

# Student Attitudes Toward Inclusion in Physical Education: The Impact of Ability Beliefs, Gender, and Previous Experiences

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This study addresses the associations between students' ability beliefs and attitudes toward inclusion in physical education, as well as the impact of gender and previous contact/participation with children with disability on these variables. A cross-sectional study was conducted with 976 students (491 girls and 485 boys; age 11–16 years), who responded to ability beliefs and attitudes questionnaires. Ability beliefs (entity and incremental) and the 3 sociodemographic variables predicted 20.4% and 9% of the behavioral and cognitive subscales of attitudes, respectively. Students with higher scores for entity beliefs of ability had a less favorable attitude toward inclusion. Girls reported more favorable attitudes toward inclusion than boys. Students who indicated previous participation in physical activities with children with disabilities showed attitudes that were more favorable in both the behavioral and cognitive subscales, while those who reported previous contact had more favorable attitudes in the behavioral subscale and lower entity beliefs. However, the 3 sociodemographic variables had a lower contribution to the explained variance of attitudes.

**Keywords:** children, conception of ability, disability, special educational needs

Inclusion of students with disability in physical education (PE) classes as a part of an educational inclusion approach has been recommended by the Committee of Ministers of the European Union to member states regarding children and young people ([Council of Europe, 2013](#)). During the last decade, efforts have been made in several European countries, such as Greece ([Panagiotou,](#)

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Evangelinou, Doulkeridou, Mouratidou, & Koidou, 2008); Turkey (Özer et al., 2013); and Portugal (Campos, Ferreira, & Block, 2014), to facilitate inclusion in PE. In Spain, students with special needs are educated in regular schools whenever possible, in accordance with the principles of normalization and inclusion, at the school closest to where they live (Economic and Social Council, 2004). Included in general schools are 139,448 students with disabilities, which represents 1.73% of the total school population, plus 0.42% in special schools, with the following distribution: 36.93% with an intellectual or a learning disability, 27.59% with a severe behavior/personality disorder, 16.64% with generalized development disorders, 8.34% with physical impairments, 5.17% with hearing impairments, 3.01% with multiple disabilities, and 2.26% with visual impairments (Ministerio de Educación Cultura y Deporte, 2017).

One of the key factors for successful inclusion is a favorable social environment that includes positive attitudes from social agents such as teachers, peer students, and parents (Reina, López, Jiménez, García-Calvo, & Hutzler, 2011). The importance of studying social attitudes toward inclusion is increased by the fact that in the International Classification of Functioning, Disability, and Health (World Health Organization, 2001), attitude is considered to be an environmental factor that impacts individual functioning and well-being (van der Ploeg, van der Beek, van der Woude, & van Mechelen, 2004). According to Triandis (1971, p. 2), attitude can be defined as “an idea charged with emotions which predisposes a class of actions to a particular class of social situations.” As such, attitudes include a behavioral intention as well as cognitive and emotional components (see Vignes, Coley, Grandjean, Godeau, & Arnaud, 2008 for a review). Attitudes toward individuals with disabilities are often charged with prejudice, including false cognitions, negative affect, and behavioral ignorance, and thus restrict these individuals’ degree of active participation in community life (Hutzler, Zach, & Gafni, 2005).

Children without disabilities can play a critical role in fostering respect, dignity, and acceptance of a classmate with a disability, and having favorable beliefs about him or her may ultimately lead to a stronger intention to play with this classmate (Kalyon, Gettinger, & Hanley-Maxwell, 2010; Obrusnikova, Block, & Dillon, 2010). In contrast, having a less favorable attitude toward a classmate with a disability, for example, due to his or her being different, may lead to a weak intention to play with this classmate and ultimately to his or her social isolation (Obrusnikova, Dillon, & Block, 2011; Verderber, Rizzo, & Sherrill, 2003). Hence, social acceptance and social inclusion in PE are directly related to the attitudes and beliefs of students without disabilities toward their peers with disabilities (see Hutzler, 2003 for a review). Students’ attitudes, together with additional environmental and personal factors, may ultimately contribute to their behavior toward their peers with a disability and their intention to associate with them (Bebetsos, Zafeiriadis, Derri, & Kyrgiridis, 2013; Obrusnikova & Dillon, 2012). One of the major content areas of PE is participation in sport activities that require the child to exhibit adequate ability in a particular activity such as gymnastics, athletics, or ball games. Therefore, the term-sport pedagogy has been acknowledged by Central European scholars since the late 1960s with regard to the practice of educators within the PE domain (e.g., Haag, 1989). In the English-speaking literature, the link between PE, sport pedagogy, and kinesiology has been recognized more

recently, “enabling us to think about the process of knowledge production and reproduction across the many subdisciplines of kinesiology” (Tinning, 2008, p. 405). For this reason, within the scope of this study, the attitude toward participation in PE was considered with regard to (a) children’s meaning and knowledge production of sport ability beliefs, (b) gender, and (c) previous experiences with children with disabilities.

## Ability Beliefs

Implicit theories of ability create a meaning system or conceptual framework that influences the individual’s interpretation of school situations (Da Fonseca, Cury, Bailly, & Rufo, 2004). The implicit ability belief concept was developed by Dweck (1999) and refers to the belief that individuals have concerning whether certain human attributes are stable or modifiable, and also if those beliefs influence one’s cognition, affect, and behaviors (Burnette, O’Boyle, VanEpps, Pollack, & Finkel, 2013). This concept has been applied to sport, physical activity, and PE contexts (see Vella, Braithewaite, Gardner, & Spray, 2016 for a review), establishing two types of ability beliefs: entity and incremental. According to Wang and Biddle (2001), the extent to which an individual holds an entity or incremental belief may have significant consequences for goals, motivation, enjoyment, and effort in sport and PE.

The entity theory is the belief that ability is a fixed trait—a personal quality that cannot be changed. Those who subscribe to this theory believe that although people can learn new things, their underlying ability remains the same. An entity belief of ability orients a child toward adopting performance goals based upon demonstrations of normative success, which may subsequently lead to a maladaptive or helpless response in the face of difficulty or failure (Slater, Spray, & Smith, 2012). However, if they believe that their abilities are stable, they may feel frustrated or unmotivated—particularly when they try to compare their ability to that of others and realize that they are not achieving similar results (Wang, Chatzisarantis, Spray, & Biddle, 2002). In contrast, an incremental theory of ability is the belief that an ability is a malleable quality that can be honed and improved through effort, training, or learning (Wang & Biddle, 2003). Therefore, if students believe that they can improve their ability, they will probably enjoy PE more, thus leading to increased satisfaction.

