedom (CMIN/DF), and the Akaike information criterion (AIC) were used as parsimony fit indices (Gelabert et al., 2011).

## Results

### Exploratory factor analysis

The significance of the Barlett's test (7788.869;  $p < .001$ ) and the KMO index of Kaiser-Mayer-Olkin (.811) showed an adequate correlation between the items and a good sample adaptation, respectively. After conducting a varimax rotation, a nine-factor structure (previous elimination of 10 items: 8, 15, 17, 19, 25, 26, 28, 50, 51, and 52 that were not explained enough by the factor solution) was detected. The total set of selected factors explained the 61.08% of the variance (Tables 2 and 3).

**Table 2.** Self-values and percentage of explained variance by the retained factors. Exploratory factor analysis.

| Factor                                      | Self-values | % of variance | % accumulated |
|---|-------------|---------------|---------------|
| Curriculum standards                        | 3.31        | 9.19          | 9.19          |
| Preservice training                         | 3.05        | 8.46          | 17.65         |
| Physical environment                        | 2.99        | 8.31          | 25.95         |
| Teaching experiences                        | 2.96        | 8.21          | 34.16         |
| Physical activity experiences               | 2.49        | 6.91          | 41.07         |
| Socialization by another teachers           | 2.31        | 6.40          | 47.48         |
| Material and equipment                      | 1.75        | 4.87          | 52.35         |
| Educational center                          | 1.62        | 4.50          | 56.84         |
| Level of preparation in the subject matters | 1.53        | 4.24          | 61.08         |

**Table 3.** Items (see appendix 1) grouped by factor and their alpha coefficients. Exploratory factor analysis.

| Item  | Factor loading | Item  | Factor loading |
|---|----------------|---|----------------|
| Factor 1: Curriculum standards ( $\alpha = .899$ )          |                | Factor 6: Socialization by another teachers ( $\alpha = .814$ )       |                |
| Item 13.  | .82            | Item 48.  | .76            |
| Item 10.  | .81            | Item 47.  | .73            |
| Item 11.  | .80            | Item 46.  | .64            |
| Item 12.  | .76            | Item 49.  | .61            |
| Item 9.   | .72            |   |                |
| Factor 2: Preservice training ( $\alpha = .879$ )           |                | Factor 7: Material and equipment ( $\alpha = .791$ )                  |                |
| Item 5.   | .82            | Item 43.  | .74            |
| Item 3.   | .72            | Item 44.  | .74            |
| Item 4.   | .71            | Item 45.  | .64            |
| Item 1.   | .69            |   |                |
| Item 2.   | .67            |   |                |
| Factor 3: Physical environment ( $\alpha = .865$ )          |                | Factor 8: Educational center ( $\alpha = .750$ )                      |                |
| Item 33.  | .79            | Item 24.  | .85            |
| Item 31.  | .78            | Item 23.  | .63            |
| Item 29.  | .76            | Item 27.  | .52            |
| Item 30.  | .71            |   |                |
| Item 32.  | .64            |   |                |
| Factor 4: Teaching experiences ( $\alpha = .863$ )          |                | Factor 9: Level of preparation in subject matters ( $\alpha = .851$ ) |                |
| Item 39.  | .79            | Item 6.   | .85            |
| Item 40.  | .75            | Item 7.   | .78            |
| Item 41.  | .75            |   |                |
| Item 42.  | .71            |   |                |
| Item 38.  | .69            |   |                |
| Factor 5: Physical activity experiences ( $\alpha = .848$ ) |                |   |                |
| Item 34.  | .83            |   |                |
| Item 35.  | .76            |   |                |
| Item 36.  | .73            |   |                |
| Item 37.  | .63            |   |                |

**Factor reliability (internal consistency)**

The factors that result in the EFA had alphas indices up to .75, which is considered adequate for these kinds of factors, particularly if the reduced number of items is considered (Table 3).

**Confirmatory factor analysis**

The factor solution that emerged from the EFA was confirmed by the CFA in order to obtain congeneric models, and at

the same time to verify the construct validity of the dimensions and variables studied.

