

Sánchez-Miguel, P.A.; Amado, D.; Mendo, S.; Molero, P.; Leo, F.M. (2019) Validation Positive Behaviors Questionnaire in Educative Dance. Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte vol. 19 (75) pp. 551-564  
[Http://cdeporte.rediris.es/revista/revista75/artvalidacion1044.htm](http://cdeporte.rediris.es/revista/revista75/artvalidacion1044.htm)  
DOI: 10.15366/rimcafd2019.75.011

## ORIGINAL

### VALIDATION OF THE POSITIVE BEHAVIORS QUESTIONNAIRE IN EDUCATIVE DANCE

### VALIDACIÓN DEL CUESTIONARIO DE COMPORTAMIENTOS POSITIVOS EN DANZA EDUCATIVA

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**Recibido** 18 de septiembre 2017 **Received** September 18, 2017

**Aceptado** 22 de abril de 2018 **Accepted** April 22, 2018

#### ABSTRACT

The aim of the current research was to validate into the educative dance in Mexican secondary school, the questionnaire of positive behaviors in physical education. The sample was formed by 921 students, both female ( $n = 421$ ) and male ( $n = 500$ ) participants, ranging in age from 11 to 17 years old, belonged to four schools from Mexico. This research was organized by ConArte (International Consortium of Art and School). The results showed that the instrument had an adequate factorial validity and internal consistency. Furthermore, the instrument was invariant regarding individuals' gender and age. Thus, this work gives empiric evidences that the questionnaire of positive behaviors in educative dance is valid and reliable to assess these behaviors.

**KEYWORDS:** dance, psychometrics properties, positive behaviors, education.

## RESUMEN

El objetivo de la presente investigación era adaptar y validar al contexto de la danza educativa, el Cuestionario de Comportamientos Positivos en Educación Física. La muestra estuvo formada por 921 alumnos, de sexo femenino ( $n = 421$ ) y masculino ( $n = 500$ ), con edades comprendidas entre los 11 y los 17 años, pertenecientes a cuatro escuelas en México. Esta investigación estaba organizada por ConArte (Consortio Internacional de Arte y Escuela). Los resultados obtenidos mostraron que el instrumento presentaba una adecuada validez factorial y consistencia interna. Asimismo, el instrumento se mostró invariante en cuanto al género y la edad de los participantes. De esta manera, este trabajo aporta evidencias científicas de que el cuestionario de comportamientos positivos en la danza educativa se muestra válido y fiable para analizar dichos comportamientos durante este tipo de clases.

**PALABRAS CLAVES:** danza, propiedades psicométricas, comportamientos positivos, educación.

## INTRODUCTION

For a long time, dance has been a very important physical and social activity (Quested and Duda, 2010). Therefore, dance can have considerable potential to modify the social relationships and behaviors of the people who practice it (Zander, Kreutzmann, West, Mettke and Hannover, 2014). In many countries, especially in the United Kingdom (Dance in Schools Initiative), the United States (Hampshire Dance, ArtsConnection), Germany (TanzZeit), Mexico (ConArte), projects were developed in the educational context with the aim of promoting experiences and benefits that dance entails (Quested and Duda, 2010). In the United Kingdom, for example, dance is a very popular activity with more than 5 million participants each year (DanceUK, 2015), more than 17,000 young people studying dance in educational centers, employing more than 30,000 people (DanceUK, 2015), which are included in a creative, physical, expressive activity ... where the participants are inter-independent, and they learn to coordinate their actions together.

Despite the lack of importance given by some countries in its promotion, the amount of benefits that a rigorous, systematized and continuous practice of dance has on students is undoubted, especially its improvement in psychosocial aspects such as motivation (Amado, Sánchez-Miguel, González-Ponce, Pulido-González and Del Villar, 2016), concentration, autonomy, promotion of cooperation (Roseth, Johnson and Johnson, 2008), solidarity, respect and tolerance (Lakes et al., 2016), mainly in a country like Mexico, where levels of antisocial and violent behavior are high (Juárez, Villatoro, Gutiérrez, Fleiz and Medina-Mora, 2003), in addition to all the benefits that physical health promotes (Quin, Frazer and Redding, 2010).

