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Perception of Competence in Physical Education in Spanish Children: Instrument Validation and Analysis

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ORIGINAL ARTICLE

ABSTRACT

It was our objective to analyze the perceived physical and motor competence in 10- to 13-year-old Spanish children and to validate to the Spanish language and context the questionnaire of Scrabis-Fletcher and Silverman (2010). The perception of competence was analyzed in 27 schools of Albacete (Spain), with a total of 389 boys and 391 girls, whose age ranged from 10 to 13 (average=11.08 and SD=0.43). Different analyses were performed, starting with a forward analysis of the items, using graphics and statistics. After this, an internal consistency study was performed, through Cronbach's alpha, using a multilevel package, version 2.3. Finally, the constructs structure was analyzed through a factorial confirmatory analysis (FCA), which used a Lavaan package, version 0.5-11. The consistency was high as a whole (Cronbach's alpha: 0.74). There was a high correlation between all items, even those from different factors. Regarding the analysis of students´ perceived physical and motor competence, the best values were obtained in the perceptions they had about their teachers and classmates, although they had worse values about their personal experiences. Two questionnaires of 2 and 3 factors, using 7 and 14 items, respectively were established. Therefore, the instrument *Perception of Competence in Middle School Physical Education* was validated within the Spanish social context. The main practical application is the possibility of using this questionnaire in the PE lessons in Spain to know and increase the perceived physical and motor competence of the children.
Keywords: perceived competence, physical education, primary education.

INTRODUCTION

According to the advice given by health experts, all school-aged children in Elementary School and High School must perform daily, at least, 60 minutes of physical exercise ranging from moderate to more vigorous activities (World Health Organization, 2012). Being so that, besides the health benefits that daily exercise provides which are necessary for the healthy development of children, it also has a positive effect on young people in a social plane and makes them adhere to the practice of physical activities, which leads them to create active lifestyles in their youth as well as in their adulthood (Bouchard, Blair, & Haskell, 2007; Donnelly, Blair, Jakicic, Manor, Rankin, & Smith, 2009).

Despite this, many studies show that in the last few years children in First World countries have become less active physically and that young people have adopted a sedentary nature which keeps on increasing daily (Corbin, Pangrazi, & Le-Masurier, 2004; Currie et al., 2008; O'Donovan, Blazevich, Boreham, Cooper, Crank, Hameret, 2010), and Spain is no exception (Beltrán, Beltrán, & Valenciano, 2008). This lack of participation may be due to limited ability in motor skills or inadequate motor competence (Ennis, 1996, 2003; Standage, Duda, & Ntoumanis, 2005).

In the same manner, a high number of other studies have shown that motivation, understood as the "intensity in behavior, persistence, the choice of different possibilities in action and performance" (Roberts, 1992:6) is a crucial factor which lies behind the participation in sports and physical activities (Ntoumanis, Pensgaard, Martin, & Pipe, 2004; Gónzalez-Cutre, Sicilia, & Moreno, 2008; Yli-Piipari, Watt, Jaakola,

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Liukkonen, & Nurmi, 2009). Motivation makes pupils participate in physical activities, get involved and helps them succeed in the fulfillment of motor skills.

On the one hand, enjoyment represents a key factor which underlies motivation and participation in Physical Education (Cox, Smith, & Williams, 2008; Cox, Hagger et al., 2009; Ullrich-French, 2010). And, on the other hand, the understanding of physical competence is connected to the proper realization of the motor skills (Wallhead, & Ntoumanis, 2004). Both factors are fundamental for individuals to feel valued (Martens, 1996). From this, we can see the importance of the role of the professor, whose influence is essential for students to improve their motivation and perception of competence, which leads boys and girls to improve their results in the practice of Physical Education (Sebastiani, 2010).