Ability beliefs may play an important role in constructing typical behaviors within the PE context, such as choosing team members or pairing for performing different drills. Therefore, it is plausible to think that if PE teachers are able to estimate the ability beliefs of their class participants and their impact on PE participants’ behaviors, they could choose teaching strategies and inclusion practices that are relevant to the particular ability belief (An & Meaney, 2015). For example, peer tutoring may make no sense for those PE class participants who are dominated by entity beliefs. Although ability beliefs have been studied regarding cognitive correlates (e.g., affect, enjoyment, anxiety; Biddle, Wang, Chatzisarantis, & Spray, 2003; Ommundsen, 2001) and behavioral correlates (e.g., physical activity, task performance, self-regulation, self-handicapping, reactions to success and failure, effort; Li, Lee, & Solmon, 2006; Ommundsen, 2001,

2003), no known information is available on the relationships between the ability perceptions in PE participants and their attitudes toward the inclusion of peers with disabilities.

## Gender

Gender is another variable related to attitudes toward inclusion in PE. In a systematic review summarizing attitudes toward inclusion, Hutzler (2003) reviewed 13 articles addressing peer attitudes and found that gender appeared to be the most significant predictor of attitudes, with females having more affirmative attitudes toward inclusion. This appears to be consistent across primary, middle, and high schools. For example, Block (1995) demonstrated that girls seem to have more positive attitudes toward students with disabilities than boys, but with a small effect size ( $d = 0.35$ ). Authors of other studies have also reported better attitudes of girls, such as Slininger, Sherrill, and Jankowski (2000;  $0.21 < d < 0.96$ , trivial-to-large); van Biesen, Busciglio, and Vanlandewijck (2006;  $0.14 < d < 0.69$ , trivial-to-moderate); and Campos et al. (2014; girls > boys age 11–16 years,  $p < .05$ ). However, there are some exceptions, such as the studies of Archie and Sherrill (1989) and Bebetosos, Derri, Filippou, Zetou, and Vernadakis (2014) where differences between attitudes of female and male PE class participants were trivial.

Concerning gender and ability beliefs, the meta-analysis by Vella et al. (2016) demonstrated that gender is a variable that moderates the relationships between incremental beliefs and some adaptive outcomes (e.g., task orientation, mastery climate, enjoyment, perceived competence), with the girls having significantly stronger positive relationships compared with combined (female and male) and male-only samples.

## Previous Contact and Experiences

No consensus exists about effects of the previous contact with disability. The “contact hypothesis” describes the positive impact that direct contact and face-to-face interactions can have on people’s attitudes toward members of different social groups (Allport, 1979), proposing that increased positive interactions between members of different social groups will lead to a decrease in prejudice and an increase in positive attitudes toward one another. The contact hypothesis has more recently been applied to the study of children’s attitudes toward disability (e.g., Armstrong, Morris, Abraham, Ukoumunne, & Tarrant, 2016). A review conducted by Armstrong, Morris, Abraham, and Tarrant (2017) demonstrated that contact with people with disabilities can be an effective component for influencing children’s attitudes toward disability. For example, Hutzler and Levi (2008) reported less favorable attitudes in students with previous contact; that is, unstructured previous exposure appeared to decrease children’s willingness to include children with disabilities in physical activities. Block (1995) also did not find significant differences connected to previous contact. However, Campos et al. (2014) demonstrated that children who have a family member, friend, or neighbor with disability have a significantly more favorable attitude toward others with a

disability. This finding can possibly be explained by the tolerance and acceptance established during close contact with individuals with disabilities. Therefore, students with previous contact may present a greater predisposition toward accepting classmates with a disability in PE classes and are more likely to accept changes in games and activities to accommodate them.

Therefore, the purposes of this research are (a) to study the ability to predict students' attitudes toward inclusion in PE by their entity and incremental beliefs of ability and (b) to explore the contribution of three sociodemographic variables (gender, previous contact with persons with disabilities, and previous participation in inclusive/adaptive activities) to students' attitudes toward inclusion in PE. Based on the literature reported above, we hypothesized that: (a) students with higher entity beliefs would have less positive attitudes than students with lower entity beliefs, (b) students with higher incremental beliefs would have more positive attitudes than those with lower incremental beliefs, (c) female students would have more positive attitudes toward inclusion than male students, (d) students who have previous experiences of physical activities with people with disabilities at a school level would have more positive attitudes toward inclusion in PE, and (e) students who reported previous contact with persons with disabilities outside of school would have more positive attitudes than those who have not had contact with persons with disabilities.

## Method

### Participants

Participants were comprised of a convenience sample of 976 students participating in PE from eight public educational centers in the south of Spain. The School Boards' approval for filling in the questionnaires by schoolchildren was received, and a parent or guardian of each of the participating students signed an informed consent form. Prior to data collection, an Ethics Committee for Research approved the study.

### Instruments

***Conceptions of the Nature of Athletic Ability Questionnaire.*** The Spanish-language version of the Conceptions of the Nature of Athletic Ability Questionnaire (CNAAQ-2) was used (Moreno-Murcia, Cervelló, Martínez-Galindo, & Moreno, 2013), previously developed by Biddle et al. (2003). The scale is comprised of 12 items, grouped according to two factors. One factor is a subscale assessing *incremental beliefs* of improvement of an ability (improvement and learning factors: e.g., "To be successful in sport you need to learn techniques and skills, and practice them regularly"), and the other is a subscale measuring *entity beliefs*, where ability is perceived as stable and related to inherent talent factors (e.g., "To be good at sport, you need to be born with the basic qualities which allow for success"). Each of these subscales is comprised of six items evaluating self-perceived athletic ability as reported by regular students in PE. The questionnaire follows a closed-item format, and the respondents utilize a Likert-type scale that ranges from 1 to 5, with endpoints of "totally agree" and "totally disagree,"

respectively. This scale has been applied to PE both in the United States (Li et al., 2006) and in Europe (Warburton & Spray, 2008), reporting reliability scores for the entity (0.79 and 0.75–0.81, respectively) and the incremental (0.76 and 0.77–0.81, respectively) ability beliefs.

**The Attitudes Toward Inclusion of Students with Disabilities in Physical Education Questionnaire.** The Attitudes Toward Inclusion of Students with Disabilities in Physical Education Questionnaire (AISDPE) was developed by Reina, Hutzler, Iniguez-Santiago, and Moreno-Murcia (2016), with a 5-point Likert scale (1 = *completely disagree* to 5 = *completely agree*). The scale is comprised of 17 items grouped into two factors: behavioral readiness to interact with children with disability (10 items: e.g., “I prefer not to interact with people with disabilities”) and cognitive perception of children with a disability (7 items: e.g., “Blind people must always receive help from a guide”). It is important to note that higher scores in these two subscales mean a less favorable attitude toward inclusion in PE of peers with disabilities. This scale is based on a multidisability rather than a specific approach (e.g., cognitive, physical) for the following reasons: (a) this has been found reliable in the Spanish-language questionnaire for PE participants, (b) variability is inherent in the inclusion concept, (c) there are several studies where the authors have followed the three-component model of attitudes (Triandis, 1971), but they focused on the cognitive and the behavioral components of attitude (e.g., Vignes et al., 2008), and (d) this approach is consistent with other studies where the authors examined attitudes toward different types of disabilities (e.g., Vignes et al., 2008). Reina et al. (2016) reported internal consistency (Cronbach’s alphas) scores ranging from .74 (*cognitive*) to .80 (*behavioral*) for this scale.