In this sense, the school context is a promotor of values and adaptive behaviors, however, the educational center can be a domain where aggressive

and antisocial behaviors emerge (Del Rey and Ortega, 2008, Smith, 2004), manifesting in greater measured in countries such as Mexico (Juárez et al., 2003), and these behaviors and conducts generate serious consequences such as loneliness, low self-esteem, high values of depression (Smith, 2004). In this way, and based on the fact that antisocial and prosocial behaviors are acquired (Feldman, 1989), the educational environment is crucial to regulate them and encourage positive behaviors.

Comparing to other contexts, dance has been less studied from the scientific perspective (Quested and Duda, 2010, Winner, Goldstein and Vincent-Lancrin, 2013), and much less studies in the educational context that have tried to verify relationships between dance and behavior among students (Winner et al., 2013). Basically, the studies that have been developed in the educational context have tried to analyze the effects of a dance program in adolescents on the affect and the capacity of cooperation between them (Zander et al., 2014) or to test the effect produced on the motivation of a multidimensional program of dance and corporal expression in high school students (Amado, Del Villar, Leo, Sánchez-Oliva, Sánchez-Miguel and García-Calvo, 2014).

In accordance to this issue, and as far as is known, there are few works that have used the educational context to analyze the relevance of dance content on positive and / or negative behaviors (Amado et al., 2016). In this line, no work in the Mexican context has valued the importance acquired by an adequate treatment of educational dance, and its consequences at an academic, behavioral, social, or cognitive level.

In relation to the analysis of behavior in the classroom, one of the works that jointly analyzed the appearance of positive behaviors and motivation in physical education, was the one developed by Sánchez-Oliva, Viladrich, Amado, González-Ponce and García-Calvo (2014), who found the importance of motivational processes as relevant elements in the development of positive behaviors in the context of physical education. Previously, Sánchez-Oliva, Leo, Sánchez-Miguel, Amado and García-Calvo (2013) tested a causal model where they demonstrated the predictive capacity of motivational regulations on the perception of the development of positive behaviors in physical education. Thus, the relevance of promoting intrinsic regulations for the greater and better development of positive behaviors such as respect, tolerance, equality..., was shown.

Therefore, the main objective of this work is to adapt and validate an instrument to assess positive behaviors in the context of educational dance. Likewise, this study will try to test the invariant capacity by gender and age of the instrument, in addition to knowing the empirical relationships with constructs derived from the theory of self-determination (Deci and Ryan, 2000) previously studied. The hypothesis that we formulate is that the adaptation to the Educational Dance of the Positive Behavior Questionnaire will show an adequate validity and reliability in a sample of Mexican adolescents. On the other hand, it is hypothesized that the instrument will be invariant by gender and age, and will maintain positive and significant relationships with the constructs of the theory of self-determination.

## MATERIAL AND METHODS

### Participants

The research was organized by ConArte (International Consortium of Art and School) and included 921 students, female ( $n = 421$ ) and male ( $n = 500$ ), aged between 11 and 17 years ( $M = 13.17$  years ;  $DT = 1.12$ ), belonging to four schools in Mexico. All students belonged to the first, second and third grades, and were selected according to their membership in different groups (A, B, C, D or E).

### Instruments

**Positive behaviors in educative dance.** To assess the positive behaviors in the context of the educational dance, the adaptation of the Positive Behavior Questionnaire in Physical Education (CCPEF) was used (Sánchez-Oliva et al., 2013). The adaptation consisted in modifying the wording of the introductory sentence "In Physical Education classes ..." by "In dance classes ...". The questionnaire is composed of 18 items that analyze the five factors included: *Respect for the facilities* (4 items: eg "Respect the school facilities"), *assessment of the effort* (4 items: eg "To be successful, it is important to work hard" ), *tolerance and respect for partners* (4 items: eg "I am tolerant with the behavior of my colleagues"), *self-control* (3 items: eg "I control my actions") and *cooperation* (3 items: eg "I love it participate in group work "). The factors obtained the following Cronbach alpha values: respect for standards, facilities and materials .80; tolerance and respect for colleagues .73; effort assessment .68; cooperation .75; and self-control .71.

