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Measuring motivation in physical education among chinese and spanish adolescents: comparing the psychometric properties of perceived locus of causality scale

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Abstract

The present study aimed to measure motivation in physical education by the Perceived Locus of Causality Scale (PLOC) within a cross-cultural context. A sample of 2,293 adolescents from China (n = 1,287) and Spain (n = 1,006) completed the scales. The results largely supported the reliability and the validity of PLOC in both cultures as well as its cross-cultural equivalence except three problematic items found in the Chinese sample. Moreover, Chinese adolescents scored higher in intrinsic motivation and identified regulation, and lower in introjected regulation, external regulation, and amotivation than Spanish adolescents. These findings supported the universality of motivation structure across different cultures. However, problematic items encountered in Chinese adolescents and differences in motivation suggest that cultural values may cause adolescents to interpret certain motives differently, which highlighted the importance of cultural adaptation when measuring adolescents' motivation.

Keywords: self-determination theory, motivation, physical education, cross-cultural differences, measurement equivalence

Physical Education (PE) plays an important role in promoting physical activity (PA) among adolescents with diverse backgrounds (Ntoumanis and Standage, 2009). Motivation in PE has been demonstrated to be related to positive outcomes, such as concentration, intentions to exercise, and physical fitness in leisure time (e.g. Martínez-Baena, Mayorga-Vega and Viciana, 2016; Taylor, 2017). Consequently, researchers have focused on improving students' PA through motivation in PE (e.g. Palmer, Bycura and Warren, 2018).

To investigate motivation, Self-Determination Theory (SDT; Deci and Ryan, 1985) has been widely applied within the PE context (Ryan and Deci, 2017). According to SDT, different forms of motivation situate along a self-determination continuum. Intrinsic motivation, the most self-determined motivation, involves one's own interest or enjoyment inherent in the activity. Extrinsic motivation refers to expected outcomes or contingencies that are not inherent in the activity. Extrinsic motivation is further divided into four behavioural regulations from more to less self-determined (Ryan and Deci, 2017). Integrated regulation means integration with one's values and beliefs. Identified regulation represents one's identification and acceptance of the behaviour value. Introjected regulation signifies internal pressure, like guilt and shame. External regulation comes through external control and self-alien forces. Finally, amotivation is a state of lacking motivation for participation (Ryan and Deci, 2017).

To measure adolescents' motivation in PE, the Perceived Locus of Causality Scale (PLOC; Goudas, Biddle and Fox, 1994) was widely used (e.g. Martínez-Baena et al., 2016; McDavid, Cox and McDonough, 2014; Zhong, Liu and Zhang, 2014). As the integrated regulation was found problematic to measure and encountered more often in adults (Vallerand, 1997), this subscale has not been included in the PLOC in most languages. According to Ryan and Deci (2017), factors closer on the self-determination continuum are more strongly correlated with each other than more distal factors. Researchers have also explored associations between SDT-based motivations and other psychological outcome variables such as affect and stress, to examine the construct validity of PLOC (Chatzisarantis, Hagger, Biddle, Smith and Wang, 2003). As an important consequent variable, subjective vitality, the subjective experience of being full of energy and alive (Ryan and Frederick, 1997), was found to be positively correlated with more self-determined motivation and negatively related with less self-determined motivation (Liu, Chung, Zhang and Si, 2015).

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Numerous SDT-based motivation studies have been conducted in Western countries, such as Australia (Pannekoek, Piek, Kane and Hagger, 2014), Canada (Beauchamp, Barling and Morton, 2011), Greece (Vlachopoulos, Katartzi, Kontou, Moustaka and Goudas, 2011), Portugal (Teixeira, Monteiro, Carraça and Palmeira, 2018), Spain (Martínez-Baena et al., 2016), United States (McDavid et al., 2014). Nonetheless, there are limited researches in non-Western nations, like Hong Kong (Zhong et al., 2014) and Singapore (Wang, Morin, Ryan and Liu, 2016). Since SDT is a social value construct embedded in individualistic cultures, self-determination may not retain same importance in collectivistic cultures (Lonsdale et al., 2011). Despite that making individual choices by oneself could foster intrinsic motivation in both European and Asian adolescents, Asian adolescents would be more intrinsically motivated when the trusted-others, like teacher, made choices for them (Hagger, Rentzelas, Nikos and Chatzisarantis, 2014).

