

Perception of Equal Treatment and the Importance of Physical Education of Adolescent Girls

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Abstract

This study aimed to analyze the relationship between implicit beliefs which predict athletic ability, the rate of self-determination, perceived discrimination, perception of equal treatment and the importance and usefulness accorded to physical education. We used a sample of 330 students aged between 13 and 16 ($M = 14.18$, $SD = 1.90$). The structural regression analysis showed that incremental belief positively predicted the self-determination index, while implicit entity belief predicted it negatively. The index positively predicted self-perception of equal treatment, the perception of the importance and value given to physical education and negatively predicted perceived discrimination. The results are discussed in relation to the promotion of a classroom atmosphere focused on the incremental belief that athletic ability can be improved through learning and effort, and thus foster co-educational schooling.

Keywords: Physical education, discrimination, implicit ability beliefs, self-determined motivation, coeducation.

Resumen

El estudio tuvo como objetivo analizar la relación predictiva entre las creencias implícitas de habilidad deportiva, el índice de autodeterminación, la percepción de discriminación, la percepción de igualdad de trato y la importancia y utilidad conferida a la educación física. Se utilizó una muestra de 330 alumnas con edades comprendidas entre los 13 y 16 años ($M = 14.18$; $DT = 1.90$). El análisis del modelo de regresión estructural mostró que la creencia incremental predijo positivamente el índice de autodeterminación, mientras que la creencia implícita de entidad lo hacía negativamente. El índice de autodeterminación predijo positivamente la percepción de igualdad de trato, la percepción de la importancia y utilidad concedida a la educación física y negativamente la percepción de discriminación. Los resultados son discutidos en relación a la promoción de un clima de aula centrado en la creencia incremental de que la habilidad deportiva se podría mejorar a través del aprendizaje, el esfuerzo y poder fomentar así una escuela coeducativa.

Palabras clave: Educación física, discriminación, creencias implícitas de habilidad, motivación autodeterminada, coeducación.

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Introduction

There is still a noticeably sharp decrease in participation in physical activities (Pratt, Macera, & Blanton, 1999) and in adolescent girls' interest in physical education (Deem & Gilroy, 1998; Shropshire, Carroll, & Yim, 1997). In the education curriculum, contents focus predominantly on physical condition and group sports which are traditionally associated with males, and this conflicts with the interests of female students who tend more towards activities to improve health, skills development, cooperative activities, enjoyment and activities which foster social relations (Hicks, Wiggins, Crist, & Moode, 2001; Moreno & Cervelló, 2010); an aspect which reflects both unequal opportunities and discrimination among participants (Moreno-Murcia, Cervelló, González-Cutre, Julián, & Del Villar, 2011; Scraton, 1992). The physical-sports activities provided in physical education classes do not seem to meet students' needs or encourage their motivation towards doing physical sports activities in general (Sport Council, 1998; Williams & Woodhouse, 1996). Different studies seem to indicate that in educational contexts women show higher levels of important social values such as responsibility about learning, and value social relationships more highly (Cecchini, González, Méndez-Giménez, & Fernández-Río,

2011; Fernández-Río, Méndez-Giménez, Cecchini, & González de Mesa, 2012; Guan, McBride, & Bruene, 2006). In view of the problems of inequality still found in physical education classes, it is necessary to take an in-depth look into the importance of how youngsters who do sport form the nature of their beliefs about sports skills, leading them towards a greater self-determined motivation related to co-educational aspects, which in turn, would yield positive consequences from doing physical-sports activities.

In this sense, from a general psychology perspective (Dweck, 1999) and in its application to the physical-sports area (Biddle, Soos, & Chatzisarantes, 1999) two types of implicit belief about sports skill are maintained: an incremental belief according to which the skill can be improved through effort and learning; and an entity belief which considers skill as something stable, and therefore, is not susceptible to change. For example, students could see the cardiorespiratory capacity to run for an hour as something fixed, unalterable and innate (entity theory of cardiorespiratory capacity) or as something malleable and trainable (incremental theory of cardiorespiratory capacity). According to Dweck, 1999, students with an entity belief are more likely to adopt a behavior based on their ability to beat others through their mastery of a sports skill, while

those who have an incremental belief are more likely to show a behavior of involvement in the teaching-learning process of a skill and display a more self-determined motivation. In this line, Nicholls (1992) considers that implicit skill concepts or beliefs are based on people's understanding of the differences between ability and effort. One stable skill concept is the belief that skill cannot be modified with effort or practice and performance depends on innate abilities. While an acquired skill concept implies that it can be improved with an increase in effort and practice. Children reach a mature comprehension of skill at around 12; at that age they are capable of distinguishing the concepts of effort, ability, luck and task difficulty (Nicholls, 1992), although as Xiang, Lee, and Williamson (2001) point out, some adolescents who understand the difference between ability and effort still believe in the effectiveness of effort.