**Support to the Basic Psychological Needs.** In order to assess the criterial validity, the Adaptation to Body Expression of the Basic Psychological Needs Questionnaire (Amado, Sánchez-Miguel, Leo, Sánchez-Oliva and García-Calvo, 2012) was used. The questionnaire began with the introductory phrase "In the classes of Physical Expression in Physical Education, our teacher ..." followed by 12 items grouped into three factors: *Support for competence* (4 items: eg "It has encouraged us to trust in our ability to do the tasks well "), *support for autonomy* (4 items: eg " He has asked us frequently about our preferences regarding the activities to be carried out ") and *support for relatedness* (4 items: eg " Has fostered at all times the good relations between classmates "). The factors obtained the following alpha values of Cronbach: support for competence .75; support for autonomy .72; support for relatedness .75. It should be noted that in all the questionnaires described, a Likert scale with five response options is used, from 1 (*totally disagree*) to 5 (*totally agree*) to analyze the different variables.

### Procedure

The study received the consent of the Ethical Committee of the University of Extremadura. All participants were treated equally under the ethical guidelines

of the American Psychological Association regarding consent, confidentiality and anonymity in the responses. Before carrying out the study, all those involved were informed of the process to be developed, emphasizing that participation was voluntary and that the data would be treated in a confidential manner. Likewise, an informed consent was obtained from the parents and the directors of the educational schools on behalf of the underage students included in the work.

To carry out the data collection, an action protocol was developed with the aim of making it similar throughout the process. Firstly, the principal investigator contacted the school to request their participation in the study and, from the school, the parents of the students were contacted to request their authorization, since most of the students were minors. The administration of the scale was carried out during school hours, offering the pertinent instructions to the participating students and insisting on anonymity. This was completed individually and in an appropriate climate, which allowed them to concentrate without having any type of distraction. The process of conducting the questionnaires lasted approximately 10 minutes and the principal investigator was present at the time the participants completed the questionnaires, and insisted on the possibility of asking any type of doubt that appeared during the process.

## **Data Analysis**

The descriptive statistics and the skewness and kurtosis values of each one of the items that compose the questionnaire were calculated to check the univariate normality of the items. Next, an analysis of the psychometric properties of the version adapted to the educational dance of the CCPEF was carried out, using the confirmatory factorial analysis through the AMOS 21 program. To test the adjustment between the theoretical model proposed and the data matrix collected different indices were used:  $\chi^2 / gl$  (Chi-Square / degrees of freedom), CFI (Comparative Fit Index), TLI (Tucker Lewis Index), RMSEA (Root Mean Square Error of Approximation) and SRMR (Standardized Root Mean Residual). By calculating the mean variance extracted, the composed reliability and McDonald's omega, the internal consistency of the adaptation of the CCPEF was evaluated. In addition, invariant analyzes were carried out by gender and age, and an analysis of the nomological validity between the factors of the CCPCD and the CANPB through an analysis of bivariate correlations, using the SPSS 21 program.

## **RESULTS**

### **Descriptive Analysis of the items**

The value of the average of the items that make up the questionnaire oscillates around 4 and, therefore, to the maximum given within a scale likert of 5 points (Table 1). Thus, taking into account the distribution of the questionnaire where the scores 1 and 2 corresponded to the items in the negative sense, the scores 4 and 5 with the items in the positive sense and 3 was the transient score

between one and the other, this indicates that the scores in all cases tend towards positive behaviors and not negative ones. Regarding the normality tests, it should be noted that all values of skewness and kurtosis were lower than 2, which reflects a normal univariate distribution of the data (Bollen and Long, 1993).