Turning to PE context, adolescents interpret some motivation forms differently across cultures so that certain motivation forms may not function similarly (Vlachopoulos et al., 2011). Wang, Hagger, and Liu (2009) found that British adolescents tended to score lower on less-determined motivations and higher on more-determined motivations than Singaporean adolescents. When comparing British and Hong Kong adolescents (Lonsdale, Sabiston, Taylor and Ntoumanis, 2011), researchers found that despite the general invariance across cultures, Hong Kong adolescents interpreted external regulation items to be more self-determined.

Research in other countries with distinct cultural values is needed to further explore the cultural influence on motivation. According to cultural dimension theory (Hofstede, Hofstede and Minkov, 2010), countries may vary from collectivism to individualism according to score ranging from 0 to 100. For example, China (score 20) is regarded as a traditional non-Western country with an extremely collectivistic culture. In turn, Hong Kong (score 25) which has been more influenced by Western culture in cultural beliefs and government forms due to immigration, colonization, and globalization, is believed to be more individualistic than China (Liu et al., 2015). On the other hand, Spain (score 51) is considered as relatively more collectivistic than Western countries such as Britain (score 89), but more individualist than other countries of the world such as Latin American (Goodwin and Plaza, 2000; Hofstede et al., 2010; Merino, Privado and Gracia, 2017). To date, Spain has been compared with European countries to study how motivation differs across cultures (e.g. Viladrich et al., 2013). In the current study, we chose mainland China, as a non-Western collectivistic country, and Spain, as a Western but not purely individualistic country, to further explore how motivation differs across cultures.

We aimed to measure SDT-based motivation among adolescents from China and Spain which vary in individualist-collectivist dimension by examining psychometric properties of PLOC. After examining the cross-cultural equivalence of PLOC, we also aimed to compare motivation between the two countries to further explore the cultural influences on motivation.

Method

Participants

A sample of 2,293 students from China and Spain participated in the current study. The Chinese sample included 1,287 students (47.54% female), with mean age of 12.29 years (*SD* = 0.82, range: 11-15) from Year 6 to 8 of schools in Shanghai. The Spanish sample included 1,006 students (49.01% female), with mean age of 13.56 years (*SD* = 0.97, range: 11-16) from course 1 to 3 of schools in Catalonia.

Instruments

PLOC (Goudas et al., 1994) was employed to assess students' motivation in PE. The scale consisted of five four-item subscales measuring intrinsic motivation (e.g. "because PE is fun"), identified regulation (e.g. "because I want to learn sport skills"), introjected regulation (e.g. "because I would feel bad about myself if I didn't"), external regulation (e.g. "because that's the rule"), and amotivation (e.g. "but I really don't know why"). After reading the stem "I participate in PE", students were asked to respond on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The scale was applicated in simplified Chinese, adapted from traditional Chinese (Lonsdale et al., 2011), and in Spanish (Moreno-Murcia, González-Cutre and Chillón-Garzón, 2009).

Subjective vitality was assessed by the Subjective Vitality Scale (SVS; Ryan and Frederick, 1997) to examine the correlation of motivation with theoretical related structure. A five-item version of SVS (Castillo, Tomas and Balaguer, 2017; e.g. "I feel alive and full of vitality") was applied in both Chinese (Song, Fu and Yang, 2015) and Spanish (Castillo et al., 2017). The SVS was measured on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Procedure

We adapted the traditional Chinese PLOC (Lonsdale et al., 2011) into simplified Chinese, following the guidelines of measurement adaptation (Acquadro, Conway, Hareendran and Aaronson, 2008; International Test Commission, 2017). Two Chinese linguists adapted items into simplified Chinese. Another bilingual translator translated the obtained version into English. The first author compared the back-translated version with the original version and modified three items (e.g. expression of "yell" was modified to exclude the sense of insulting). Two psychology experts reviewed the items to guarantee that these items were well designed to measure the supposed constructs. Sixty Chinese secondary school students completed scales online to indicate whether the items were comprehensible. Three students demonstrated some

items comprehensible but unconformable to their speech habit. After communicating with these students, we determined the final version of the simplified Chinese PLOC.