In the natural forming of beliefs about sports skill, the characteristics of social context could modulate the appearance of these beliefs. Students could show an incremental belief about sports skill if their teacher considers that skill can be improved through learning. On the other hand, when a teacher promotes aspects of social comparison and innate talent, students could be conditioned to believe that in practice

skill cannot be developed through dedication and effort, but is inherent in certain people with an aptitude for it (González-Cutre, Sicilia, & Moreno, 2008; Omundsen, 2001). So, positive behavior by the teacher, understood as the classroom climate generated in physical education classes, could promote a more self-determined type of motivation and achieve positive attitudes towards physical education during adolescence (Moreno-Murcia, Zomeño, Marín de Oliveira, Ruiz, & Cervelló, 2013; Ntoumanis & Biddle, 1999; Ryan, Stiller, & Linch, 1994; Standage, Duda, & Ntoumanis, 2003).

In this line, the self-determination theory (Deci & Ryan, 1985) affirms that different social and contextual factors influence a more or less self-determined type of motivation which students may experience in the classroom (family, teacher and peers). It seems that when these social and contextual factors provide a motivational climate oriented towards the importance of the teaching-learning process of a sports skill, where there is equal treatment of the learning focus (Fortier & Grenier, 1999; Papaioannou, 1998a), this could stimulate the appearance of a more self-determined regulation of behavior (Biddle et al., 1995; Goudas, 1998; Moreno, Llamas, & Ruiz, 2006) and a greater evaluation of physical education (Pa-

paioannou, 1998b) in learners. Teachers' work and the student-teacher relationship are strongly related to students' general involvement and especially to their cognitive involvement in learning (Ros, Goikoetxea, Gairín, & Lekue, 2012). By providing environments which favor a climate that involves the task (climate focused on the importance of the learning process of a skill), students would be able to see their personal progress and assume an incremental belief of their sports skill, which would enable them to deal with physical exercises with a greater self-determined motivation and positive behavior towards physical education (Ryan et al., 1994; Sicilia, Águila, González-Cutre, & Moreno-Murcia, 2011).

On the basis of the revised research, this study aimed to analyze the predictive relations between different types of implicit sports skill beliefs, self-determined motivation, co-educational aspects (perception of equal treatment and discrimination) and the importance that students give to physical education. From this perspective the aim is to take an in-depth look into the importance of an incremental belief about sports skill in order to favor a more self-determined motivation in students, which in turn could contribute towards more co-educational behaviors and the importance of physical education in the classroom. In this respect, it

was hypothesized that an incremental belief about sports skill would positively predict the self-determination index, and an entity belief in sports skill would predict it negatively. A second hypothesis is that self-determined motivation would negatively predict discrimination and positively predict equal treatment and the importance and usefulness students give to physical education.

Method

Participants

The sample consisted of 330 female physical education students aged between 13 and 16 ($M = 14.18$; $SD = 1.90$) from eight secondary education schools from the region of Murcia and the province of Alicante. Four schools were randomly selected from each province with an even division in the number of students. 51.9% of the whole sample were from schools in Murcia and 48.9% were students from schools in Alicante. The academic year for the whole sample was 100 students in 2nd year secondary education (age: $M = 13.45$, $SD = .68$), 105 3rd year ($M = 14.89$, $SD = .90$), 85 in the 4th year ($M = 15.60$, $SD = .92$) and 40 in the 1st year of "Bachillerato" ($M = 16.08$, $SD = 1.10$). Non-probability and casual sampling is used (also referred to as convenience sampling).

Variables and instruments

The study target variables are classified into three groups following the indications of the hierarchical model of intrinsic and extrinsic motivation by Vallerand (1997, 2001), which clearly and graphically presents the relations that exist between the different constructs defined by the theory of self-determination: social factors represented by implicit beliefs about skill, types of motivation considered through the self-determination index, consequences such as perception of equal treatment, perceived discrimination and the importance and usefulness accorded to physical education.