**Sociodemographic Variables.** In addition to the attitude and the nature of ability questionnaires, demographic variables were included: gender, age, and previous exposure to people with disabilities. The students responded “yes” or “no” to the questions: (a) “Have you ever participated in physical activities with people with disabilities at your school-level?” and (b) “Do you have any contact with persons with disabilities (family member, neighbor, or friend) outside of school?”

## Data Collection

The authors contacted administrators and teachers from different schools in the region to inform them of the study objectives and to request their collaboration. After receiving the administrators’ and teachers’ approval, informed letters of consent were sent to the participants’ parents or guardians. The students whose parents or guardians returned the signed informed consent were invited to participate in the study. Data collection was conducted in a regular or a PE classroom of the eight centers that collaborated in this study; 36 single data collection sessions were conducted. The questionnaires were administered by the teacher responsible for the group (24–30 students each) with the supervision of a member of the research team, who was able to address any questions or concerns of the participants. Therefore, the informed consent form, as well as the questionnaires, were completed on an individual basis, ensuring that the responses would

remain anonymous. The participants needed roughly 15 min to complete all the questions, and the supervisor ensured that every item had been completed by checking each participant's questionnaires. The return ratio of distributed questionnaires was 96.7%.

## Data Analyses

A Cronbach's (1951) reliability analysis of the factors included in the CNAAQ-2 and the AISDPE was conducted. Gender, previous contact, and previous participation variables (i.e., independent variables) were analyzed for each attitudinal subscale (i.e., dependent variables) by means of a multiple factorial analysis of variance. Considering these independent variables, a Levene's test was conducted to assess the equality of variances for all the dependent variables confirming their homogeneity: twice for entity belief (comparing groups by previous participation and previous contact), twice for incremental belief (comparing groups by gender and previous contact), once for the behavioral component of attitude (comparing groups by previous participation), and three times for the cognitive component of attitude. In addition, effect sizes ( $d$ ) were calculated and interpreted as follows:  $\geq 0.8$  (*large*),  $< 0.8$  and  $\geq 0.5$  (*moderate*),  $< 0.5$  and  $\geq 0.2$  (*small*), and lower than 0.2 (*trivial*; Cohen, 1988).

The three sociodemographic measures were transformed to dummy variables (as explanatory variables) for the regression analyses (Draper & Smith, 2014): gender (girls = 0, boys = 1); previous participation (0 = no, 1 = yes); and previous contact (0 = no, 1 = yes). Two regression analyses were conducted to evaluate the predictability of the ability beliefs (entity and incremental beliefs) and the sociodemographic variables on the attitudes toward inclusion (behavioral and cognitive). The possible collinearity among the predictive variables was explored through three steps: (a) examining the correlations among the variables, (b) assessing the tolerance values for the predictive variables, and (c) analyzing the variance inflation factor coefficients.

All the data analyses were performed using the Statistical Package for Social Sciences (version 22.0 for Windows; SPSS Inc., Chicago, IL).

## Results

Those questionnaires with missed or blank items were removed from the data analysis ( $n = 22$ , representing 2.2% of an original sample of 998 participants). Of the 976 remaining participants, 50.3% were girls ( $n = 491$ ) with a mean age of  $14.5 \pm 1.5$  years. The mean age of the boys ( $n = 485$ ) was  $14.6 \pm 1.5$  years, representing 49.7% of the sample. Approximately half of the participants (56.9%) reported having contact with a family member, friend, or close neighbor with some type of disability (male = 253; female = 302), and 281 (28.8%) reported participation in physical activities or games with, or having had contact with, persons with disabilities (male = 133; female = 148). Internal consistency scores were computed from all scales, that is, the entity ( $\alpha = .69$ ) and the incremental ( $\alpha = .79$ ) perceptions of ability factors as well as for the cognitive ( $\alpha = .72$ ) and the behavioral ( $\alpha = .80$ ) subscales of the AISDPE.

Table 1 shows that the entity belief scores were considerably lower than those of the incremental beliefs (overall  $M = 2.25$ ,  $SD = 0.76$  and  $M = 4.19$ ,  $SD = 0.77$ , respectively). In addition, the scores in the cognitive subscale were higher than those in the behavioral subscale (overall  $M = 3.16$ ,  $SD = 0.71$  and  $M = 1.88$ ,  $SD = 0.68$ , respectively), which means, however, a less favorable attitude (see “Instruments” in the “Method” section). The multiple factorial analysis of variance (gender  $\times$  participation  $\times$  contact) reported no significant interactions between these three independent variables, analyzing the main effects for its dichotomous levels (Table 1). First, regarding gender, boys showed higher scores than girls in both the behavioral ( $p = .001$ ,  $d = 0.994$ , large) and cognitive ( $p = .022$ ,  $d = 0.631$ , large) subscales of attitude, and for the entity perception of ability ( $p = .001$ ,  $d = 0.958$ , large). Second, participants who reported previous contact through family, friends, or close neighbors with a person having some type of disability also had more favorable attitude scores in the behavioral subscale of attitude ( $p = .001$ ,  $d = 0.940$ , large), and lower scores of entity belief ( $p = .019$ ,  $d = 0.651$ , moderate). Third, those students who reported previous participation in physical activities with people with disability at the school-level had more favorable attitude scores, both the behavioral ( $p = .016$ ,  $d = 0.674$ , moderate) and cognitive ( $p = .009$ ,  $d = 0.740$ , moderate) subscales of attitude.

Table 2 shows the linear regression analyses for all the independent variables and their contributions to predicting attitudes toward inclusion, including the collinearity scores. It has been proposed that collinearity is present when the correlation between two variables exceeds .60 (Taq, 1997); however, this statement does not comply with the results of this study as correlations between