Ethical approval was obtained from the research ethics committee of the authors' institution. Permission was obtained from participating schools and teachers and/or department head of PE were contacted to approach the students in classes to seek participation in the study. Conforming to the guidelines of Spanish Psychological Society, informed consent was obtained from parents/legal representatives. Once students decided to participate in study voluntarily and confidentiality was ensured, they completed the scales within 25 minutes at the beginning of PE classes.

Data Analysis

We first computed the descriptive statistic and missing values patterns. According to criteria suggested by Rhemtulla, Brosseau and Savalei (2012), we treated the data as ordinal. Regarding the ordinal nature of the data and the presence of missing values (see Results), we used the Weighted Least Squares Mean and Variance adjusted (WLSMV) estimator for Confirmatory Factor Analysis (CFA) to examine the hypothesized five-factor structure of PLOC in each language (Li, 2016). Items were allowed to load on only the hypothesized factor and error terms were not allowed to correlate. The Goodness-of-fit Indices included the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Root Mean Square Error of Approximation (RMSEA). For quantitative data, CFI and TLI ≥ .90, and RMSEA ≤ .08 indicate acceptable fit while CFI and TLI ≥ .95, and RMSEA ≤ .06 indicate good fit (Kline, 2016). For ordinal data, limited criteria have been proposed, for example CFI > .96 (Yu, 2002). Following Viladrich and her colleagues' (2013) recommendation, we took all these suggestions into consideration. We calculated both the nonlinear reliability coefficients for ordinal data (Green and Yang, 2009; Viladrich, Angulo-Brunet and Doval, 2017), and the composite reliability coefficients (Hair, Black, Babin and Anderson, 2018) to enable comparing with previous studies. We examined the convergent validity through Average Variance Extracted (AVE; Hair et al., 2018). We also examined the discriminant validity comparing AVE and squares of inter-correlations among PLOC factors, and nomological validity through the correlations between PLOC subscales and the SVS score (Hair et al., 2018; Lonsdale et al., 2011). To examine the cross-cultural invariance of the PLOC factor structures, we conducted a multiple-group CFA following the procedures proposed by Kline (2016). We tested the baseline model with no parameter constraints, followed by models in which factor loadings, thresholds, variances and covariances were sequentially constrained to be equal across two samples. A decrease in CFI larger than .01 and a decrease in RMSEA larger than 0.015 from one model to the next indicated that the more constrained model was not invariant across the samples (Chen, 2007; Kline, 2016). Once measurement invariance was tested, we compared latent factor means between the two samples though latent mean analysis.

Results

Descriptive Statistics

The responses displayed 2.1% of missing values, with 37 missing patterns in the Chinese sample and 28 in the Spanish sample. The item distributions (see Table 1) showed skewness between 0 and 1.99 in absolute value, and kurtosis between 0.07 and 5.97 in absolute value, indicating non-normality in both cultures. In consideration of the existent floor and ceiling effects in the item distribution, the data were treated as ordinal.