As shown in Table 4, the CFA of 29 items grouped in eight factors denoted a good adjustment between the model and data ( $GFI = .857$ ;  $RMSEA = .061$ ) (Jöreskog & Sörbom, 1993). According to the incremental and parsimony fit indices (Tables 5 and 6) the proposed model was significantly superior to the independent and the nine factor models, and very similar to the saturated model.



**Table 4.** Absolute fit measurements for the generated models. Confirmatory factor analysis.

| Model                  | Fit indices |      |       |       |        |
|------------------------|-------------|------|-------|-------|--------|
|                        | $\chi^2$    | GFI  | RMR   | RMSEA | ECVI   |
| Independent (36 items) | 6619.082 *  | .345 | 0.292 | .169  | 20.033 |
| Saturated (36 items)   | 0           | 1    | 0     |       | 3.988  |
| 9 factors (36 items)   | 1345.291 *  | .819 | 0.140 | .062  | 4.513  |
| 9 factors (32 items)   | 1021.330 *  | .842 | 0.133 | .061  | 3.495  |
| 8 factors (29 items)   | 826.046 *   | .857 | 0.127 | .061  | 2.856  |

Note: \*  $p < .01$ ; ECVI = expected cross validation index; GFI = goodness of fit index; RMR = root mean square residual; RMSEA = root mean square error of approximation.

**Table 5.** Incremental fit measurements for the generated models. Confirmatory factor analysis.

| Model                  | Fit indices |      |      |      |
|------------------------|-------------|------|------|------|
|                        | AGFI        | TLI  | NFI  | CFI  |
| Independent (36 items) | .308        | 0    | 0    | 0    |
| Saturated (36 items)   |             |      | 1    | 1    |
| 9 factors (36 items)   | .794        | .863 | .797 | .873 |
| 9 factors (32 items)   | .842        | .880 | .819 | .890 |
| 8 factors (29 items)   | .832        | .895 | .840 | .904 |

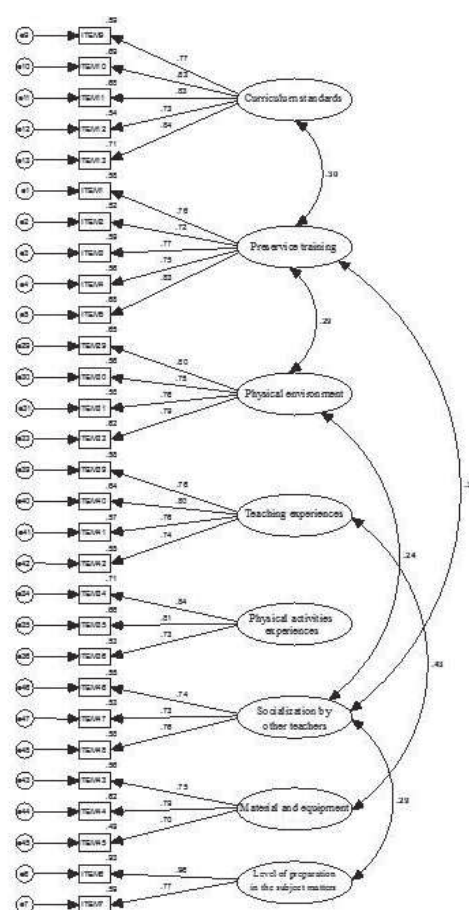
Note: AGFI = adjusted goodness of fit index; CFI = comparative fit index; NFI = normed fit index; TLI = Tucker-Lewis index.

**Table 6.** Parsimony fit measurements for the generated models. Confirmatory factor analysis.

| Model                  | Fit indices |      |         |          |
|------------------------|-------------|------|---------|----------|
|                        | PNFI        | PGFI | CMIN/DF | AIC      |
| Independent (36 items) | 0           | .327 | 10.506  | 1590.495 |
| Saturated (36 items)   | 0           |      |         | 182.000  |
| 9 factors (36 items)   | .740        | .720 | 2.300   | 1507.291 |
| 9 factors (32 items)   | .751        | .725 | 2.245   | 1167.330 |
| 8 factors (29 items)   | .767        | .731 | 2.227   | 954.046  |

Note: AIC = Akaike information criterion; CMIN/DF = chi-squared fit index divided by degrees of freedom; PGFI = parsimony goodness of fit index; PNFI = parsimony normed fit index.