In order to measure implicit beliefs about sports skill, the Spanish version of the *Conceptions of the Nature of Athletic Ability Questionnaire-2* (Biddle, Wang, Chatzisarantis, & Spray, 2003) by Moreno-Murcia, Cervelló-Gimeno, Martínez-Galindo, and Moreno (2013) was used. The scale is made up of 12 items which are grouped into two factors: six items make up the dimension - incremental belief about sports skill (e.g. “to be successful at sport it is necessary to learn techniques and skills, and practice them regularly”) and six items for entity belief about sports skills (e.g. “It is difficult to change how good you are at a sport”). The responses are given on a Likert scale which ranges from 1 (*Totally*

agree) to 5 (*Totally disagree*) introduced by the phrase “Your beliefs about your sports skill are ...”. Internal consistency was .77 for entity belief and .78 for incremental belief.

To measure motivation in physical education, the Spanish version (Moreno, González-Cutre, & Chillón, 2009) of the *Perceived Locus of Causality Scale* by Goudas, Biddle, and Fox (1994) was used. The questionnaire is made up of twenty items grouped into five factors each consisting of four items: intrinsic motivation (e.g. “Because physical education is good fun”), identified regulation “Because I can learn skills that I could use in other areas of my life”), introjected regulation (e.g. “Because I would feel bad about myself if I didn’t do it”), external regulation (e.g. “Because I’ll have problems if I don’t do it”) and demotivation (e.g. “But I really feel that I’m wasting my time in physical education”). The responses completed the phrase “I participate in physical education class...” and answers were given on a Likert scale of 0 (*Not true at all*) to 4 (*Totally true*). Internal consistency was .81 for intrinsic regulation, .81 for identified regulation, .74 for introjected regulation, .77 for extrinsic regulation and .81 for demotivation. The self-determination index (SDI) was calculated with the factors from this scale, which indicated to what extent students’ motivation was self-determined.

To calculate the self-determination index (SDI) (Vallerand, 1997) the following formula was used: $[(2 \times \text{Intrinsic regulation}) + \text{Identified regulation}] - [(\text{External regulation} + \text{Introjected regulation}) / 2] + (2 \times \text{Demotivation})$.

The scale designed by Cervelló, Jiménez, Del Villar, Ramos, and Santos-Rosa (2004) was used to measure perception of equality-perceived discrimination of students in physical education class. The questionnaire consists of nineteen items, twelve of which belonged to the behaviors of the equal treatment factor (e.g. “In physical education class my teacher shares out material equally among the male and female students”) and seven items made up the discrimination behaviors factor “In physical education class the teacher pays different attention to the boys than to the girls”). The responses are given on a Likert scale from 1 (*Totally disagree*) to 10 (*Totally agree*), preceded by the sentence “You consider that your physical education teacher...”. This questionnaire showed internal consistency of .90 for equal treatment and .72 for discrimination.

The questionnaire by Moreno et al. (2006) was used to measure the importance and usefulness of physical education for students. The scale consists of three items (e.g. “I consider it important to receive physical education classes”, “I think that physical education

class is one of the most important subjects in comparison with the rest” and “I think that the things I learn in physical education will be useful to me in my life”). The introductory phrase for the items was “As far as physical education classes are concerned...”. The responses were scored on a Likert scale from 1 (*Totally disagree*) to 4 (*Totally agree*). Internal consistency was .82.

Procedure

The heads of the different secondary education schools were contacted to inform them about the objective of the research and to ask them for their collaboration. In order for minors to be able to participate, parents were asked for their written authorization and were also informed about the purpose of the research. The questionnaires were completed in one of the physical education classes under the supervision of the lead researcher, who dealt with any queries that arose. The questionnaires were answered individually and in optimum conditions for students to be able to concentrate - it took approximately 15 minutes to complete them. Participation was voluntary and anonymous.

Data analysis

Firstly, the descriptive statistics for all the target variables (mean and standard deviations) were cal-

culated and internal consistency for each factor was analyzed using Cronbach's Alpha coefficient and bivariate correlations. Likewise, a structural regression model was estimated to analyze the hypothesized relations between the variables. The two-step approach proposed by Anderson and Gerbing (1988) was used: firstly, a measure model was calculated which gave construct validity to the dimensions, based on the twelve measures observed and on the six latent constructs which freely correlated (Anderson & Gerbing, 1988); secondly a structural equation model was formulated which analyzed the predictive measures between implicit beliefs about sports skill, the self-determination index, discrimination, equal treatment and the importance and usefulness accorded to physical education. SPSS 20.0 and AMOS 20.0. statistical software was used for the data analysis.