Perceived physical competition refers to the belief in the capacity that a student has to excel in the development of a motor domain (Ferrer-Caja, & Weiss, 2000). Said competency is connected to the intrinsic motivation (Ommudsen, 2005), to the enjoyment (Biddle et al., 2003) and the level of participation in physical and sportive activities (Fairclough, 2003). Recently enthusiasm, excitement, and cognition have also been connected to the perception of competency and the attitude towards the participation in physical education programs (Disham et al., 2005; Hashim, Grove, & Whipp, 2008). People who perceive themselves as competent are more intrinsically motivated to pursue higher goals and are more persistent during their participation (Harter, 1985). This is the reason why perceived competency seems to have a more significant influence on intrinsic motivation and is a decisive factor in children's participation in physical and sportive activities (Papaioannou, 1997). From there we can see that encouraging feelings of competition in Physical Education in children will help them reach higher goals in Physical Education (NASPE, 2004).

Rudisill et al. (1993) acknowledged that between the ages of 9 and 11 we could reach a precise evaluation of the perceived motor competency in boys and girls. Different studies (Hagger, Biddle, & Wang, 2005; Moreno, & Cervelló, 2005, among others), show that boys have better perception than girls of their competency in Physical Education. Solmon, Lee, Belcher, Harrison, & Wells (2003) argue that said competency is due to girls perception of Physical Education as a more appropriately male activity, which consequently makes them prove to be less competent and derives in them avoiding any sort of connection to these physical activities.

It also seems that previous negative experiences, in the practice of physical activities, make people consider themselves as less competent (Gutiérrez, 2000). In the same manner, pupils who feel respected and valued as equals tend to exhibit more positive emotions connected to their self-esteem and performance (Duncan, 1993). To sum up, the positive opinion of the group helps the development of the individual's self-esteem.

On the other hand, pupils who receive positive feedback, fewer punishments or critical comments, knowing that their teachers are aware of their performance, tend to obtain more positive results along with higher levels of perceived competence (Nicaire, Cogérino, Bois, & Amorose, 2006). Now, it is clear that the teachers' positive feedback is not the same for boys as for girls (Dunbar, & O'Sullivan, 1986). In general, male pupils receive more attention from their teachers than female pupils do (Duffy, Warren, & Walsh, 2001). In addition, the type of attention which boys receive varies. Drudy and UiChathian (2002) prove that boys are acknowledged and accepted a lot more, along with being asked more questions by their teachers', in comparison to girls. Harter (1985) points out that perceived competence rises from children's social experiences in which the support and feedback they receive be it positive or negative, from their peers and teachers are internalized to form part of their perception of competence and motivational orientation.

The circumstances in which the perception of competence is developed certainly determine pupils' judgment when it comes to their ability to reach high levels of performance in physical activities (Moreno, & Vera, 2008). This is why previous experiences, along with the role of the

teachers and peers, have an important influence on the participation and persistence of pupils in the activities. Effectively, more than two decades ago, Carreiro et al. (1988) made evident the close relationship between the planning performed by Physical Education teachers, the conduct of said teachers in the classroom and the students' motivation in the framework of Physical Education. Wilson, Williams, Evans, Mixon, & Rheaume (2005) also agree that children should participate in the design of any form of intervention, as well as asking for responsibility between classmates (Hastie, & Siedentop, 2006).

To this effect, it is necessary to be aware of the different variables which affect the perception of competence in order to have an impact on them. It is essential to employ valid and trustworthy instruments to measure said variables as well as the population being analyzed. Given the inexistence of instruments to evaluate the perception of competence in the field of learning Physical Education, the validation of a new instrument in Spanish is necessary to solve these limitations.

Starting with this approach, the goal of this study was to achieve the cultural and linguistic adaptation to the two instruments developed by Scrabis-Fletcher and Silverman (2010), as well as validate the Spanish educational context, especially of boys and girls in the 6th grade.

METHOD

Participants

Trained research assistants administered questionnaires in randomly-selected Spanish schools of Albacete. Twenty-seven schools of Albacete were invited to participate in the study. An official invitation letter was sent to the 27 schools randomly-selected for the research and all of them agreed to take part in the study. Also, all children invited agreed to take part in the study. A total of 780 children (approximately 4% from each school), of 6th grade of Elementary school, aged 10-13 years old participated in the study (389 boys and 391 girls, average age= 11.08 and SD =.43).