**Table 1.** Descriptive statistics of the items in the questionnaire.

	M	SD	S	K
1. Respect school facilities	4.14	1.23	-1.36	.75
2. The most important thing is to make the best effort	3.92	1.29	-.99	-.14
3. I help a partner after a fall	3.88	1.25	-.95	-.08
4. I usually control my actions	3.72	1.33	-.79	-.53
5. I love participating in group work	3.74	1.35	-.80	-.51
6. To be successful, it is important to work hard	4.03	1.23	-1.21	.45
7. I am tolerant with the behavior of my classmates	3.66	1.33	-.70	-.62
8. I always feel controlled	3.63	1.30	-.66	-.61
9. I respect the rules imposed by the teachers	3.88	1.31	-.96	-.22
10. I always try to see the interest of my colleagues	3.72	1.27	-.77	-.39
11. I try not to damage my school's facilities	3.95	1.27	-1.04	.02
12. Putting effort is very important to learn and improve	4.02	1.19	-1.11	.36
13. When my patience runs out, I know how to control my impulses	3.63	1.34	-.69	-.65
14. I like to work with others in class activities	3.86	1.26	-.95	-.09
15. Respect school materials	4.03	1.23	-1.20	-.48
16. I accept my classmates regardless of whether they are different from me	3.91	1.24	-.96	-.06
17. I prefer there to be collective activities, to work in groups	3.78	1.35	-.83	-.49
18. I know how to control myself when something does not go as I want	3.77	1.33	-.84	-.46

### Confirmatory factorial analysis

In order to corroborate the factor structure obtained in the study by Sánchez-Oliva et al. (2013), and once the outliers have been eliminated (Tests for normality and outliers, AMOS) and verified that the criteria of normality and linearity are met, they are put to the test with the maximum likelihood method (Mardia coefficient = 110.93) three Factorial models: 1) a single factor; 2) five related factors; and 3) five factors of first order and one of second order. Taking into account that the value of  $\chi^2$  is very sensitive to small deviations of the hypothesized model (Jöreskog and Sörbom, 1993), the following indices were used to evaluate the fit of the model:  $\chi^2 / gl$ , CFI, TLI, SRMR and RMSEA. In the case of  $\chi^2 / gl$ , values lower than 5 are considered acceptable (Bentler, 1995), while Hu and Bentler (1999) consider acceptable values of the GFI and incremental indices (CFI, TLI) equal to or greater than .90, considering excellent values higher than .95. Finally, the model will be considered a good fit if the SRMR is less than .08 and the RMSEA is less than .06 (Hu and Bentler, 1999).

Table 2 shows the values recorded in the adjustment indices used for the three models analyzed. In the models of a single factor and five related factors present an appropriate adjustment. However, the five-factor model of the first order with a second-order factor presents the best fit, with the following values:

$X^2 / gl$  (2.267), CFI and TLI ( $\geq .925$ ) and RMSEA ( $< .06$ ).

**Table 2.** Goodness-of-fit indices of the proposed models.

Models	$\chi^2$	$X^2/gl$	CFI	TLI	RMSEA	SRMR
1 unique factor	$p < .001$	7.547	.827	.805	.095	.144
5 factors related	$p < .001$	3.53	.919	.901	.068	.049
1 factor of 2 <sup>o</sup> Order	$p < .001$	2.267	.936	.925	.059	.040

*Note.*  $X^2 / gl$  = chi-square ratio on degrees of freedom; CFI = comparative adjustment index; TLI = Tucker-Lewis index; RMSEA = mean square error of approximation; SRMR = standardized square root mean residual.

The CFA represents a factorial structure composed of 18 endogenous observable variables (the 18 items that make up the questionnaire), five endogenous latent variables (Respect for facilities, tolerance and respect for others, self-control, effort assessment and cooperation) and a variable latent exogenous (positive behaviors). In this model, each endogenous latent variable is defined by at least 3 endogenous observable variables, as recommended by Bollen (1989). The structural model is recursive, there are no causal relationships between the endogenous variables and the measurement errors are not correlated, so the identification of the model is assumed, an indispensable requirement to be able to make way for the estimation of parameters (Varela, Abalo, Rial and Braña, 2006).

Figure 1 shows the saturations of the second order factor on the first order factors, the factorial loads of each first order factor in each item and the multiple correlation coefficient for each item. Regarding the factorial loads of the global factor on the first-order factors, in all cases adequate saturations were obtained, where tolerance and respect for others, the assessment of effort and cooperation, reached scores higher than .90. On the other hand, respect for facilities and self-control showed slightly lower scores (.72 and .85, respectively). Finally, it is also worth noting how all the first order factors obtained adequate factorial loads in all their items, with values higher than .60.