Results

Descriptive analysis and bivariate correlations

Incremental belief about sports skill obtained a higher score than entity belief about sports skill,

($M = 4.00$) and ($M = 2.60$) respectively. The self-determination index fluctuated from -18.50 to 16.75 , with a value of ($M = 4.61$). Perception of equal treatment presented a higher valuation than perceived discrimination. Perception of the importance and usefulness given to physical education presented a value of ($M = 2.78$) (See Table 1). In the correlation analysis, it was noted that implicit entity belief about sports skill correlated positively with perceived discrimination and negatively with incremental belief, the self-determination index and perception of equal treatment. The self-determination index correlated negatively with perceived discrimination and positively with incremental belief, perception of equal treatment and perception of the importance and usefulness given to physical education. Perceived discrimination correlated negatively with the self-determination index and perception of equal treatment and positively with implicit entity belief about sports skill. The perception of the importance and usefulness accorded to physical education correlated positively with all the variables except with implicit entity belief about sports skill and with perceived discrimination.

Table 1

Descriptive Statistics and Correlations for all the Variables

Variables	<i>M</i>	<i>SD</i>	α	R	1	2	3	4	5	6
1. Entity belief	2.60	.85	.77	1-5	—	-.23**	-.31**	.25**	-.15*	-.10
2. Incremental belief	4.00	.79	.78	1-5	—	—	.45**	-.00	.36**	.35**
3. SDI	4.61	6.12	—	1-4	—	—	—	-.17**	.38**	.45**
4. Perceived discrimination	4.25	2.17	.62	1-10	—	—	—	—	-.30**	-.12
5. Equal treatment Perception	7.72	2.01	.90	1-10	—	—	—	—	—	.30**
6. Importance of physical education perception	2.78	.71	.82	1-4	—	—	—	—	—	—

Note. * $p < .05$; ** $p < .001$; *M* = Mean; *TD* = Typical deviation; α = Cronbach's alpha; R = Range; SDI = Self-determination index.

Structural regression model analysis

In order to make an analysis of the measure model and test the structural regression model (SEM) the number of latent variables per factor was reduced, this is especially recommended when the sample size is not particularly big compared with the number of model variables (Marsh, Richards, Jonsen, Roche, & Tremayne, 1994; Vallerand, 2001, 2007). This reduction can be achieved by combining items in pairs. In this way, half of the first items for each subscale were averaged to form the first block of items, and the second half of items were averaged to form

the second block of items, and so on until the last one. Marsh et al. (1994) suggested using pairs of items because the results are more reliable, they tend to be distributed more normally and because they half the ratio of the number of variables measured in the model and the number of participants.

Since the Mardia coefficient was high (97.20), the maximum verisimilitude estimation method was used together with the bootstrapping method, which made it possible to assume that the data were robust to the lack of normality (Byrne, 2001). In the same way, a series of *fit* coefficients were considered to evaluate the goodness of fit of the measure models

with the empirical data. So, based on the contributions by different authors (Bentler, 1990; Bollen & Long, 1993; McDonald & Marsh, 1990), the goodness of fit indices which were considered for evaluating the goodness of the measurement were: χ^2 , $\chi^2/\text{d.f.}$, RMSEA (Root Mean Square Error of Approximation), RMSR (Root Mean Square Residual) and the incremental indices (CFI, IFI and TLI). These goodness of fit indices are considered acceptable when: $\chi^2/\text{d.f.}$ is lower than 5, the incremental indices (CFI, IFI and TLI) are higher than .90 and the error indices (RMSEA and RMSR) are lower than .08 (Browne & Cudeck, 1993; Hu & Bentler, 1999). The indices obtained were adequate: χ^2 (39, $N = 230$) = 36.60, $p = .00$; $\chi^2/\text{d.f.} = 1.90$; CFI = .99; NFI = .97; TLI = .99; RMSEA = .001; RMSR = .03. Discriminant validity was also examined, taking into account that the correlation between the latent variables, attenuated by the measure error (+/- 2 times the measure error), was lower than 1.0. Therefore, according to the previous indications, the results showed the measure model to be adequate.

The second step consisted in verifying the structural regression model and the measure model simultaneously, which makes it possible to focus on the conceptual interaction between the latent factors: implicit (entity and incremental) beliefs about sports skill, self-determination index, perceived

discrimination, perception of equal treatment and the perception of the importance and usefulness accorded to physical education. The examination of the goodness of fit model showed the following fit indices: χ^2 (30, $N = 230$) = 91.25, $p = .00$; $\chi^2/\text{d.f.} = 1.90$; CFI = .96; NFI = .92; TLI = .94; RMSEA = .06; RMSR = .07. The results of the structural regression model (Figure 1) established that implicit incremental belief about sports skill positively predicted the self-determination index, while implicit entity belief predicted it negatively. The self-determination index positively predicted the perception of equal treatment and negatively predicted perceived discrimination. In turn, the self-determination index positively predicted the importance and usefulness accorded to physical education. Explained variances of 6% were obtained for perceived discrimination, 23% for perception of equal treatment and 31% for perception of the importance and usefulness accorded to physical education. All the weights for standard regression are standardized and are statistically significant ($p < .05$).