Figure 1 shows the measurement model that emerged from the CFA, including the standardized regression coefficients between the items and factors, and the standardized factor saturations (communalities) of each item.

**Figure 1.** Illustrative model of factors of influence in planning Physical Education

All factors presented high-standardized factor saturations (above .50), except the item 45 that belonged to the material and equipment factor (.49).

The correlations between the preservice factor of influence and the curriculum standards, physical environment, and the socialization by other teachers were positives and statistically significant ( $p < .01$ ). The same occurred between the socialization by other teachers with the level of preparation in the subject matters and physical environment, and between the factor of influence of teaching experiences and material and equipment (Figure 1). These results show that the more augmented the perceived influence of some of these factors, the more the others augmented that were related to them.

## Discussion

The IDP-PE has demonstrated a viable and adequate factor structure of 29 items and eight factors, considering the established psychometrics requirements (of fit, reliability, and validity). The factors showed a good internal consistency, particularly if the reduced number of items in each one is consi-

dered, and in general, these findings suggest the existence of strong evidences of the structural reliability. Therefore, this instrument is valid to measure the influences experienced by teachers when planning the PE.

The identified factors that constitute the sub-scales of the questionnaire are the following:

Factor 1, called "Curriculum standards". This factor was composed of items regarding the influence of the national curriculum guidelines and recommendations in the teachers' decision-making process when planning PE. The alignment of teachers' instructions with national standards has been considered an important factor regarding planning and intervention by most authors in literature (Chen, 2006; MacPhail et al., 2013). Moreover, Polikoff (2013) for instance stated, analyzing a large database of teachers, that instructional alignment is also related to the initial training and experiences in teaching, which were also two important factors included in the CIPEF questionnaire.

Factor 2, called "Preservice training". This factor was composed of items regarding the influence of the curricular practices that teachers experienced during their degree (e.g., methodology, notes, practical sessions, theory and information). The initial training of pre-service teachers has been the most important factor that influences teachers who have not had teaching experiences, and it has been proved that the experiences acquired during the partnership and practices during the career influence in the conception of PE and teaching that teachers had, changing even their previous beliefs (Contreras et al., 2002).

Factor 3, called "Physical environment". This factor was composed of items that take into account the physical environment (urban and natural) surrounding the educational center for planning PE. Planning PE should be influenced by the physical environment that is around the educational center (Aljadeff-Abergel et al., 2012; Ehlers et al., 2013). The use of this space around the center could influence in providing authentic performances for PE students (Newmann, Marks, & Gamoran, 1995).

Factor 4, called "Teaching experiences". This factor was composed of items that deal with the influence of teachers' teaching experiences (e.g., results obtained in previous planning, intervention experienced in the past, accumulated experiences with students) on the planning of PE.

Factor 5, called "Physical activities experiences". This factor was composed of items regarding the experiences that teachers had in the past and have currently regarding physical activities (e.g., habits, sports modalities, experiences as athletes or physical education students). Experiences in physical activities can impact future decision making regarding planning PE, due to the proven effect that positive experiences have on the decisions people make in the future (Juliussón et al., 2005).

Factor 6, called "Socialization by other teachers". This factor was composed of items that deal with the influence of other teachers on how to plan PE (e.g., shared ideas, team group planning, experiences of other teachers).

Factor 7, called "Material and equipment". This factor was composed of items regarding the influence of the quantity and quality of specific materials of PE and equipment available for planning PE. Among other factors, Baumgarten and Pagnano-Richardson (2010) revealed that material and equipment were crucial elements for planning and learning gymnastics contents in PE, which is according to the factor found in this research regarding the PE planning.

Factor 8, called "Level of preparation in the subject matters". This factor was composed of items that deal with the influence of the self-perception of teachers about their level of preparation in the subject matters, their knowledge and level of expertise. Chen (2009), validated the Achieving the National Association for Sport and Physical Education (NASPE) Standards Inventory (ANSI), that assesses pre-service PE teachers' perception of achieving the NASPE beginning teachers standards, confirming that the knowledge, the disposition, and the skills they have around PE were important factors in planning and intervention in PE. These results verify the importance of the level of teachers' preparation in planning the PE subject.