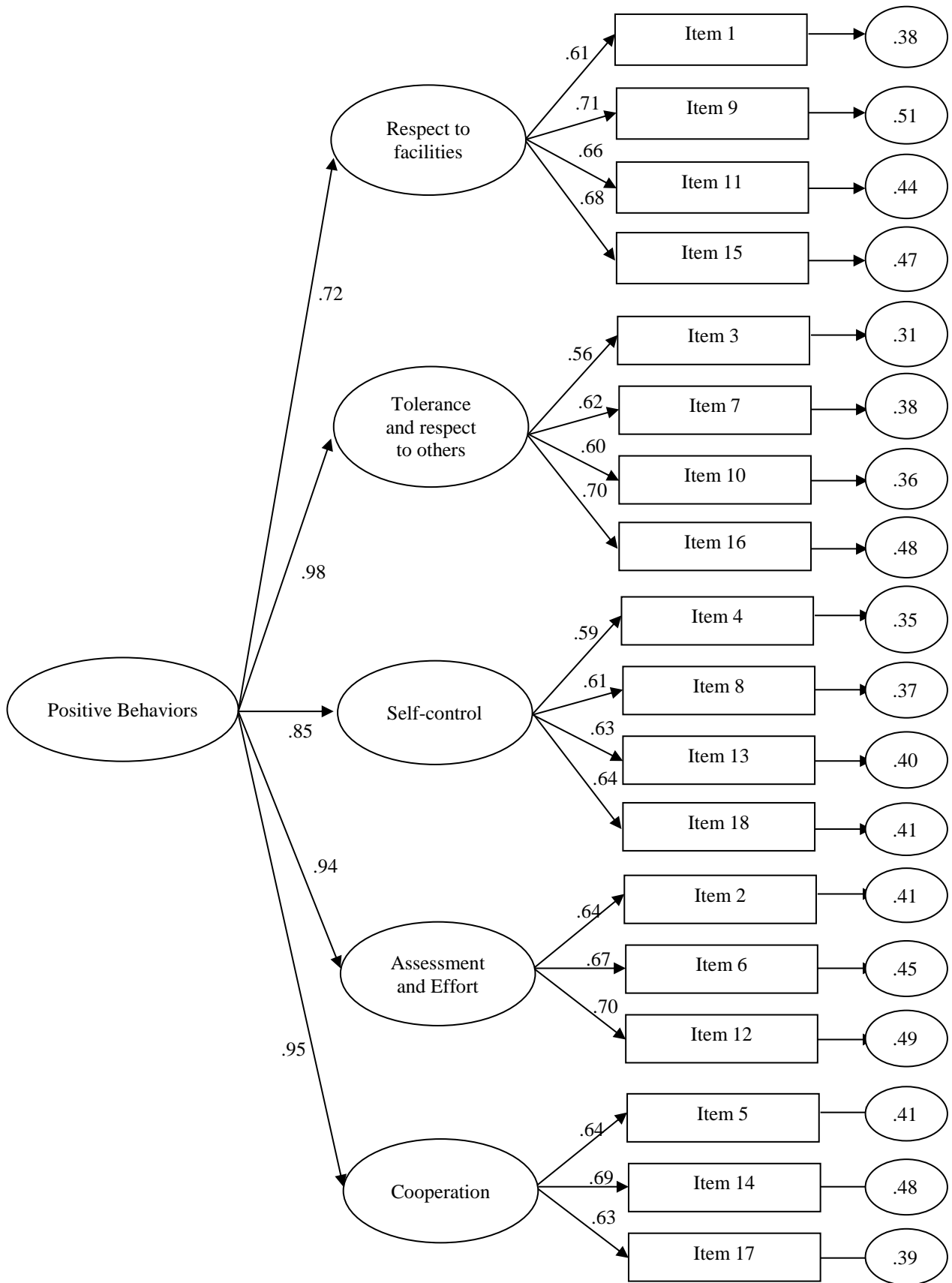


Figure 1. Model obtained from the analysis of the confirmatory factorial style.



## Internal Consistency

Table 3 shows the average variance extracted (VME), the composite reliability (FC) and the McDonald omega ( $\Omega$ ) of the latent constructs. It is desirable that the values of the VME be equal to or greater than .50 and equal to or greater than .70 for the FC and the  $\Omega$ , so it can be said that the model of a single factor and five independent factors presents an adequate internal consistency.