Table 1
Items grouped by factors

Factor	Item	Content
Personal experience	1	If I have failed before in an activity I do not think I will ever be able to do it well.
	2	If I have tried this activity before and I have not done it well I do not think I will be able to in PhysEd class.
	5	I do not think I can do well the PhysEd activities that I do not like.
	6	I do not think I can do well the activities in which I have no ability.
	7	I think I can do well the activities that I perform away from school.
	9	If I have not been able to succeed in an activity at an earlier time, I do not think I will accomplish it in PhysEd class.
	12	I do not think I can do well the activities which I have not practiced previously.
	14	I do not think I can succeed in an activity if I do not obtain any point when I practice it.
Classmates	3	If my friends tell me that I am good at something, then I think I am good at that activity.
	11	I know I am good at PhysEd because my friends tell me I am.
	15	I do not think I am good at something unless my friends tell me I am.
Teacher	4	If the teacher is not capable of explaining the activity I do not think I will be able to perform it when we practice it.
	8	If the teacher's instructions do not make sense I do not think I will be able to perform the activity properly.
	10	If I do not regularly practice a technique in class I do not think I will be able to do it.
	13	When my teacher lets me make decisions in an activity I think it will go better.

The item number refers to its position in the questionnaire

Measures

The instrument developed by Scrabis-Fletcher and Silverman (2010) has been used to calculate the perception of competence (POC). This instrument was verified in a study made on a

sample of 1.281 students (627 boys and 654 girls) from urban and suburban public schools on the east coast of the United States ranging from ages 11 to 15 (average = 12.5, sd =.95).

Said instrument presents two patterns of 7 to 15 items respectively, grouped according to 3 factors: personal experience, classmates and the teacher, with 8, 3 and 4 items in each factor. Within the aspect of the personal experience, we find items related to feelings perceived by the student when it comes to failure, personal ability, and taste. In the classmate aspect, we find items related to social relations with other classmates, and finally, in the teacher aspect, we find items which show the way students see their teachers' actions. In Table 1 we can see the items, divided by factors, which form part of the questionnaire.

As the study performed by Scarbis-Fletcher and Silverman, the first pattern (M2F) only includes the classmates and teacher factors, meanwhile in the second pattern (M3F) all three factors are included. Each item has been evaluated following a 5-point Likert scale (1-In complete disagreement, 5-In complete agreement). In our study, we included a third pattern (M3FM), a modified version of the second pattern which better adjusts itself to the reality of 11-year-old Elementary School students in Albacete (Spain).

Procedures

A literal translation of the article was carried out which included the questionnaire (Scrabis-Fletcher and Silverman, 2010). Consequently, the translation of the instrument was verified by a jury of experts made up of four university professors of Expression and Body Language Didactics and the validation of this instrument was carried out through a confirmatory factorial analysis.

For the quantitative study, a random selection was performed of 27 Elementary school education centers in the province of Albacete (Spain). In order to collect the information, all teachers in each center were asked for consent to collaborate in this study. The handing out of the questionnaire was done collectively in each classroom.

The study previously received the approval from the part of the parents, along with permission from the education centers and the consent of the Physical Education teachers, who were all informed through a letter of agreement of the different objectives of the study. In order to make sure that each participant received the same amount of information, a performance protocol was created in which the different timetables were pointed out along with the information that was to be given at every moment. In December of 2012, the instrument was completed in the Physical Education classroom, and it was done in the presence of a researcher who informed the students and teacher of the goal of this study. Upon handing out the questionnaire to the students, they were asked to first of all pay close attention to the instructions, which pointed out what they had to do, in order to solve any doubts they may have. Utmost discretion was used at every moment, assuring the participants of their anonymity in their participation in the study. They were asked to avoid putting their names on the questionnaire; in the event of this happening the questionnaire would be discarded. The completion of both instruments was carried out in a single period of around 15 minutes.

Statistical analysis

Different R-programmed version 2.15.2 (2012-10-26) language packages have been used (R Project, 2012). Initially, an exploratory analysis was carried out of the different items with the help of statistics and graphs. Next, a study of the internal consistency was carried out through the Cronbach alfa, using the multilevel package version 2.5 (Bliese, 2012). Finally, the structuring of the studied constructs was carried out through a confirmatory factorial analysis (AFC). For this, the Lavaan version 0.5-11 package was used (Rosseel, 2012). For the normality tests, packages stats 2.15.2, nortest 1.0-2 and psych 1.2.12 were used.