**Table 1** Factorial Analysis of Variance for Gender, Previous Participation, and Previous Contact Variables,  $M \pm SD$

|                                      | Boys            | Girls           | $F(1, 975)$ | $p$  | $d$   |
|--------------------------------------|-----------------|-----------------|-------------|------|-------|
| Gender                               |                 |                 |             |      |       |
| entity belief                        | 2.38 $\pm$ 0.81 | 2.13 $\pm$ 0.70 | 13.64       | .001 | 0.958 |
| incremental belief                   | 4.23 $\pm$ 0.78 | 4.15 $\pm$ 0.77 | 0.89        | .346 | 0.156 |
| behavioral subscale of attitude      | 2.06 $\pm$ 0.76 | 1.71 $\pm$ 0.53 | 33.38       | .001 | 0.994 |
| cognitive subscale of attitude       | 3.25 $\pm$ 0.72 | 3.04 $\pm$ 0.71 | 5.28        | .022 | 0.631 |
| Previous contact                     |                 |                 |             |      |       |
| entity belief                        | 2.19 $\pm$ 0.77 | 2.34 $\pm$ 0.76 | 5.52        | .019 | 0.651 |
| incremental belief                   | 4.20 $\pm$ 0.79 | 4.18 $\pm$ 0.76 | 0.02        | .883 | 0.052 |
| behavioral subscale of attitude      | 1.78 $\pm$ 0.61 | 2.03 $\pm$ 0.74 | 12.40       | .001 | 0.940 |
| cognitive subscale of attitude       | 3.14 $\pm$ 0.73 | 3.19 $\pm$ 0.70 | 0.01        | .995 | 0.050 |
| Participation in physical activities |                 |                 |             |      |       |
| entity belief                        | 2.17 $\pm$ 0.77 | 2.29 $\pm$ 0.77 | 1.35        | .246 | 0.213 |
| incremental belief                   | 4.26 $\pm$ 0.70 | 4.16 $\pm$ 0.80 | 2.48        | .115 | 0.350 |
| behavioral subscale of attitude      | 1.77 $\pm$ 0.63 | 1.93 $\pm$ 0.69 | 5.83        | .016 | 0.674 |
| cognitive subscale of attitude       | 3.06 $\pm$ 0.75 | 3.21 $\pm$ 0.70 | 6.79        | .009 | 0.740 |

**Table 2** Linear-Regression Analyses for Variables Predicting Behavioral and Cognitive Subscales of Attitude

| Variable                        | $\beta$ | $t$   | $p$     | TOL   | VIF   | $F$<br>change | $\Delta R^2$ |
|---------------------------------|---------|-------|---------|-------|-------|---------------|--------------|
| Behavioral subscale of attitude |         |       |         |       |       | 49.83         | .204**       |
| entity belief                   | .321    | 10.97 | <.001** | 0.958 | 1.044 |               | .139         |
| incremental belief              | -.063   | -2.17 | .030*   | 0.987 | 1.013 |               | .003         |
| gender                          | .197    | 6.75  | <.001** | 0.963 | 1.038 |               | .042         |
| previous contact                | .121    | 4.11  | <.001** | 0.943 | 1.060 |               | .014         |
| previous participation          | .054    | 1.83  | .068    | 0.950 | 1.052 |               | .006         |
| Cognitive subscale of attitude  |         |       |         |       |       | 19.21         | .090**       |
| entity belief                   | .229    | 7.31  | <.001** | 0.958 | 1.044 |               | .055         |
| incremental belief              | .148    | 4.82  | <.001** | 0.987 | 1.013 |               | .022         |
| gender                          | .078    | 2.49  | .013*   | 0.963 | 1.038 |               | .006         |
| previous contact                | -.014   | -0.45 | .655    | 0.943 | 1.060 |               | .000         |
| previous participation          | .087    | 2.77  | .006*   | 0.950 | 1.052 |               | .007         |

Note. TOL = tolerance values; VIF = variance inflation factor coefficients.

\* $p < .05$ . \*\* $p < .01$ .

the variables were less than .39 ( $p < .05$ ). On the other hand, values of less than .10–.20 for tolerance values and more than 5–10 for variance inflation factor also indicate collinearity between the variables (Cea, 2002; Menard, 1995). The variables for this study comply with these standards for both tolerance values and variance inflation factor.

All the independent variables explained 20.4% of the variance of the behavioral subscale of attitude ( $\Delta R^2 = .204$ ) and 9% of the cognitive subscale ( $\Delta R^2 = .090$ ). Entity belief of ability was the higher predictor of attitudes toward inclusion, both for the behavioral subscale (13.9% of explained variance) and the cognitive subscale (5.5% of explained variance). The relationships were positive, meaning that those with a higher score of entity belief have a less positive attitude toward inclusion in PE. On the other hand, incremental belief of ability made a different contribution to the two dimensions of attitudes; it is the second relevant independent variable for the cognitive subscale of attitude (2.2%,  $p < .001$ ), but the lower contributor to explained variance for the behavioral subscale of attitude (0.3%,  $p = .030$ ). In addition, the weight of the contribution in explained variance, the direction of the relationship between incremental beliefs of ability and the attitudes subscales was different. That is, those with a lower incremental belief of ability have a worse attitude toward inclusion in the behavioral subscale, while those with higher incremental belief have a less favorable attitude with regard to the cognitive subscale.

Gender was a positive predictor in both the behavioral and cognitive components of the attitude toward inclusion in PE (4.2% and 0.6%, respectively), with a more positive attitude among girls than boys (positive  $\beta$  and  $t$  values). Regarding previous contact, multiple regression analyses revealed a significant contribution to

explain the variance of the behavioral dimension of attitude (1.4%,  $p < .001$ ), while previous participation significantly contributed to the variance of the cognitive subscale of attitude (0.6%,  $p = .006$ ).

## Discussion

Given the importance of favorable attitudes toward inclusion of students with disabilities in PE, we investigated potential variables that may be related to the development of such attitudes. In this research, we analyzed the associations of the beliefs held by students in PE from southern Spanish schools had concerning their ability and their attitudes toward inclusion of peers with disabilities. In addition, we explored the influence of gender and previous contact and participation in physical activities with persons with disabilities on the students' attitudes.

### Conceptions of Ability and Their Relationships With Attitudes

Two of the barriers encountered by students with disabilities concerns social acceptance and interaction with their peers. Authors in a number of studies have pointed out that negative attitudes and low levels of acceptance can result in the exclusion of children with disabilities from participation in activities, including in PE (e.g., Frese & Yun, 2007; Goodwin & Watkinson, 2000). Based on Dweck and Leggett's (1988) model of implicit theories, incremental and entity beliefs orient an individual toward contrasting achievement goals. It was reported in several studies that adopting an incremental belief of ability is associated with more positive cognitive and emotional benefits than adopting an entity belief (e.g., Ommundsen, 2003; Sarrazin et al., 1996). This assumption is supported by the results of this study due to the higher contributions of entity beliefs to the regression models (behavioral = 13.9%, cognitive = 5.5%), meaning that the higher scores of entity beliefs could be related to a less favorable attitude toward including peers with disabilities in PE.

A meta-analysis by Vella et al. (2016) verified that entity beliefs are positively associated with an ego orientation, performance climate, performance-approach goals, and performance-avoidance goals; and negatively associated with a mastery climate. Authors of other studies about attitudes toward inclusion in PE looked at competitiveness, which can be attributed to ability beliefs, without using a tool validated in a theoretical framework. According to Block (2000), it is plausible that students who have a competitive nature may be disposed to opposing the inclusion of students with disabilities in PE classes because they feel that the activity will be slowed down or possibly ruined if a lower skilled student with a disability participates.