**Table 3.** VME, FC and  $\Omega$  values of the latent constructs.

	F1	F2	F3	F4	F5
Mean variance extracted	.508	.509	.504	.593	.568
Compound reliability	.847	.848	.847	.814	.798
McDonald's Omega	.834	.836	.830	.797	.780

*Note.* F1 = Respect for standards, facilities and materials; F2 = Tolerance and respect for colleagues; F3 = Self-control; F4 = Assessment of the effort; F5 = Cooperation

## Invariance analysis by gender and age

To determine if the model of five factors of first order and one of second order is invariant by gender (190 women and 170 men), a multigroup analysis is performed (Table 4). The comparison does not show differences  $p < .05$  in the chi-square value between the different models and the values found in the  $\Delta CFI$  in the unrestricted model with minor differences of .01 of the CFI indices among the four models, indicate that the loads factorials of the questionnaire are equivalent for women and men.

Likewise, a multigroup analysis is performed to determine if said model is invariant by age (Table 4). Prior to the analysis, two comparison groups were established according to age [(group 1: range 11-13 years,  $n = 198$ ); (group 2: range 14-16 years,  $n = 162$ )]. The multigroup analysis shows no differences  $p < .05$  in the chi-square value between the different models and the values found in the  $\Delta CFI$  in the unrestricted model, in addition the differences between the four models in the CFI indices are less than .01, indicating that the factorial loads of the questionnaire are equivalent among the age groups.

**Table 4.** Multigroup analysis of invariance by gender and age.

Models	$\chi^2$	$\chi^2/df$	$\Delta\chi^2$	$p$	CFI	TLI	SRMR	RMSEA
<i>Gender</i>								
Model 1	811.84	3,007	-	-	.930	.918	.060	.047
Model 2	821.32	2.902	7,638	.730	.931	.924	.064	.044
Model 3	826.18	2.869	8,162	.707	.934	.930	.064	.042
Model 4	858.91	2.807	31,140	.102	.924	.923	.070	.045
<i>Age</i>								
Model 1	807.07	2,989	-	-	.940	.923	.059	.045
Model 2	818.60	2.882	8,529	.465	.943	.941	.062	.046
Model 3	828.27	2.876	16,843	.269	.940	.933	.066	.047
Model 4	845.63	2.763	38,558	.355	.923	.913	.070	.049

*Note.* Model 1 = No restrictions. Model 2 = Measuring weights. Model 3 = Structural covariances. Model 4 = Measurement waste.

## Nomological validity

Nomological validity refers to the degree to which one can empirically verify the relationships that a construct can maintain with others that are totally or partially part of some theory or theory (Wilson, Spence and Kavanagh, 1989), that is, if there is correspondence between the theoretical configuration of the obtained data and the theoretical predictions about said configuration.

In this sense, the scores of the Positive Behavior Questionnaire in the Educational Dance classes (CCPDE) have been related to the factors of the Basic Psychological Needs Support Questionnaire in the Body Expression classes (CANPB) (Amado et al., 2012) (Table 5). The correlation between the factors of the CCPDE and the factors of the CANPB, shows the existence of significant direct relationship (medium / low) between the five factors of the CCPDE and the three factors of the CANPB (Table 5).

**Table 5.** Pearson Correlation Factors of the CCPDE / CANPB.

	Respect	Tolerance	Self-control	Assessment of the Effort	Cooperation
1. Support to competence	.338**	.351**	.240**	.311**	.295**
2. Support to the autonomy	.284**	.326**	.229**	.280**	.256**
3. Support to relatedness	.329**	.335**	.220**	.295**	.316**

*Note.* \*\* The correlation is significant at the level of .01

## DISCUSSION AND CONCLUSIONS

The main objective of this work was to adapt and validate an instrument to assess positive behaviors in the context of educational dance in Mexico. The first hypothesis that we formulated was that the adaptation to the Educational Dance of the Positive Behavior Questionnaire in Physical Education would present an adequate validity and reliability.

Firstly, and according to this hypothesis, the results of the psychometric and confirmatory factorial analyzes carried out, based on structural equation models, showed an adequate factorial structure, internal consistency and criterial validity of the instrument. Therefore, it can be indicated that from now on this questionnaire can be used to assess positive behaviors in dance and body language classes.