Discussion

The implicit belief that students have about sports skill could influence their motivation towards doing physical activity and achieve positive consequences on a cogni-

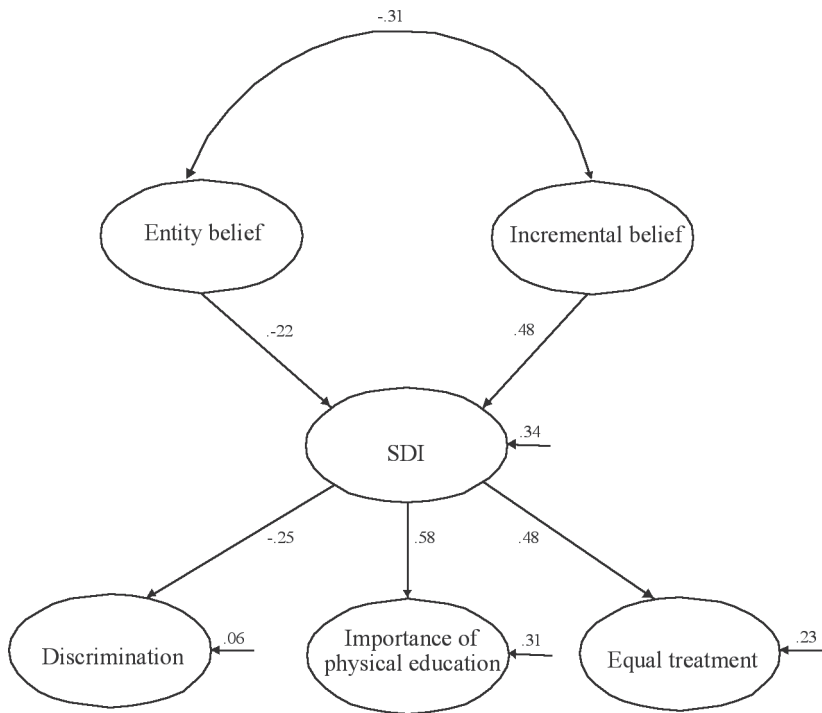


Figure 1. Structural regression model.

tive level (learning a sports skill), on a social level (greater perception of equal treatment) and on an affective level (importance and usefulness accorded to physical education), which puts an end to any unequal treatment between female and male students in physical education classes (Biddle et al., 1999; Biddle et al., 2003; Li & Lee, 2004; Sarrazin et al., 1996). In order to look further into the influence that these psycho-social variables have on a greater per-

ception of equal treatment and the importance of physical education of students, the study aimed to analyze the predictive relation between implicit beliefs about sports skill and the self-determination index, the perception of equal treatment, perceived discrimination and the importance of physical education classes for students. After estimating the structural regression model, the hypotheses established were confirmed. The results showed that implicit incremental

belief about sports skill positively predicted the self-determination indices, whereas implicit entity belief about the skill predicted them negatively. In the same line, different studies (Li, Lee, & Solomon, 2005; Ntoumanis & Biddle, 1999; Sarrazín, Vallerand, Guillet, Pelletier, & Cury, 2002; Sicilia et al., 2011) coincide with regard to the relation between an education-sports context where implicit incremental belief about sports skill is promoted (valuation of the process and personal self-improvement) and a greater self-motivation in students. In contrast to the second hypothesis, the self-determined index was found to negatively predict perceived discrimination and positively predict equal treatment. In this sense, Fortier and Grenier (1999) related the most self-determined forms of motivation with a greater perception of equal treatment. Likewise, the self-determination index positively predicted the perception of the importance that female students give to physical education. These results are in line with several research studies (Florence, 1991; Moreno-Murcia et al., 2013), where female and male students who are self-determinedly motivated are seen to present a more positive attitude towards physical education.