Table 1
Response frequency to each category, univariate normality, and item-factor loadings of PLOC

	China								Spain							
Scale	1	2	3	4	5	Sk	K	Load	1	2	3	4	5	Sk	K	Load
Intrinsic Motivation																
IM1	88	103	263	287	556	-0.84	2.67	.79	44	65	141	251	504	-1.19	3.54	.74
IM2	53	81	240	248	674	-1.07	3.19	.89	45	80	174	272	432	-0.95	3.01	.88
IM3	102	97	306	276	531	-0.75	2.55	.79	74	88	297	265	273	-0.51	2.49	.63
IM4	64	81	247	260	664	-1.05	3.14	.88	68	111	235	247	341	-0.59	2.35	.82
Identified Regulation																
IDR1	30	38	193	285	770	-1.43	4.54	.86	47	87	147	246	478	-1.03	3.06	.83
IDR2	97	119	376	273	450	0.54	2.34	.45	55	76	198	273	401	-0.87	2.89	.78
IDR3	42	34	191	281	764	-1.48	4.66	.82	39	64	145	267	489	-1.16	3.56	.76
IDR4	75	60	237	282	661	-1.14	3.41	.70	53	85	217	295	355	-0.76	2.76	.68

	China								Spain							
Scale	1	2	3	4	5	Sk	K	Load	1	2	3	4	5	Sk	K	Load
Introjected Regulation																
ITR1	342	162	337	205	275	0.02	1.68	.68	132	104	196	220	352	-0.56	2.05	.67
ITR2	308	154	320	222	307	-0.09	1.67	.56	265	136	199	176	226	0	1.58	.64
ITR3	373	179	361	188	218	0.16	1.78	.76	236	165	252	170	181	1.99	0.07	.69
ITR4	290	187	442	176	224	0.08	1.95	.47	252	178	246	170	157	0.14	1.79	.54
External Regulation																
EXR1	610	183	260	113	156	0.72	2.18	.71	295	129	168	164	249	.02	1.48	.60
EXR2	81	76	275	253	621	-0.95	2.93	-.24	82	82	186	247	408	-0.84	2.63	.55
EXR3	747	146	224	84	120	1.05	2.78	.85	433	136	135	121	179	0.50	1.69	.69
EXR4	339	199	354	173	258	-0.13	1.75	.56	238	131	211	162	262	-0.09	1.60	.71
Amotivation																
AM1	713	144	280	69	105	0.99	2.79	.66	527	114	163	80	113	0.88	2.36	.70
AM2	766	181	241	45	81	1.26	3.58	.76	580	142	119	80	83	1.15	2.98	.76
AM3	943	159	140	37	43	1.92	5.97	.86	644	126	104	69	57	1.43	3.81	.89
AM4	766	235	183	61	57	1.39	4.02	.82	445	147	186	118	109	1.98	0.64	.66

Note. Sk = skewness; K = kurtosis; Load = factor loading.

Factorial Structure and Reliability

In the Chinese sample, the 20-item model did not fit the data adequately (see Table 2). The standardized factor loadings ranged from -.24 to .89 (see Table 1). Using the modification indices and standardized residual matrix, we found item IDR2 of identified regulation (i.e., "because it is important for me to do well in PE"), item ITR4 of introjected regulation (i.e., "because it bothers me when I don't") and item EXR2 of external regulation (i.e. "because that's what I am supposed to do") problematic to measure the supposed factor. This inspection along with content analysis (see Discussion) suggested that these items may not measure what they were meant to measure. Thus, these three items were removed from further analysis. After excluding these items, the 17-item model fit the data well. In the Spanish sample, we found a nearly acceptable fit of the 20-item model (see Table 2). To compare the two samples, we also tested the 17-item model in the Spanish sample, which fit the data well.

Table 2
CFA model fit statistics

Model	χ2	*df*	CFI	ΔCFI	TLI	RMSEA	ΔRMSEA	90% CI RMSEA
Single group model								
Chinese 20-item model	3836.06	160	.83		.80	.13		.13-.14
Spanish 20-item model	994.79	160	.94		.93	.07		.07-.08
Chinese 17-item model	550.74	109	.98		.97	.06		.05-.06
Spanish 17-item model	509.36	109	.97		.96	.06		.06-.07
Multi-group model								
Baseline model	1052.21	218	.97		.97	.06		.05-.06
Loadings constrained model	1178.90	230	.97	.00	.96	.06	.00	.06-.06
Thresholds constrained model	1618.53	276	.96	-.01	.96	.07	.01	.06-.07
Variances/covariances constrained model	2096.71	291	.95	-.01	.95	.07	.00	.07-.08
Mean comparison model	1618.53	276	.96	—	.96	.07	—	.06-.07

Note. df = degrees of freedom; CFI = Comparative Fit Index; Δ = difference with the previous model; TLI = Tucker-Lewis Index; RMSEA = Root Mean Squared Error of Approximation; CI = Confidence Interval.