On the other hand, incremental beliefs have been positively associated with a task orientation, mastery climate, mastery-approach goals, and mastery avoidance; and negatively associated with a performance climate (Vella et al., 2016). In this study, regression analysis demonstrated that incremental conceptions of ability contributed in a different form to explained variance of the two dimensions of attitudes toward inclusion. Although significant contributions in the regression analyses were obtained, we found only the expected relationship between

incremental beliefs and attitudes toward inclusion for the behavioral dimension, but with a low contribution to explained variance (0.3%). In contrast, this conception of ability was positively related with the cognitive subscale; that is, a higher level of incremental beliefs was related to a worse attitude (i.e., cognitive subscale). A study by Wisely and Morgan (1981) demonstrated more favorable attitudes toward peers with disabilities for measures of behavioral intent (i.e., actual or intended behavior) than for a cognitive measure (i.e., beliefs and knowledge).

To the best of our knowledge, this is the first study investigating, and subsequently reporting, children's abilities and incremental beliefs; we propose that this could be related to children's attitudes toward including a peer with disability in their classes. However, children's beliefs and intentions toward including their peers with disability in PE contexts were studied based on the conceptual framework of the Theory of Planned Behavior (TPB; Ajzen, 1991). The study of Obrusnikova and Dillon (2012) investigated beliefs and PE goals associated with intentions of students without disabilities to play with a hypothetical peer with a physical disability in PE, considering their behavioral beliefs (e.g., "I would have a new friend in physical education") as the basis for the development of the students' attitude. Behavioral beliefs are assumed to be a driving force behind the development of students' attitudes toward children with a disability (Obrusnikova, Dillon, Block, & Davis, 2012).

Based on our findings, incremental and ability beliefs significantly predict children's attitudes toward including a peer with a disability in their PE class. Therefore, some behaviors (e.g., talking to a child who has a disability) may be easier to carry out, while others (e.g., developing an appropriate adaptation) may require considerable effort, training, and resources. Due to the low and unequal contribution of incremental beliefs to the regression models, we can accept our first hypothesis about the relationships of entity beliefs to attitudes toward inclusion, but not the second hypothesis. Future studies could explore the promotion of an incremental view of ability through interventions that include cooperative learning or peer tutoring, among other adaptive correlates, as an approach opposing entity conceptions of ability (i.e., performance climate or ego involvement).

## Gender Differences

As hypothesized, the girls in our study showed more favorable attitudes toward inclusion than boys, but a little contribution of this variable to the regression models was observed (0.6–4.2%) in comparison with the entity perception of ability. In addition, the girls in our study revealed lower entity beliefs than boys and better attitudes toward inclusion, both in the behavioral and the cognitive dimensions. The trend of more favorable attitudes among the girls is in accordance with previous research related to attitudes toward participation of children with disabilities in PE classes (e.g., Block, 1995; Campos et al., 2014; Hutzler, 2003; Reina et al., 2011; Slininger et al., 2000; Van Biesen et al., 2006), and strengthens the validity of our findings. In accordance with Hutzler et al. (2005), also based on the TPB (Ajzen, 1991), the significant differences found across gender could imply that girls may have a greater acceptance of the norm of practicing PE under diverse conditions, which is incorporated in the inclusion approach. On the other hand,

boys still conform to the norm of accomplishing the designated task—for example, learning a specific skill, where a child with a disability may present a threat.

Regarding the perception of ability, the meta-analysis by Vella et al. (2016) proved that gender moderates the relationship between incremental belief and adaptive outcomes, especially in females. There is a scarcity of literature that compares perceptions of ability (using the CNAAQ-2) by girls and boys in a PE context, obtaining limited differences for gender (Lodewyk, 2009; Warburton & Spray, 2008). In our study, the higher score of entity belief of ability by males is in line with Li et al. (2006), who found that boys tended to value—more so than girls—the importance of natural ability for performance. Moreover, Obrusnikova and Dillon (2012) demonstrated that girls had significantly higher intentions, behavioral beliefs, and social goals concerning playing with peers with disabilities in PE, whereas boys had significantly higher ego-involved goals. Thus, it might be pertinent to consider this variable when organizing groups during PE classes, using random organization strategies or avoiding the same gender across the sessions or tasks.

In addition, Campos et al. (2014) demonstrated that highly competitive students reported less favorable attitudes toward inclusion and that competitiveness potentially influences the observed gender differences, with more favorable attitudes of girls—who are also often less competitive than boys—toward inclusion. However, these authors also concluded that their results should be viewed with caution, as the effect sizes were low or moderate and the mean differences were small. According to these findings, we might confirm the third hypothesis for this study.

### **Previous Contact and Participation in Physical Activities With People With Disabilities**

This study revealed that PE students who reported having previous contact with people with disabilities have a lower entity conception of ability and a more favorable attitude toward inclusion, but only for the behavioral subscale. In addition, we also found a significant contribution to the explained variance of the behavioral subscale of attitude. According to Campos et al. (2014), students who have a close friend or family member with a disability more naturally accept a classmate with a disability in PE classes and are more likely to accept changes in games to accommodate inclusion activities. Equal status and structured, pleasant, meaningful and collaborative contact experiences have been found to support favorable attitude change (Lieberman & Wilson, 2005; McKay, Block, & Park, 2015). It is likely that close contact with children with disabilities enhances knowledge of their potential and capabilities and thus promotes a more tolerant attitude. Hence, this “contact” is considered relevant to inclusive educational settings because it supports an equitable school culture and forms the basis of awareness and educational programs (McKay, 2018).

Regarding previous participation in physical activities with people with disabilities, we found more favorable attitudes toward inclusion (both behavioral and cognitive subscales of attitude) among those students who reported previous participation in school activities about disability (i.e., awareness lessons) or involving peers with disabilities. Based on TPB, it may be expected that cognitive

and behavioral beliefs that participants in PE have about the inclusion of children with disabilities in their class could influence their intention to cope with adaptations according to the specific students' capabilities and needs, thus promoting the actual inclusion of children with disabilities. It is plausible to consider that those PE participants with no previous experience in physical activities with persons with disabilities may image a less positive interaction (Turner, Crisp, & Lambert, 2007) or show a lower predisposition to collaborative learning because of their unfamiliarity with inclusive activities. Although we found some significant differences and moderate-to-large effect sizes in some variables when comparing those with or no previous contact/participation, the trivial contributions of these two demographic variables to the regression models (0.6–0.7%) therefore led us to conclude that the hypotheses could not be supported.

## Limitations and Future Research

Although the instrument used in this study was found to be reliable (Reina et al., 2016), authors in other recent studies in the Spanish context applied other instruments to evaluate attitudes in PE, such as using adapted versions of CATCH (Felipe-Rello, 2017) or CAIPE (Cordente-Mesas, González-Víllora, Block, & Contreras-Jordán, 2017; Ocete, Franco, Coterón, & Pérez-Tejero, 2017). However, these studies used different theoretical frameworks such as the contact hypothesis (Felipe-Rello, 2017) or the TPB (Ocete et al., 2017). It may be necessary to establish a consensus about how attitudes toward inclusion in PE should be measured, and subsequently the theoretical frameworks used for its discussion.