To evaluate all three models, confirmatory data analysis was carried out. Given the categorical nature of the data and the lack of normality in the multivariant distribution, confirmatory data analysis was chosen using a consistent estimator, with the minimum squares

analyzed (WLSMW – diagonally least squares with robust standard errors and a mean-and-variance-adjusted test statistic).

RESULTS

The In the exploratory analysis of the items, the normality of all items was rejected with the Shapiro-Wilk tests (p-value<2.2e-16 for all items) and the Lilliefors test (p-value<2.2e-16 for all items). In the joint study, the Mardia test had elevated results in asymmetry 2537.5 as well as in the kurtosis 18.93 which is why the multivariant distribution that is formed cannot be considered normal.

The internal consistency of the factors was calculated with the Cronbach IQ alfa (Cronbach, 1951). In personal experience, a score of 0.67 was obtained, 0.42 in the classmates' factor and 0.45 in the teacher factor. Despite not being internally consistent on an individual level, all the charges are internally consistent as a whole (alfa: 0.74).

Given the categorical nature of the data and the lack of normality in the multivariant distribution, a confirmatory analysis of the data was chosen using a consistent estimator of minimum squares analyzed (WLSMV).

The factorial charges are presented in Table 2 along with the main statistics of the different items.

Table 2

Descriptive Statistics and Standardized Factorial Charges

Factor	Item	Mean	Sd	S	K	Charge M2F	Charge M3F	Charge M3FM
Personal Experience	1	1.68	1.09	1.69	2.06		0.565 ***	0.566 ***
	2	1.89	1.21	1.25	0.48		0.586 ***	0.586 ***
	5	2.08	1.33	0.97	-0.31		0.852 ***	0.852 ***
	6	2.73	1.36	0.24	-1.13		0.662 ***	0.662 ***
	7	4.16	1.09	-1.27	0.83		0,021	
	9	2.06	1.24	0.98	-0.13		0.700 ***	0.701 ***
	12	2.78	1.48	0.20	-1.34		0.607 ***	0.608 ***
	14	2.44	1.41	0.51	-1.06		0.746 ***	0.746 ***
Classmates	3	3.66	1.12	-0.52	-0.40	0.472 ***	0.263 ***	0.262 ***
	11	2.95	1.32	0.01	-1.08	0.299 ***	0.271 ***	0.269 ***
	15	1.81	1.23	1.37	0.70	0.613 ***	0.603 ***	0.605 ***
Teacher	4	2.94	1.47	0.11	-1.34	0.729 ***	0.671 ***	0.673 ***
	8	3.17	1.50	-0.14	-1.42	0.612 ***	0.575 ***	0.577 ***
	10	3.31	1.44	-0.28	-1.26	0.607 ***	0.629 ***	0.630 ***
	13	3.31	1.38	-0.28	-1.13	0.293 ***	0.321 ***	0.319 ***

Note. For each item included in the study descriptive statistics are shown, factorial charges and levels of significance in each level studied M2F, M3F, and M3FM, grouped into factors. Definitions: SD= Standard Deviation; S= Asymmetry; K=Curtosis; Significance: *p<0.05 ** p<0.01 *** p<0.001

Table 3

Correlations among the factors in the models

Model M2F			
Factor	1	2	
1. Classmates	1.000		
2. Teacher	0.790 ***	1.000	
Model M3F			
Factor	1	2	3
1. Personal Experience	1.000		
2. Classmates	0.861 ***	1.000	
3. Teacher	0.842 ***	0.938 ***	1.000
Model M3FM			
Factor	1	2	3
1. Personal Experience	1.000		
2. Classmates	0.859 ***	1.000	
3. Teacher	0.839 ***	0.934 ***	1.000

Note. Table which includes the correlations between factors and levels of significance for each of the studied models M2F, M3F and M3FM. Significance: *p<0.05 **p<0.01 ***p<0.001

The factorial charges of the two-factor model (M2F) are all significant statistically (p<0.001), whereas the ones pertaining to the 3-factor model (M3F) are significant statistically (p<0.001) with the exception of item 7 which does not contribute anything to this model, which is why we will create a new model with the elimination of item 7 (M3FM), in this model all items are statistically significant. We will develop the incentive for this process in the discussion.