From a global perspective, the results obtained and the different studies revised indicate that the environment the teacher gener-

ates in physical education classes (classroom climate) could lead to positive and/or negative consequences of adolescents in relation to physical education (Derry, 2002). If teachers promote the belief that sports skills can be improved through involvement in learning, effort and group work in physical education classes, they could encourage students to have a greater perception of equal treatment and a lower perception of behaviors. Coeducational schooling could establish methodological and pedagogical bases to try and make inequality between sexes disappear. To do so, it is believed that teachers could base their classroom intervention on the motivational strategies proposed by Ames and Archer (1988), Ames (1992), and Moreno-Murcia and Martínez-Galindo (2011). The strategies to be followed are based on the design of a range of tasks aimed at equality, using tasks suited to motor competence, achieving an optimum emotional climate, involving equal practice, acknowledging effort equally, promoting equality through the different ways of grouping tasks, making a process focused evaluation, making the most of practice time, evaluating autonomous behavior in female students and generating responsibility equally. The aim is for teachers to show equal treatment in their affective interaction within physical education classes; prioritizing self-improvement, effort and social

support, transmitting the belief that sports skill can be improved (Ryan and Deci, 2000) so that students manage to become more self-determined in their motivation and more satisfied with their physical education classes.

Nevertheless, we have found some limitations to this study in relation to its correlational design, which does not allow for causal relations to be established, and to the problem of equivalent models that occur in the structural regression technique (Hershberger, 2006), assuming that the model presented in this study is only one of several possibilities. It would, therefore,

be of interest if future research in experimental design were to analyze the variables presented in the area of healthy physical activity or sports training in order to relate these variables to others such as: dispositional orientation, psychological mediators, intention of doing sport, academic performance and satisfaction with life. For a deeper look into the positive consequences of doing physical activity among adolescent girls, studies could be designed to approach the possible relation between the variables studied and students' doing physical activity-sports in their leisure time.

References

- Ames, C. (1992). Achievement goals, motivational climate and motivational processes. En G. C. Roberts (Ed.), *Motivation in sport and exercise* (pp. 161-176). Champaign, IL: Human Kinetics.
- Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Student's learning strategies a motivation processes. *Journal of Educational Psychology*, 80, 260-267. doi: 10.1037/0022-0663.80.3.260
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103, 411-423. doi: 10.1037//0033-2909.103.3.411
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238-246. doi: 10.1037/0033-2909.107.2.238
- Biddle, S., Cury, F., Goudas, M., Sarrazin, P., Famose, J. P., & Durand, M. (1995). Development to scales to measure perceived physical education class climate: a cross-national project. *British Journal of Educational Psychology*, 65, 341-358. doi: 10.1111/j.2044-8279.1995.tb01154.x
- Biddle, S., Soos, I., & Chatzisarantis, N. (1999). Predicting physical ac-

- tivity intentions using a goal perspectives approach: a study of Hungarian youth. *Scandinavian Journal of Medicine and Science in Sports*, 9, 353-357. doi: 10.1111/j.1600-0838.1999.tb00256.x
- Biddle, S. J. H., Wang, C. K. J., Chatzisarantis, N. L. D., & Spray, C. M. (2003). Motivation for physical activity in young people: Entity and incremental beliefs about athletic ability. *Journal of Sports Sciences*, 21, 973-989. doi: 10.1080/02640410310001641377
- Bollen, D. A., & Long, J. S. (1993). *Testing structural equation models*. Sage: Newbury Park, CA.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.
- Byrne, B. M. (2001). *Structural equation modeling with Amos: basic concepts, applications, and programming*. Mahwah, N. J: Erlbaum.
- Cecchini, J. A., González, C., Méndez-Giménez, A., & Fernández-Río, J. (2011). Achievement goals, social goals, and motivational regulations in physical education settings. *Psicothema*, 23(1), 51-57.
- Cervelló, E., Jiménez, R., Del Villar, F., Ramos, L., & Santos-Rosa, F. J. (2004). Goal orientations, motivational climate, equality, and discipline of Spanish physical education students. *Perceptual and Motor Skills*, 99, 271-283. doi: 10.2466/PMS.99.4.271-283
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum. doi: 10.1007/978-1-4899-2271-7
- Deem, R., & Gilroy, S. (1998). Physical activity, life-long learning and empowerment: Situating sport in women's leisure. *Sport, Education and Society*, 3, 89-104. doi: 10.1080/1357332980030106
- Derry, J. A. (2002). Single-sex and co-education physical education: perspective of adolescent girls and female physical education teachers (research). *Melpomene Journal*, 22, 17-28.
- Dweck, C. S. (1999). *Self-Theories: Their role in motivation, personality, and development*. Philadelphia: Taylor and Francis.
- Fernández-Río, J. F., Méndez-Giménez, A., Cecchini, J. A., & González de Mesa, C. (2012). La influencia de las metas de logro y las metas sociales sobre el "fairplay" de estudiantes de Educación Física de Secundaria. *Revista de Psicodidáctica*, 17(1), 73-94. doi: 10.1387/RevPsicodidact.1816
- Florence, J. (1991). *Tareas significativas en Educación Física Escolar*. Barcelona: INDE.
- Fortier, M. S., & Grenier, M. N. (1999). Déterminants personnel set situationnels de l'adhérence à l'exercice: une étude de prospective. *STAPS*, 48, 25-37.
- González-Cutre, D., Sicilia, A., & Moreno, J. A. (2008). Modelo cognitivo-social de la motivación de logro en educación física. *Psicothema*, 20(4), 642-651.
- Goudas, M. (1998). Motivational climate and intrinsic motivation of young basketball players. *Perceptual and Motor Skills*, 86, 323-327. doi: 10.2466/pms.1998.86.1.323
- Goudas, M., Biddle, S. J. H., & Fox, K. (1994). Perceived locus of causality, goal orientations and perceived