In addition, the use of vignettes (de Boer, Pijl, Minnaert, & Post, 2014) or measurements toward specific groups of persons (peers) with disability may contribute to a better understanding of the perceived ability beliefs or previous experiences concerning the attitudes toward inclusion in PE. For example, the lack of consensus on the association between previous contact with persons with disabilities and attitudes toward people with disabilities is likely due to the variability in abilities across disability categories. Therefore, in future research, specifying disability profiles is recommended.

In addition, while we revealed a significant correlation between the behavioral attitude and entity belief, it is necessary to have a greater understanding about the variables related to peer acceptance of students with disabilities in PE. The relationships found in this cross-sectional study would provide a number of recommendations for designing interventions in a PE context where inclusion of students with disabilities takes place, such as the promotion of a favorable class climate and other adaptive outcomes (i.e., task orientation, enjoyment, perceived competence, autonomy, intrinsic motivation, or mastery-approach goals).

Therefore, longitudinal or intervention designs may assess how stable perceived ability beliefs are—evaluating their influence on accepting or interacting with other students with disabilities, including peer tutoring strategies. In addition, the inclusion of real contact (Armstrong et al., 2017) could increase peer acceptance of people with disabilities, and facilitate analyzing how much influence the perceived ability has or which profile of belief (entity or incremental) is more favorable for that acceptance.

## Practical Implications

It is important for PE teachers, as well as for other stakeholders in the school, to be aware of their own beliefs and behaviors toward students with disabilities, and how they teach in inclusive settings, as these significantly influence the intentions and behavior of their students without disabilities. In accordance with Campos, Ferreira, and Block (2013), further research is needed on attitudes, feelings, and intentional behavior of students without disability toward the inclusion of peers with disability in PE classes. This information will provide important support to teachers, staff members, school stakeholders, and legislators in their efforts to utilize inclusive and motivational strategies that will be powerful enough to modify stigmas, exclusion attitudes, and inappropriate behaviors, with the aim of promoting a more favorable and inclusive educational environment.

## References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211. doi:[10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Allport, G.W. (1979). *The nature of prejudice*. Cambridge, MA: Basic Books.
- An, J., & Meaney, K.S. (2015). Inclusion practices in elementary physical education: A social-cognitive perspective. *International Journal of Disability, Development and Education*, 62(2), 143–157. doi:[10.1080/1034912X.2014.998176](https://doi.org/10.1080/1034912X.2014.998176)
- Archie, V.W., & Sherrill, C. (1989). Attitudes toward handicapped peers of mainstreamed and nonmainstreamed children in physical education. *Perceptual and Motor Skills*, 69, 319–322. PubMed ID: [2528719](https://pubmed.ncbi.nlm.nih.gov/2528719/) doi:[10.2466/pms.1989.69.1.319](https://doi.org/10.2466/pms.1989.69.1.319)
- Armstrong, M., Morris, C., Abraham, C., & Tarrant, M. (2017). Interventions to improve contact with people with disabilities to improve children's attitudes towards disability: A systematic review and meta-analysis. *Disability and Health Journal*, 10(1), 11–22. PubMed ID: [27780687](https://pubmed.ncbi.nlm.nih.gov/27780687/) doi:[10.1016/j.dhjo.2016.10.003](https://doi.org/10.1016/j.dhjo.2016.10.003)
- Armstrong, M., Morris, C., Abraham, C., Ukoumunne, O.C., & Tarrant, M. (2016). Children's contact with people with disabilities and their attitudes towards disability: A cross-sectional study. *Disability and Rehabilitation*, 38(9), 879–888. PubMed ID: [26289369](https://pubmed.ncbi.nlm.nih.gov/26289369/) doi:[10.3109/09638288.2015.1074727](https://doi.org/10.3109/09638288.2015.1074727)
- Bebetsos, E., Derri, V., Filippou, F., Zetou, E., & Vernadakis, N. (2014). Elementary school children's behavior towards the inclusion of peers with disabilities, in mainstream physical education classes. *Procedia-Social and Behavioral Sciences*, 152, 819–823. doi:[10.1016/j.sbspro.2014.09.327](https://doi.org/10.1016/j.sbspro.2014.09.327)
- Bebetsos, E., Zafeiriadis, S., Derri, V., & Kyrgiridis, P. (2013). Relationship among students' attitudes, intentions and behaviors towards the inclusion of peers with disabilities, in mainstream physical education classes. *International Electronic Journal of Elementary Education*, 5(3), 233–248.
- 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. PubMed ID: [14748455](https://pubmed.ncbi.nlm.nih.gov/14748455/) doi:[10.1080/02640410310001641377](https://doi.org/10.1080/02640410310001641377)
- Block, M.E. (1995). Development and validation of the children's attitudes toward integrated physical education-revised (CAIPE-R) inventory. *Adapted Physical Activity Quarterly*, 12, 60–77. doi:[10.1123/apaq.12.1.60](https://doi.org/10.1123/apaq.12.1.60)
- Block, M.E. (2000). *Including children with disabilities in regular physical education: A guide for practitioners*. Baltimore, MD: Brookes.