We can appreciate a strong correlation between the latent variables in the 3 models since all are positive and very significant (p<0.001) as shown in table 3.

Due to the size of the sample, it is not convenient to use the Chi-Square χ^2 test since it is sensitive to the size of the sample. Therefore,

it is advisable to use other indexes which are more reliable for testing large samples. Due to this, as Bentler advises (1995), a combination of indexes, such as the ones used by Scrabis-Fletcher and Silverman (2010) have been taken into consideration to be able to demonstrate the results. The indexes recommended by Jackson, Gillaspy and Purc-Stephenson (2009) and Byrne (2008) have been included, representing: χ^2, χ^2/g.1., GFI (Goodness of fit index), AGFI (Adjusted Goodness of fit index), SRMR (Standardized Root Mean Square Residual), RMSEA (Root Mean Square of Approximation), TLI (Tucker Lewis Index), CFI (Comparative Fit Index) and IFI (Incremental Fit Index). In table 4 we can see the global results acquired from the first analysis upon applying the different adjustments to the models (the measurements y^2, RMSEA, TLI, CFI and IFI shown in table 4 are consistent).

Table 4
Adjustment measurements in the models

	χ^2	df	χ^2/g.l.	GFI	AGFI	SRMR	RMSEA	TLI	CFI	IFI
M2F	112,456	13	8.65	0.997	0.993	0.062	0.099	0.614	0.761	0.743
M3F	469,540	87	5.40	0.994	0.991	0.065	0.075	0.722	0.770	0.734
M3FM	391,108	74	5.29	0.995	0.991	0.061	0.074	0.757	0.803	0.770

Note. Adjustment measurements of the most frequently used model. They are shown for each of the models of the study. Definitions: χ^2=chi square; df=degrees of freedom; GFI=Goodness of fit index; AGFI= Adjusted Goodness of fit index; SRMR=Standardize Root Mean Square Residual; RMSEA= Root Mean Square of Approximation; TLI= Tucker Lewis Index; CFI= Comparative Fit Index; IFI= Incremental Fit Index

The confidence measurements at 90% in RMSEA are (0.083, 0.116) in model M2F, (0.069,0.082) in model M3F and (0,067,0,081) in model M3FM.

With the goal of improving this adjustment, an analysis of the correlations between the residual items was done, verifying that the residual items 3 and 11 (classmates opinion, within the Classmate aspect) and 4 and 8 (teachers orders, within the Teacher aspect) were very correlated, besides in the 2-factor model the errors in items 3 and 15 (classmates opinion, within the Classmate aspect) were very correlated. All three models improved upon inserting said corrections to the levels of adjustment, the levels of adjustment are shown in table 5 (the measurements of χ^2, RMSEA, TLI, CFI, and IFI showed in table 5 are consistent).

Table 5
Adjustment measurements in the adjusted models

	χ^2	df	χ^2/g.l.	GFI	AGFI	SRMR	RMSEA	TLI	CFI	IFI
M2F	61,629	10	6.16	0.999	0.995	0.044	0.081	0.739	0.876	0.859
M3F	374,737	85	4.41	0.996	0.993	0.058	0.066	0.785	0.826	0.788
M3FM	289,751	72	4.02	0.996	0.994	0.052	0.062	0.829	0.865	0.829

Note. Adjustment measurements of the most frequently used model. They are shown for each of the models of the study after being adjusted. Definitions: χ^2=chi square; df=degrees of freedom; GFI=Goodness of fit index; AGFI= Adjusted Goodness of fit index; SRMR=Standardize Root Mean Square Residual; RMSEA= Root Mean Square of Approximation; TLI= Tucker Lewis Index; CFI= Comparative Fit Index; IFI= Incremental Fit Index

The confidence measurements at 90% in RMSEA are (0.066,0.101) in model M2F, (0.059,0.073) in model M3F and (0.055, 0.070) in model M3FM.