The relationship between the sub-scales confirms that planning PE is a complex task that is influenced by multiple factors (Viciano, 2002). Teachers plan PE during a decision-making process that is different for each of them (depending on their experience, age, etc.), and detecting those factors is crucial for identifying and recommending new guidelines for pre-service and in-service phases of teacher training.

According to Gelabert et al. (2011), the factor validity of an instrument needs to be demonstrated with a great variety of samples. Therefore, further studies need to be carried out in the future in order to complete the total availability of the CIPEF questionnaire.

## Practical applications

As mentioned in the introduction section, it is important to emphasize humbly, that the validation of a questionnaire as carried out in this study represents an important contribution for scientists and will have practical repercussions: (a) to identify several profiles of teachers when planning. Each teacher's professional stage has a particular incidence of factors when planning their PE [e.g., novice teachers, with a short teaching experience, could be affected mainly by the pre-service training (Van der Berg, 2002)]. In fact, Downey, Steffy, English, Frase and Poston (2004) stated that the effective professional development for each professional stage should be different between them in order to be effective. Therefore, knowing



the main factors of influence in each moment is crucial in order to make adequate decisions by teachers' educators; (b) to detect possible cultural differences in the planning decision-making process by teachers from different countries (Babville, Derosiers, & Gener-Violet, 2002); and (c) to assess the changes produced on a group of teachers by an intervention program or educational reforms (Matanin & Collier, 2003). Many educational reforms have been carried out in the last years in many countries that demand new methodological strategies and interventions (and consequently new decisions

and annual planning in PE). Thus, it is important to have an instrument that allows us to understand deeply this decisional process and lets us intervene in the universities and educational centers reorienting the teachers' training and the PE matters.

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## APPENDIX 1

### CUESTIONARIO DE INFLUENCIA EN LA PLANIFICACIÓN DE LA EDUCACIÓN FÍSICA (CIPEF)

El presente cuestionario trata de recabar su opinión acerca de cómo planifica y cuáles son los factores que más le condicionan para hacerlo. A continuación le exponemos una serie de afirmaciones para que usted señale en una escala de 1 a 6 el grado de acuerdo que posee de cada una de ellas. Todos los ítems representan influencias que pueden o no afectarle a usted cuando planifica la EF. Marcar valores bajos de la escala

no supone negar dicha influencia, sino que en su planificación de la EF no ha influido o ha influido poco. Conteste con seriedad y tome el tiempo oportuno para ello. Pregunte cualquier aspecto que le resulte extraño o incomprensible para responder así con mayor objetividad. Le garantizamos que sus respuestas serán confidenciales para que pueda responder con total libertad y sinceridad.

Rodee la respuesta que proceda

Edad: \_\_\_\_\_ Sexo: Hombre/Mujer Etapa: EPO/ESO Formación: Magisterio EF/Magist. otro/Licenciatura EF/Lic. Otro- Centro: Rural/Urbano Tipo: Privado/Privado-concertado/Público Años de experiencia docente: \_\_\_\_\_