- Burnette, J.L., O'Boyle, E.H., VanEpps, E.M., Pollack, J.M., & Finkel, E.J. (2013). Mind-sets matter: A meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin*, 139, 655–701. PubMed ID: 22866678 doi:10.1037/a0029531
- Campos, M.J., Ferreira, J.P., & Block, M.E. (2013). An analysis into the structure, validity and reliability of the children's attitudes towards integrated physical education-revised (CAIPE-R). *European Journal of Adapted Physical Activity*, 6(2), 29–37.
- Campos, M.J., Ferreira, J.P., & Block, M.E. (2014). Influence of an awareness program on Portuguese middle and high school students' perceptions of peers with disabilities. *Psychological Reports*, 115(3), 897–912. PubMed ID: 25386703 doi:10.2466/11.15.PR0.115c26z7
- Cea, M.A. (2002). *Análisis multivariable. Teoría y práctica en la investigación social* [Multivariable analysis. Theory and practice in social research]. Madrid, Spain: Síntesis.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum.
- Cordente-Mesas, D., González-Víllora, S., Block, M.E., & Contreras-Jordán, O.R. (2017). Structure, validity and reliability of the Children's Attitudes towards Integrated Physical Education-Spanish version (CAIPE-SP). *European Journal of Adapted Physical Activity*, 9(2), 3–12.
- Council of Europe. (2013). Recommendation CM/Rec(2013)2 of the Committee of Ministers to member States on ensuring full inclusion of children and young persons with disabilities into society (adopted by the Committee of Ministers on 16 October 2013 at the 1181st meeting of the Ministers' Deputies). Retrieved from <https://www.awiph.be/youthinclusion/fichiers/Recommandations-en.pdf>
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334. doi:10.1007/BF02310555
- Da Fonseca, D., Cury, F., Bailly, D., & Rufo, M. (2004). Role of the implicit theories of intelligence in learning situations. *Encephale*, 30(5), 456–463. PubMed ID: 15627050 doi:10.1016/S0013-7006(04)95460-7
- de Boer, A., Pijl, S.J., Minnaert, A., & Post, W. (2014). Evaluating the effectiveness of an intervention program to influence attitudes of students towards peers with disabilities. *Journal of Autism and Developmental Disorders*, 44(3), 572–583. PubMed ID: 23982486 doi:10.1007/s10803-013-1908-6
- Draper, N.R., & Smith, H. (2014). *Applied regression analysis*. New York, NY: Wiley.
- Dweck, C.S. (1999). *Self-theories: Their role in motivation, personality and development*. Philadelphia, PA: Taylor and Francis/Psychology Press.
- Dweck, C.S., & Leggett, E.L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95, 256–273. doi:10.1037/0033-295X.95.2.256
- Economic and Social Council. (2004). *La situación de las personas con discapacidad en España*. Madrid, Spain: Author.
- Felipe-Rello, C. (2017). *Actitudes hacia la discapacidad: análisis comparativo del efecto de tres programas de sensibilización en educación física* (Unpublished doctoral thesis). Madrid, Spain: Universidad Autónoma of Madrid.
- Frese, E., & Yun, J. (2007). Effects of disability awareness on general acceptance, acceptance of inclusive physical education, and knowledge of secondary level students in physical education. Retrieved from <http://ir.library.oregonstate.edu/xmlui/handle/1957/1941?show=full>
- Goodwin, D.L., & Watkinson, E.J. (2000). Inclusive physical education from the perspective of students with physical disabilities. *Adapted Physical Activity Quarterly*, 17, 144–160. doi:10.1123/apaq.17.2.144
- Haag, H. (1989). Research in 'sport pedagogy'—One field of theoretical study in the science of sport. *International Review of Education*, 35(1), 5–16. doi:10.1007/BF00597680

- Hutzler, Y. (2003). Attitudes toward the participation of individuals with disabilities in physical activity: A review. *Quest*, 55, 347–373. doi:[10.1080/00336297.2003.10491809](https://doi.org/10.1080/00336297.2003.10491809)
- Hutzler, Y., & Levi, I. (2008). Including children with a disability in physical education: General and specific attitudes of high-school students. *European Journal of Adapted Physical Activity*, 1(2), 21–30.
- Hutzler, Y., Zach, S., & Gafni, O. (2005). Physical education students' attitudes and self-efficacy towards the participation of children with special needs in regular classes. *European Journal of Special Needs Education*, 20(3), 309–327. doi:[10.1080/08856250500156038](https://doi.org/10.1080/08856250500156038)
- Kalymon, K., Gettinger, M., & Hanley-Maxwell, C. (2010). Middle school boys' perspectives on social relationships with peers with disabilities. *Remedial and Special Education*, 31, 305–316. doi:[10.1177/0741932508327470](https://doi.org/10.1177/0741932508327470)
- Li, W., Lee, A.M., & Solmon, M.A. (2006). Gender differences in beliefs about the influence of ability and effort in sport and physical activity. *Sex Roles*, 54, 147–156. doi:[10.1007/s11199-006-8876-7](https://doi.org/10.1007/s11199-006-8876-7)
- Lieberman, L.J., & Wilson, S. (2005). Effects of a sport camp practicum on attitudes toward children with visual impairments and deafblindness. *RE:view: Rehabilitation Education for Blindness and Visual Impairment*, 36(4), 141–153. doi:[10.3200/REVU.36.4.141-154](https://doi.org/10.3200/REVU.36.4.141-154)
- Lodewyk, K. (2009). Relations among beliefs about epistemology, ability conceptions, and achievement in high school physical education students. *Physical Educator*, 66, 124–138.
- McKay, C. (2018). The value of contact: Unpacking Allport's Contact Theory to support inclusive education. *Palaestra*, 32(1), 21–25.
- McKay, C., Block, M.E., & Park, J.Y. (2015). The impact of Paralympic School Day on attitudes toward inclusion in physical education. *Adapted Physical Activity Quarterly*, 32(4), 331–348. PubMed ID: 26485737 doi:[10.1123/APAQ.2015-0045](https://doi.org/10.1123/APAQ.2015-0045)
- Menard, S.W. (1995). *Applied logistic regression analysis*. Thousand Oaks, CA: Sage.
- Ministerio de Educación Cultura y Deporte. (2017). *Las cifras de la educación en España. Curso 2014–2015* [The official statistics of education in Spain]. Madrid, Spain: Author. Retrieved from <https://www.mecd.gob.es/servicios-al-ciudadano-mecd/estadisticas/educacion/indicadores-publicaciones-sintesis/cifras-educacion-espana/2014-15.html>
- Moreno-Murcia, J.A., Cervelló, E.M., Martínez-Galindo, M.C., & Moreno, R. (2013). Validation of the Scale of Implicit Beliefs of Ability (CNAAQ-2) to the Spanish context. Differences according to the physical practice sports. *International Journal of Sport Science*, 32, 100–113. doi:[10.5232/ricyde2013.03201](https://doi.org/10.5232/ricyde2013.03201)
- Obrusnikova, I., Block, M.E., & Dillon, S.R. (2010). Children's beliefs toward cooperative playing with peers with disabilities in physical education. *Adapted Physical Activity Quarterly*, 27, 127–142. PubMed ID: 20440024 doi:[10.1123/apaq.27.2.127](https://doi.org/10.1123/apaq.27.2.127)
- Obrusnikova, I., & Dillon, S.R. (2012). Students' beliefs and intentions to play with peers with disabilities in physical education: Relationships with achievement and social goals. *Journal of Teaching in Physical Education*, 31(4), 311–328. doi:[10.1123/jtpe.31.4.311](https://doi.org/10.1123/jtpe.31.4.311)
- Obrusnikova, I., Dillon, S.R., & Block, M.E. (2011). Middle school student intentions to play with peers with disabilities in physical education: Using the theory of planned behavior. *Journal of Developmental and Physical Disabilities*, 23, 113–127. doi:[10.1007/s10882-010-9210-4](https://doi.org/10.1007/s10882-010-9210-4)
- Obrusnikova, I., Dillon, S.R., Block, M.E., & Davis, T.D. (2012). Validation of the children's beliefs and intentions to play with peers with disabilities in middle school physical education scale. *Journal of Developmental and Physical Disabilities*, 24(1), 35–51. doi:[10.1007/s10882-011-9253-1](https://doi.org/10.1007/s10882-011-9253-1)