A gender study has been carried out to figure out if there are significant differences in the different items of the questionnaire. In order to do this a level of significance has been established α=0.05 and Bonferroni's corrections have been taken into account to make multiple contrasts. The results of the descriptive statistics and the p-value of the Chi contrast are shown in Table 6; this contrast proves that significant differences do not exist in any items between the boys and girls from our study.

Table 6
Descriptive Statistics by Gender

Factor	Item	Gender	Mean	Sd	S	K	p-value χ^2
Personal Experience	1	Boys	1.68	1.09	1.73	2.24	0.738
		Girls	1.69	1.10	1.64	1.86	
	2	Boys	1.91	1.24	1.25	0.43	0.829
		Girls	1.88	1.18	1.23	0.48	
	5	Boys	2.09	1.31	0.93	-0.34	0.602
		Girls	2.08	1.36	1.00	-0.31	
	6	Boys	2.70	1.42	0.23	-1.29	0.657
		Girls	2.75	1.30	0.26	-0.94	
	7	Boys	4.26	1.04	-1.47	1.48	0.875
		Girls	4.06	1.13	-1.10	0.36	
	9	Boys	1.99	1.25	1.10	0.11	0.631
		Girls	2.13	1.23	0.86	-0.33	
	12	Boys	2.70	1.49	0.29	-1.32	0.886
		Girls	2.86	1.47	0.11	-1.36	
	14	Boys	2.43	1.43	0.52	-1.11	0.187
		Girls	2.45	1.39	0.50	-1.03	
Classmates	3	Boys	3.78	1.12	-0.64	-0.26	0.984
		Girls	3.55	1.10	-0.42	-0.47	
	11	Boys	3.15	1.38	-0.18	-1.17	0.832
		Girls	2.75	1.23	0.15	-0.85	
	15	Boys	1.86	1.27	1.24	0.21	0.696
		Girls	1.76	1.19	1.51	1.27	
Teacher	4	Boys	2.93	1.50	0.11	-1.40	0.347
		Girls	2.97	1.44	0.11	-1.28	
	8	Boys	3.12	1.52	-0.10	-1.47	0.815
		Girls	3.22	1.48	-0.18	-1.38	
	10	Boys	3.21	1.45	-0.18	-1.31	0.792
		Girls	3.41	1.43	-0.39	-1.18	
	13	Boys	3.42	1.36	-0.43	-0.97	0.595
		Girls	3.19	1.39	-0.14	-1,22	

Note. The main one-dimensional statistics of the items are shown divided into factors for both genders with the p-value contrast of the difference between genders. Definitions: SD=Standard Deviation; S=Asymmetry; K=Kurtosis; Sample Size= Boys (N=391), Girls (N=389).

DISCUSSION

In relation to the different factors in the instrument, Personal Experience, Classmates and Teacher, theory shows that all three factors are fundamental in the development of Physical Education by the students (Scrabis-Fletcher, & Silverman, 2010). In our study we have verified this fact, proving that the perception of competence in Physical Education is strongly influenced by the classmates (correlation of 0.980), followed by that of the teacher (correlation of .958) and finally by personal experience (correlation of 0.879). The three factors also show positive and elevated correlations between each other, proving that the three factors are important and positive, but when joined together their influence is intensified. To this effect, it is important to establish joint performances with the goal of improving the competence of students in Physical Education. Specifically, the strongest correlation is that between the factors Classmates and Teacher, given that both occur in the same environment.

Due to all the above, it is fundamental that classmates and the personal experience of the student be taken into account in the planning and development of motor tasks in Physical Education, geared to 6th-grade Elementary school students (Contreras, & Gil, 2010).

When it comes to the items in the questionnaire, the ones that are most influenced by the Perception of Competence are numbers 5, 9 and 14 in the Personal Experience factor, number 15 in the Classmate factor and numbers 4 and 10 in the Teacher factor. Their knowledge

is fundamental, as by promoting an interest in these activities along with feelings of competence, this will help the student reach the goal of this subject since according to Bandura's theory on social cognitivism (1986), it is necessary to recognize:

1. The interactive effect of students' feelings and thoughts (previous experience, attitudes, the importance of the subject).
2. Environmental factors (context, teacher, classmates).
3. Performance (level of commitment, dedication to study).