In this sense, it was found that the factorial model is recursive, where there are no causal relationships between the endogenous variables and the measurement errors are not correlated. In addition, the factorial analysis showed how the five factors obtained saturations above .60, indicating an adequate factorial validity (Varela et al., 2006). Similar results were found in previous studies by other authors (Baena-Extremera, Granero-Gallegos, Bracho-Amador, Pérez-Quero, 2012, Sánchez-Oliva et al., 2013), evidencing the adequate properties of the adaptation of instruments to assess psychological variables. Regarding the reliability of the instrument, it can be

seen how all the factors had Alpha Cronbach indexes above .70 (Nunnally, 1978), which denotes that the different items that each factor groups measure similarly, in addition to to show an adequate linguistic adjustment to the psychological equivalence of the constructs that were wanted to value, providing an instrument of psychological measurement suitable for the Mexican educational context.

It is emphasized that until now, no instrument that assessed behaviors and / or behaviors had been validated and / or adapted to the context of the Mexican educational dance, with the enormous benefits that this entails in a context where aggressive and antisocial behaviors frequently appear (Juárez et al., 2003). Most of them tried to evaluate positive behaviors in physical education classes, regardless of the content that was taught (Sánchez-Oliva et al., 2013), or they valued social aspects in dance (Quested and Duda, 2010), or the sports satisfaction in the context of physical education (Baena-Extremera et al., 2012). Thus, one of the most important contributions of the present work is that it allows valid and reliable assessment of positive behaviors in the context of Mexican educational dance, providing teachers with a useful tool to know the transfer of content expressive towards adaptive behaviors.

On the other hand, it was hypothesized that the instrument would be invariant by gender and age. If we observe the results obtained, it is shown that the factor load indexes are equivalent for women and men, not showing differences  $p < .05$  in the chi-square value between the different models. In this way, it can be concluded that the instrument is reliable and valid to measure positive behaviors, regardless of the student's gender. On the other hand, the multigroup analysis did not reveal differences  $p < .05$  in the chi-squared value between the different models and the values found in the  $\Delta CFI$  in the unrestricted model, also showing factorial loads of the questionnaire equivalent among the age groups performed age [(group 1: range 11-13 years,  $n = 198$ ); (group 2: range 14-16 years,  $n = 162$ )]. Likewise, it is concluded that the instrument is valid and reliable, regardless of the age group of the students. These results are consistent with those found in previous studies (Sánchez-Oliva et al., 2013, Sicilia, Ferriz, Trigueros, González-Cutre, 2014) who invariably found the model tested both in the adaptation and validation of the questionnaire to support the basic psychological needs in Physical Education as in the Spanish adaptation and validation of the Physical Activity Class Satisfaction Questionnaire (PACSQ). In this way, we can observe similar results between our work and previous studies that have validated questionnaires to the context of physical activity and sport.

Finally, and in relation to the hypothesis that the questionnaire of positive behaviors in educational dance would maintain empirical relations with constructs derived from the theory of self-determination (Deci and Ryan, 2000), it can be verified that this hypothesis is confirmed. In this sense, the results show us that the factors of the questionnaire of positive behaviors correlate positively with the factors of the CANPB (Amado et al., 2012). In this way, the nomological validity of the instrument is verified, following the postulates of the theory of self-determination (Deci and Ryan, 2000), and it is observed how the support of the basic psychological needs, as well as the different types of

motivational regulation are positively associated with positive behaviors (Sánchez-Oliva et al., 2013).

To conclude, the present study has demonstrated the psychometric properties of the questionnaire of positive behaviors in educational dance, showing an adequate validity and reliability. Also, the instrument has been invariant in terms of gender and age of the participants, which makes this instrument a useful and effective tool to apply in teaching contexts, and assess the degree of acquisition of positive behaviors by students.

Regarding the limitations of the study, it is highlighted that the tool has only been validated in the Mexican context, so cultural differences between Spanish-speaking countries could lead to variations in the results obtained. Therefore, as a future prospective it is established to perform a trans-cultural adaptation and validation of the questionnaire of positive behaviors in educational dance in different Spanish-speaking countries, in order to know the possible similarities and / or differences that may exist.

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