The nonlinear reliability coefficients of intrinsic motivation, identified regulation and amotivation were greater than .70 in both cultures (see Table 3), indicating an acceptable internal consistency. In the Chinese sample, the reliability coefficients of introjected regulation and external regulation were .66 and .72. In the Spanish sample, the reliability coefficients of introjected regulation and external regulation were .67 and .68. These values are considered to be slightly low (Hair et al., 2018). The values of composite reliability coefficients were similar to the nonlinear relia-

bility coefficients that values of introjected regulations and external regulations were lower than other subscales.

The hypothesized simplex-like structure was also found (see Table 4). As expected, factors closer on the self-determination continuum were more correlated than more distal factors. For example, external regulation correlated more positively with amotivation than introjected regulation. However, identified regulation correlated more negatively with amotivation than intrinsic motivation did.

Table 3
Internal consistency and mean differences of subscales scores

	China				Spain (reference)					
Measure	ρ	ω	AVE	M	ρ	ω	AVE	*M*	*SE*	*p*
Intrinsic Motivation	.87	.91	.84	0.22	.81	.85	.76	0	.04	< .001
Identified Regulation	.76	.84	.79	0.36	.79	.81	.77	0	.05	< .001
Introjected Regulation	.66	.71	.67	-0.26	.67	.70	.66	0	.05	< .001
External Regulation	.72	.78	.73	-0.41	.68	.67	.64	0	.06	< .001
Amotivation	.83	.86	.78	-0.18	.78	.83	.74	0	.06	.008

Note. ρ = non-linear reliability coefficient (Green and Yang, 2009); ω=composite reliability coefficient; AVE=Average Variance Extracted.

Convergent, Discriminant and Nomological Validity

All AVE of subscales were higher than 0.5, supporting the convergent validity (see Table 3). Moreover, AVE of most subscales were higher than squares of correlations between the examined subscales except that AVE of intrinsic motivation and identified regulation were lower than the square of correlation between these two factors in both groups, which supported the discriminant validity of introjected regulation, external regulation, and amotivation scores. The inter-factor correlations less than .90 also supported the discriminant validity of subscales except intrinsic motivation and identified regulation (see Table 4; Kline, 2016). The correlations between factors of PLOC and subjective vitality are presented in Table 4. As expected, intrinsic motivation, identified regulation and introjected regulation were positively related to subjective vitality, meanwhile, amotivation and external regulation were negatively related to subjective vitality.

Table 4
Correlations of PLOC subscales and SVS in Chinese (above the diagonal) and Spanish (below the diagonal) samples

Measure	1	2	3	4	5	6
1 Intrinsic Motivation	1.00	.94***	.07*	-.48***	-.72***	.55***
2 Identified Regulation	.96***	1.00	.14***	-.45***	-.73***	.57***
3 Introjected Regulation	.52***	.64***	1.00	.27***	.69***	.08*
4 External Regulation	-.09*	-.02	.67***	1.00	.75***	-.32***
5 Amotivation	-.46***	-.48***	.09*	.59***	1.00	-.49***
6 Subjective Vitality	.81***	.75***	.45***	-.05	-.36***	1.00

**p < .05, **p < .01, ***p < .001*

Cross-cultural Invariance

The 17-item model fit the data well independently in each sample (see Table 2). The baseline multi-group model with no parameter constraints fit the data well. When we sequentially constrained the factor loadings, thresholds variances and covariances, the CFI and the RMSEA did not exhibit sizeable change. These results indicated metric measurement invariance and structural invariance across the two samples.