- Ocete, C., Franco, E., Coterón, J., & Pérez-Tejero, J. (2017). Validación de la versión española del cuestionario “Actitudes de los alumnos hacia la integración en educación física (CAIPE-R).” *Psychology, Society, & Education*, 9(3), 447–458. doi:[10.25115/psye.v9i3.1025](https://doi.org/10.25115/psye.v9i3.1025)
- Ommundsen, Y. (2001). Pupils’ affective responses in physical education classes: The association of implicit theories of the nature of ability and achievement goals. *European Physical Education Review*, 7, 219–242. doi:[10.1177/1356336X010073001](https://doi.org/10.1177/1356336X010073001)
- Ommundsen, Y. (2003). Implicit theories of ability and self-regulation strategies in physical education classes. *Educational Psychology*, 23, 141–157. doi:[10.1080/01443410303224](https://doi.org/10.1080/01443410303224)
- Özer, D., Nablant, S., Aglamis, E., Baran, F., Kaya Samut, P., Aktop, A., & Hutzler, Y. (2013). Physical education teachers’ attitudes towards children with intellectual disability: The impact of time in service, gender, and previous acquaintance. *Journal of Intellectual Disability Research*, 57(11), 1001–1013. PubMed ID: [22823106](https://pubmed.ncbi.nlm.nih.gov/22823106/) doi: [10.1111/j.1365-2788.2012.01596.x](https://doi.org/10.1111/j.1365-2788.2012.01596.x)
- Panagiotou, A.K., Evaggelinou, C., Doulkeridou, A., Mouratidou, K., & Koidou, E. (2008). Attitudes of 5<sup>th</sup> and 6<sup>th</sup> grade Greek students toward the inclusion of children with disabilities in physical education classes after a Paralympic education program. *European Journal of Adapted Physical Activity*, 1(2), 31–43.
- Reina, R., Hutzler, Y., Iniguez-Santiago, M.C., & Moreno-Murcia, J.M. (2016). Attitudes towards Inclusion of Students with Disabilities in Physical Education Questionnaire (AISDPE): A two-component scale in Spanish. *European Journal of Human Movement*, 36, 1–25.
- Reina, R., López, V., Jiménez, M., García-Calvo, T., & Hutzler, Y. (2011). Effects of awareness interventions on children’s attitudes toward peers with a visual impairment. *International Journal of Rehabilitation Research*, 34(3), 243–248. PubMed ID: [21694601](https://pubmed.ncbi.nlm.nih.gov/21694601/) doi:[10.1097/MRR.0b013e3283487f49](https://doi.org/10.1097/MRR.0b013e3283487f49)
- 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](https://doi.org/10.1111/j.2044-8309.1996.tb01104.x)
- Slater, M.J., Spray, C.M., & Smith, B.M. (2012). “You’re only as good as your weakest link”: Implicit theories of golf ability. *Psychology of Sport and Exercise*, 13, 280–290. doi:[10.1016/j.psychsport.2011.11.010](https://doi.org/10.1016/j.psychsport.2011.11.010)
- Slininger, D., Sherrill, C., & Jankowski, C.M. (2000). Children’s attitudes toward peers with severe disabilities: Revisiting contact theory. *Adapted Physical Activity Quarterly*, 17, 176–196. doi:[10.1123/apaq.17.2.176](https://doi.org/10.1123/apaq.17.2.176)
- Tacq, J. (1997). *Multivariate analysis techniques in social science research. From problem to analysis*. London, UK: Sage.
- Tinning, R. (2008). Pedagogy, sport pedagogy, and the field of kinesiology. *Quest*, 60(3), 405–424. doi:[10.1080/00336297.2008.10483589](https://doi.org/10.1080/00336297.2008.10483589)
- Triandis, H.C. (1971). *Attitude and attitude change*. New York, NY: Wiley.
- Turner, R.N., Crisp, R.J., & Lambert, E. (2007). Imagining intergroup contact can improve intergroup attitudes. *Group Processes & Intergroup Relations*, 10(4), 427–441. doi: [10.1177/1368430207081533](https://doi.org/10.1177/1368430207081533)
- van Biesen, D., Busciglio, A., & Vanlandewijck, Y. (2006, September 7–9). Attitudes towards inclusion of children with disabilities: The effect of the implementation of “A Paralympic School Day” on Flemish elementary children. In J. Wittmannová (Ed.), *European conference of adapted physical activity* (p. 66). Olomouc, Czech Republic: Palacky University.

- Van der Ploeg, H.P., van der Beek, A.J., van der Woude, L.H., & van Mechelen, W. (2004). Physical activity for people with a disability: A conceptual model. *Sports Medicine*, 34(10), 639–649. PubMed ID: 15335241 doi:10.2165/00007256-200434100-00002
- Vella, S.A., Braithewaite, R.E., Gardner, L.A., & Spray, C.M. (2016). A systematic review and meta-analysis of implicit theory research in sport, physical activity, and physical education. *International Review of Sport and Exercise Psychology*, 9(1), 191–214. doi:10.1080/1750984X.2016.1160418
- Verderber, J.M.S., Rizzo, T.L., & Sherrill, C. (2003). Assessing student intention to participate in inclusive physical education. *Adapted Physical Activity Quarterly*, 20, 26–45. doi:10.1123/apaq.20.1.26
- Vignes, C., Coley, N., Grandjean, H., Godeau, E., & Arnaud, C. (2008). Measuring children's attitudes towards peers with disabilities: A review of instruments. *Developmental Medicine & Child Neurology*, 50(3), 182–189. PubMed ID: 18261111 doi:10.1111/j.1469-8749.2008.02032.x
- Wang, C.J., & Biddle, S.J. (2001). Young people's motivational profiles in physical activity: A cluster analysis. *Journal of Sport & Exercise Psychology*, 23, 1–22. doi:10.1123/jsep.23.1.1
- Wang, C.K.J., & Biddle, S.J.H. (2003). Intrinsic motivation towards sports in Singaporean students: The role of sport ability beliefs. *Journal of Health Psychology*, 8, 515–523. PubMed ID: 19177714 doi:10.1177/13591053030085004
- Wang, C.K.J., Chatzisarantis, N.L.D., Spray, C.M., & Biddle, S.J.H. (2002). Achievement goal profiles in school physical education: Differences in self-determination, sport ability beliefs, and physical activity. *British Journal of Educational Psychology*, 72, 433–445. PubMed ID: 12396315 doi:10.1348/000709902320634401
- Warburton, V.E., & Spray, C.M. (2008). Motivation in physical education across the primary–secondary school transition. *European Physical Education Review*, 14, 157–178. doi:10.1177/1356336X08090704
- Wisely, D., & Morgan, S. (1981). Children's ratings of peers presented as mentally retarded and physically handicapped. *American Journal of Mental Deficiency*, 86, 281–286. PubMed ID: 6458210
- World Health Organization. (2001). *International classification of functioning, disability and health*. Geneva, Switzerland: Author. Retrieved from [http://psychiatr.ru/download/1313?view=name=CF\\_18.pdf](http://psychiatr.ru/download/1313?view=name=CF_18.pdf)

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