We must point out that the consistency among the different items from the instrument is high as a whole (Cronbach's alfa: 0.74), despite the low consistency of the items of each factor, having 0.67 for personal experience, 0.42 in the classmate factor and 0.45 in the teacher factor.

There is a high correlation between all items, including those in different factors, due to the inter-correlation between all three factors. Item 7 stands out because of the irrelevant information it provides; this is not the case in the original study. This lack of information given in item 7 (I think I can do well the activities that I perform away from school) describes perfectly the current social context among 11-year-olds in Spain. Arguments such as "lack of time" and "homework" make that around 70% of students do not do regular physical activities in their free time, this is especially the case for girls (Román, Serra, Ribas, Pérez-Rodrigo, & Aranceta, 2006 and Granda, Montilla, Barbero, Mingorance, & Alemany, 2010). Like Papaioannou (1997) points out, children without previous experiences in physical and sports activities in their free time have lower perceived competence when it comes to participating in Physical Education school programs. Because of this, we think the Spanish version of this model should not include item number 7 due to the lack of using it has in reaching the goal of calculating the perception of competence of students.

It is convenient to point out that items 12 and 14 have a high correlation with item 10. After a detailed study of the questions, this connection may be due to the circumstances of the questionnaire (Bollen 1989), in this case to the double negative of the question.

If we compare the adjustment of the different models with the data obtained from Scrabis-Fletcher and Silverman's (2010) original study, in this study the questionnaire is validated by associating models M2F and M3F with the following results: the 2-factor model (AGI=0.98, AGFI=0.97, SRMR=0.03, and RMSEA=0.05) is a lot better adjusted than the 3-factor model (AGI=.90, AGFI=.86, SRMR=0.07, and RMSEA=0.09), in the present study both models prove to be very similar. Comparing both studies, the 2-factor model of the present study presents a worse adjustment than that of the original study (AGI=0.999, AGFI=0.995, SRMR=0.044 and RMSEA=0.081, confidence interval RMSEA 0.063-0.101), but the 3-factor model is better adjusted (AGI=0.996, AGFI=0.993, SRMR=0.058 and RMSEA=0.066, confidence interval RMSEA 0.059-0.073) than in the original study, having this study verify the construct presented in the field of the current study. But we can see that by eliminating item 7 we get a better adjustment (AGI=0.996, AGFI=0.994, SRMR=0.052 and RMSEA=0.062, the confidence interval RMSEA 0.055-0.070). The three models present an adequate global adjustment proven by Hu & Bentler (1999).

The main limitations of this study were that the sample came from only one region of Spain (Albacete) and the sample was composed only by children of the sixth year of Primary Education. Therefore, future research should study children of other Spanish regions and with different ages.

CONCLUSION

Game This study allows Physical Education teachers the possibility of comparing the results when the validated tool is used with the end goal of finding deficiencies in any of the factors or items included in the instrument.

Since this study was carried out exclusively on children in 6th grade Elementary School in the province of Albacete (Spain), and given that there are no great differences in the school curriculum of Physical Education in the third cycle of Elementary School between autonomous communities in the Spanish education system,

said instrument can be used on a national level. Other provinces can carry out similar studies, in other levels of the Spanish education system, with the goal of proving the results shown here. And through this establish a joint timetable between the teachers of all levels and use a tracking construct which would allow the correction of any deficiencies which are detected and have an impact on them in the best way possible which will allow the improvement of the teaching of Physical Education within the education systems. The construct has also been proven to be equally valid for boys as for girls, not showing any significant differences in any of the items.

We can conclude the verification of the Perception of Competence in Middle School Physical Education instrument in a Spanish social context, specifically 6th grade Elementary School students in the province of Albacete, as well as that of the 2-factor and 3-factor constructs, with the exception of item 7, to be used to determine the perception of competence in Elementary School 6th graders. The first, includes the factors teacher and classmates, which can be used to determine the programming of the subject of Physical Education, leaving out the 3-factor questionnaire which besides the Personal Experience factor, also includes to establish the details (intensity, difficulty, etc…) of motor tasks to realize the function of the personal experiences of students.

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