|   | Totalmente en<br>Desacuerdo | Totalmente<br>de acuerdo |
|---|-----------------------------|--------------------------|
| <b>Influencia de la Formación Inicial</b>   |                             |                          |
| 1. La información que recibí en mi facultad me influye a la hora de planificar la EF  | 1                           | 2 3 4 5 6                |
| 2. Las tendencias que promulgaban los profesores cuando estudiaba la carrera condiciona actualmente mi planificación de la EF             | 1                           | 2 3 4 5 6                |
| 3. Utilizo los materiales y apuntes de la carrera para planificar la EF   | 1                           | 2 3 4 5 6                |
| 4. La metodología que usaban mis profesores en la carrera me influye a la hora de planificar mi intervención en la EF                     | 1                           | 2 3 4 5 6                |
| 5. Las experiencias formativas que tuve como estudiante en la facultad me influyen a la hora de planificar la EF                          | 1                           | 2 3 4 5 6                |
| <b>Influencia del nivel de preparación en los diferentes contenidos</b>   |                             |                          |
| 6. Si tengo más formación en un contenido tiendo a planificarlo y usarlo más en mis clases de EF  | 1                           | 2 3 4 5 6                |
| 7. Cuantos más conocimientos tengo sobre un contenido determinado más tendencia tengo a usarlo en mi planificación de la EF               | 1                           | 2 3 4 5 6                |
| <b>Influencia del currículo nacional (normativa del BOE)</b>  |                             |                          |
| 9. El currículo oficial es muy influyente en la planificación que realizo de la EF  | 1                           | 2 3 4 5 6                |
| 10. Las indicaciones del currículo nacional son para mí prioritarias para planificar la EF  | 1                           | 2 3 4 5 6                |
| 11. La planificación de la EF la realizo basándome fundamentalmente en el currículo oficial para la etapa (nivel) en que estoy trabajando | 1                           | 2 3 4 5 6                |
| 12. Las indicaciones oficiales del currículo normativo marcan mi programación y por tanto mis clases de EF                                | 1                           | 2 3 4 5 6                |

|   |             |
|---|-------------|
| 13. En mi programación de la EF hay una gran influencia del currículo oficial   | 1 2 3 4 5 6 |
| <b>Influencia del entorno físico</b>  |             |
| 29. Cuando planifico la EF suelo buscar aplicaciones en el entorno cercano del centro donde trabajo                                       | 1 2 3 4 5 6 |
| 30. Las características de la ciudad donde trabajo influyen a la hora de planificar la EF   | 1 2 3 4 5 6 |
| 31. Mi planificación de la EF siempre contempla el entorno disponible para planificar los contenidos y cómo usarlo                        | 1 2 3 4 5 6 |
| 33. En mi planificación de la EF tengo muy en cuenta el entorno urbano y sus posibilidades  | 1 2 3 4 5 6 |
| <b>Influencia de las experiencias en la práctica de AF</b>  |             |
| 34. La actividad física que realizo hace que planifique la EF de una forma diferente  | 1 2 3 4 5 6 |
| 35. El deporte que practico me influye en la planificación que hago de la EF  | 1 2 3 4 5 6 |
| 36. Mis hábitos de práctica de actividad física me influyen para planificar la EF   | 1 2 3 4 5 6 |
| <b>Influencia de las experiencias docentes</b>  |             |
| 39. Los resultados de mi docencia me sirven para planificar la EF de siguientes cursos  | 1 2 3 4 5 6 |
| 40. La efectividad de mi intervención con los alumnos es clave para planificar la EF del año siguiente                                    | 1 2 3 4 5 6 |
| 41. Los éxitos y los fracasos que tengo durante mi enseñanza de la EF me orientan para planificar la EF en años sucesivos                 | 1 2 3 4 5 6 |
| 42. Las experiencias que voy acumulando en mis clases me influyen actualmente a la hora de planificar la EF                               | 1 2 3 4 5 6 |
| <b>Influencia de los materiales e instalaciones</b>   |             |
| 43. Normalmente planifico la EF según los materiales didácticos que tengo disponibles   | 1 2 3 4 5 6 |
| 44. Las características de las instalaciones deportivas que tengo disponibles en el centro son fundamentales en mi planificación de la EF | 1 2 3 4 5 6 |
| 45. Tener o no un tipo de materiales determinado me hace planificar la EF adaptada a ellos  | 1 2 3 4 5 6 |
| <b>Influencia de otros profesores de EF</b>   |             |
| 46. Las experiencias de otros compañeros de profesión me ayudan a planificar la EF  | 1 2 3 4 5 6 |
| 47. Tengo en cuenta las opiniones de otros profesores de EF para planificar mis clases de EF  | 1 2 3 4 5 6 |
| 48. Suelo compartir mis ideas sobre cómo plantear la EF en mis clases con otros compañeros para planificar                                | 1 2 3 4 5 6 |

Nota: La numeración de los ítems se corresponde con la original, por ello, algunos números de orden de ítems no aparecen (al haber sido eliminados en el proceso de validación). Esta numeración corresponde con la que aparece en la figura 1 para la comprensión global del artículo.