- competence in school physical education classes. *British Journal of Educational Psychology*, *64*, 453-463. doi: 10.1111/j.2044-8279.1994.tb01116.x
- Guan, J., Xiang, P., McBride, R., & Bruene, A. (2006). Achievement goals, social goals and students' reported persistence and effort in high school physical education. *Journal of Teaching in Physical Education*, *25*, 58-74.
- Hershberger, S. L. (2006). The problem of equivalent structural models. In G. R. Hancock, & R. O. Mueller (Eds.), *Structural equation modeling: A second course* (pp. 13-42). Greenwich, CT: Information Age Publishing.
- Hicks, M. K., Wiggins, M. S., Crist, R. W., & Moode, F. M. (2001). Sex differences in grade three students' attitudes toward physical activity. *Perceptual and Motor Skills*, *93*, 97-102. doi: 10.2466/PMS.93.5.97-102
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55. doi: 10.1080/10705519909540118
- Li, W., & Lee, A. M. (2004). A review of conceptions of ability and related motivational constructs in achievement motivation. *Quest*, *56*, 439-461. doi: 10.1080/00336297.2004.10491836
- Li, W., Lee, A. M., & Solmon, M. A. (2005). Relationships among dispositional ability conceptions, intrinsic motivation, perceived competence, experience, persistence, and performance. *Journal of Teaching in Physical Education*, *24*, 51-65.
- Marsh, H. W., Richards, G.E., Johnson, S., Roche, L., & Tremayne, P. (1994). Physical self-description questionnaire: psychometric properties and a multitrait-multimethod analysis of relations to existing instruments. *Journal of Sport & Exercise Psychology*, *16*, 270-305.
- McDonald, R. P., & Marsh, H. W. (1990). Choosing a multivariate model: Noncentrality and goodness of fit. *Psychological Bulletin*, *107*, 247-255. doi: 10.1037//0033-2909.107.2.247
- Moreno, J. A., & Cervelló, E. (2010). *Motivación en la actividad física y el deporte*. Sevilla: Wanceulen.
- Moreno-Murcia, J. A., Cervelló, E., González-Cutre, D., Julián, J. A., & Del Villar, F. (2011). *La motivación en el deporte. Claves para el éxito*. Barcelona: Inde.
- Moreno-Murcia, J. A., Cervelló-Gimeno, E., Martínez-Galindo, C., & Moreno, R. (2013). Validación de la Escala de Creencias Implícitas de habilidad (CNAAQ-2) al contexto español. Diferencias según la práctica físico-deportiva. *RICYDE. Revista Internacional de Ciencias del Deporte*, *9*, 100-113. doi: 10.5232/ricyde2013.03201
- Moreno, J. A., González-Cutre, D., & Chillón, M. (2009). Preliminary validation in Spanish of a scale designed to measure motivation in physical education classes: the Perceived Locus of Causality (PLOC) Scale. *Spanish Journal of Psychology*, *12*(4), 327-337.
- Moreno, J. A., Llamas, L. S., & Ruiz, L. M. (2006). Perfiles motivacionales y su relación con la importancia concedida a la educación física. Motivational profiles and their relationship with them phasion phy-