Mean Comparison

To conduct latent mean analysis, we constrained the intercepts of the observed variables to be equal to test scalar invariance, and fixed the latent factor means to zero for the Spanish sample as the reference group. The model showed an acceptable fit to the data supporting the scalar invariance between countries. Moreover, the Chinese sample demonstrated significantly higher scores in intrinsic motivation and identified regulation than the Spanish sample. Meanwhile, the Chinese sample presented significantly lower scores in introjected regulation, extrinsic motivation and amotivation than the Spanish sample.

Discussion

The current study aimed to measure SDT-based motivation in PE among Chinese and Spanish adolescents by examining the psychometric properties of the PLOC. Besides concerns about some subscales, the results largely supported the reliability and the validity of PLOC in both cultures as well as its cross-cultural equivalence. The results also illustrated differences of motivation across the two cultures.

Consistent with previous studies (e.g. Lonsdale et al., 2011; Moreno-Murcia et al., 2009; Zhong et al., 2014), our results provided evidence of the PLOC five-factor structure in both cultures except three problematic items encountered in the Chinese sample. Turning to reliability, three subscales showed acceptable values in both groups. However, the internal consistencies of introjected regulation and external regulation scores were low in both Chinese and Spanish adolescent scores. Similar results were also found in previous studies (Ferriz, González-Cutre and Sicilia, 2015; Lonsdale et al., 2011; Teixeira et al., 2018). This may be explained by the fact that items of both subscales measure various aspects of each regulation, which results in inconsistency. For example, introjected regulation includes both motives to avoid low contingent self-worth and to enhance contingent self-worth.

The inter-correlations of subscales and correlations between different motivation forms and subjective vitality supported simplex-like structure and nomological validity, consistent with theory and previous studies (e.g. Liu et al., 2015; Martínez-Baena et al., 2016; McDavid et al., 2014). However, similar to other cultures (e.g. Lonsdale et al., 2011; Moreno-Murcia et al., 2009; Teixeira et al., 2018), the discrimination between intrinsic motivation and identified regulation cast doubt. Identified regulation was defined as one's willingness to act to express values despite the unenjoyability of the behaviour (Sheldon et al., 2017). When adolescents do not perceive unenjoyment of participating in PE, they may not distinguish identified regulation from intrinsic motivation.

Turning to the three problematic items in the Chinese sample, two of them (ITR4 and EXR2) were also reported in Hong Kong students (Lonsdale et al., 2011; Zhong et al., 2014). The item IDR2 (i.e., "because it is important for me to do well in PE") signifies motives to express personal value and the item ITR4 (i.e., "because it bothers me when I don't") signifies motive to avoid low contingent self-worth. Both items reflect the importance of PE to adolescents. However, in China people pay too much attention to traditional academic achievement and consider PE to be replaceable by other important classes (Jin, 2016). Therefore, students may not consider participation in PE as important to present self-worth or personal value, which would explain why these items did not measure supposed regulation. The item EXR2 ("because that's what I am supposed to do") is supposed to measure external regulation. But it may be recognized as introjected regulation, when interpreted as motives to promote contingent self-worth (Lonsdale et al., 2011).

Measurement and structure invariance across Chinese and Spanish adolescents indicated that adolescents from diverse cultures possess motivation in a similar structure, consistent with previous findings. Previous research found that Chinese-speaking adolescents tended to rate more self-determined motivation lower and less self-determined motivation higher than British students (Lonsdale et al., 2011; Wang et al., 2009). These results were discussed as being consistent with British culture endorsing more individualistic values. Contrarily, in the current study Chinese students scored more self-determined motivation higher, but less self-determined motivation lower than Spanish students. This may be due to the smaller difference on the individualism dimension between China (score 20) and Spain (score 51), compared with the large difference between Hong Kong (score 25) and Britain (score 89; Hofstede et al., 2010). Since Spain is relatively more collectivistic than Britain, Spanish students may not interpret motivation in a similar way as British students. These unexpected results led us to turn our attention to other related factors to explain the differences in our study. Another possible reason is the specific influence of the academic values in China. In China, academic achievement has been seen as primary task for students (Jin, 2016), so that students perceive more pressure to enrol in traditional knowledge courses (e.g. mathematics) rather than a "recreational" course (e.g. PE). Chinese students will not be forced to practice, but free to take a break in PE. Thus, they are more willing to participate in PE.

Previous studies used to treat data as quantitative with corrections for non-normality such as bootstrap. In the present study, we treated data as ordinal to examine and compare SDT-based measurement structure across cultures, which was recommended for data with five categories but showing floor and ceiling effects (Remthulla et al., 2013; Viladrich et al., 2017). Nevertheless, the main results we obtained were congruent with those previous studies, which highlights the opportunity to investigate SDT-based structure and replicate previous empirical results with alternative statistical techniques. In consideration of some unexpected results pertaining to cultural differences, several research directions can be proposed. First, within school context, motivation in PE can also be considered as a special academic motivation. Research on academic factors may help to understand motivation in PE. Second, considering the speciality of PE in China, motivation in PE may not represent adolescents' motivation to exercise. Measuring exercise-related variables, like step counts, may help to understand how adolescents are motivated to exercise during PE.

In terms of limitations, we only measured subjective vitality within the nomological network of motivation. Although our findings were congruent to previous studies (e.g. Liu et al., 2015), they provided partial evidence that

more self-determined motivation can increase well-being. To understand how motivation function and its related outcomes, both positive and negative consequent variables are needed for investigation. Besides this limitation, our findings largely provide psychometric evidence that SDT-based measurement in PE is applicable across different cultures. However, difficulties in the measurement among Chinese students, and differences between the two countries underline the importance of cultural consideration and the necessity of more cross-cultural studies.

Medición de la motivación en educación física entre adolescentes chinos y españoles: comparación de las propiedades psicométricas de la escala de locus de causalidad percibido

Resumen

El presente estudio intentó a medir la motivación en educación física por la Escala de locus de causalidad percibido (PLOC) dentro un contexto transcultural. En total 2,293 adolescentes de China (n = 1,287) y de España (n = 1,006) completaron las escalas. Se apoyan la fiabilidad y la validez de PLOC y su equivalencia transcultural excepto tres ítems problemáticos encontrado en la muestra china. Además, los adolescentes chinos obtuvieron puntuaciones más altas en motivación intrínseca, regulación identificada, y puntuaciones más bajas en regulación introyectada, regulación externa y amotivación que los españoles. Los resultados indican transculturalmente una estructura universal de motivación. Sin embargo, los ítems problemáticos en la muestra china y las diferencias de motivación sugieren que los valores culturales afectan la interpretación de unos motivos de los adolescentes, que destaca la importancia de adaptación cultural a medir la motivación de los adolescentes.

Palabras claves: la teoría de la autodeterminación, motivación, educación física, diferencias transculturales, equivalencia de medida

Medindo a motivação na educação física entre adolescentes chineses e espanhóis: comparando as propriedades psicométricas da escala do lócus de causalidade percebido

Resumo

O presente estudo teve como objetivo mensurar motivação na educação física pelo Escala do locus de causalidade percibido (PLOC) dentro de um contexto transcultural. No total, 2.293 adolescentes da China (n = 1.287) e da Espanha (n = 1.006) completaram as escalas. Os resultados apoiaram amplamente a confiabilidade e validade do PLOC em ambas as culturas, ebm como sua equivalência transcultural, exceto por três itens problemáticos encontrados na amostra chinesa. Além disso, os adolescentes chineses pontuaram mai em motivação intrínseca, regulação identificada, e menor em regulação introjetada, regulação externa e amotivação do que os adolescentes espanhóis. Essas descobertas apoiaram a universalidade da estrutura de motivação. No entanto, os itens problemáticos encontrados em adolescentes chineses e as diferenças na motivação sugerem que os valores culturais podem levar os adolescentes a interpretar certos motivos de maneira diferente, o que destacou a importância da adaptação cultural ao medir motivação dos adolescentes.

Palavras-chave: teoria da autodeterminação, motivação, educação física, diferenças transculturais, equivalência de medidas

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