- sical education. *Psicología Educativa*, 12, 49-63.
- Moreno-Murcia, J. A., & Martínez-Galindo, C. (2011). *Guía para una práctica igualatoria*. Barcelona: Inde.
- Moreno-Murcia, J. M., Zomeño, T., Marín de Oliveira, L. M., Ruiz, L. M., & Cervelló, E. (2013). Percepción de la utilidad e importancia de la educación física según la motivación generada por el docente. *Revista de Educación*, 362, 380-401. doi: 10-4438/1988-592X-RE-2011-362-165
- Nicholls, J. G. (1992). The general and the specific in the development and expression of achievement motivation. In G. C. Roberts (Ed.), *Motivation in sport and exercise* (pp. 31-56). Champaign, IL: Human Kinetics.
- Ntoumanis, N., & Biddle, S. (1999). Affect and achievement goals in physical activity: a meta-analysis. *Scandinavian Journal of Medicine and Science in Sports*, 9, 315-332. doi: 10.1111/j.1600-0838.1999.tb00253.x
- Ommundsen, Y. (2001). Students' implicit theories of ability in physical education classes: the influence of the motivational aspects of the learning environment. *Learning Environments Research*, 4, 139-158. doi: 10.1023/A:1012495615828
- Papaioannou, A. (1998a). Goal perspective, reasons for behaving appropriately, and self-reported discipline in physical education lessons. *Journal of Teaching in Physical Education*, 17, 421-441.
- Papaioannou, A. (1998b). Goal perspective, reasons for behaving appropriately, and self-reported discipline in physical education lessons. *Journal of Teaching in Physical Education*, 17, 421-441.
- Pratt, M., Macera, C. A., & Blanton, C. (1999). Levels of physical activity and inactivity in children and adults in the United States: current evidence and research issues. *Medicine and Science in Sports and Exercise*, 31, 526-533. doi: 10.1097/00005768-199911001-00007
- Ros, I., Goikoetxea, J., Gairín, J., & Lekue, P. (2012). Implicación del alumnado en la escuela: diferencias interindividuales e intercentros. *Revista de Psicodidáctica*, 17(2), 291-307. doi: 10.1387/Rev.Psicodidact.4557
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation on intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78. doi: 10.1037//0003-066X.55.1.68
- Ryan, R. M., Stiler, J., & Linch, J. H. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *Journal of Early Adolescence*, 14, 226-249. doi: 10.1177/027243169401400207
- Sarrazin, P., Biddle, S. J. H., Famose, J. P., Cury, F., Fox, K., & Durand, M. (1996). Goal orientations and conceptions of the nature of sport ability in children: a social cognitive approach. *British Journal of Social Psychology*, 35, 399-414. doi: 10.1111/j.2044-8309.1996.tb01104.x
- Sarrazin, P., Vallerand, R., Guillet, E., Pelletier, L., & Cury, F. (2002). Motivation and dropout in female handballers: a 21-month prospective study. *European Journal of Social Psychology*, 32, 395-418. doi: 10.1002/ejsp.98

- Scraton, S. (1992). *Shaping up to Womanhood: girls and physical education*. Buckingham, OU Press.
- Shropshire, J., Carrol, B., & Yim, S. (1997). Primary school children's attitudes to physical education: gender differences. *European Journal of Physical Education*, 2, 23-38. doi: 10.1080/1740898970020103
- Sicilia, A., Águila, C., González-Cutre, D., & Moreno-Murcia, J. A. (2011). Factores motivacionales y experiencia autotélica en el ejercicio físico: Propuesta de un modelo explicativo. *Universitas Psychologica*, 10, 125-135.
- Sports Council (1998). *Women and sport: policy and frameworks for actions*. London, Sports Council.
- Standage, M., Duda, J. L., & Ntoumanis, N. (2003). A model of contextual motivation in physical education: using constructs from self-determination and achievement goal theories to predict physical activity intentions. *Journal of Educational Psychology*, 95, 97-110. doi: 10.1037//0022-0663.95.1.97
- Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 271-360). New York: Academic Press. doi: 10.1016/S0065-2601(08)60019-2
- Vallerand, R. J. (2001). A hierarchical model of intrinsic and extrinsic motivation in sport and exercise. In G. C. Roberts (Ed.), *Advances in motivation in sport and exercise* (pp. 263-319). Champaign, IL: Human Kinetics.
- Vallerand, R. J. (2007). Intrinsic and extrinsic motivation in sport and physical activity. A review and a look at the future. In G. Tenenbaum & R. C. Eklund (Eds.), *Handbook of Sport Psychology* (3.^a ed., pp. 59-83). Nueva York: John Wiley. doi: 10.1002/9781118270011.ch3
- Williams, V., & Woodhouse, J. (1996). Delivering the discourse, urban adolescents' perceptions of physical education. *Sport, Education and Society*, 1, 201-213. doi: 10.1080/1357332960010205
- Xiang, P., Lee, A., & Williamson, L. (2001). Conceptions of ability in physical education: children and adolescents. *Journal of Teaching in Physical Education*, 20, 282-294.

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