Programa de Doctorado en Deporte y Salud

Tesis Doctoral presentada por el método tradicional

Inclusion of Students with Disabilities in Physical Education: Attitudes, Ability Beliefs and Achievements Goals.

Doctoranda:

María del Carmen Íñiguez Santiago

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El Dr. D. José Pedro Espada Sánchez, Coordinador de la Comisión Académica del Programa de Doctorado de Deporte y Salud de la Universidad Miguel Hernández de Elche.

AUTORIZA:

Que el trabajo de investigación titulado "Students with Disabilities Inclusion in Physical Education: Attitudes, Ability Beliefs and Achievements Goals", realizado por Dña. María del Carmen Íñiguez Santiago bajo la dirección del Dr. D. Raúl Reina Vaíllo y la codirección del Dr. D. Roberto Ferriz Morell sea depositado y posteriormente defendido como Tesis Doctoral en esta Universidad ante el tribunal correspondiente.

Lo que firmo para los efectos oportunos en:

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Fdo.: Jose Pedro Espada Sánchez.

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Universidad Miguel Hernández de Elche

UNIVERSIDAD MIGUEL HERNÁNDEZ DE ELCHE

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Título de la Tesis

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Dr. D. Roberto Francisco Ferriz Morell.

El Director	**El Codirector**	**La Doctoranda**
Dr. Raúl Reina	Dr. Roberto F. Ferriz-Morell	Dña. M. Carmen Íñiguez-Santiago

Elche, 4 de febrero de 2019

A mis padres.
¡Gracias!

Ahora sí que es momento de escribir los agradecimientos, a las 22:36 del 12 de octubre de 2018. Desde que comencé a escribir este documento tan sólo aparecían cuatro palabras, las cuatro palabras que abren este apartado. Sin embargo, sería muy injusto por mi parte desaprovechar la oportunidad de escribir libremente los "Agradecimientos". Sin lugar a dudas, este va a ser el único punto en el que el orden de los factores no va a alterar el producto. Así que tal y como dijo Jack el destripador: "*vayamos por partes"*.

A mis padres, a cada uno de vosotros dos y al equipo que formáis: ¡gracias! Por dejarme ser libre cada vez que os cuento la nueva aventura en la que me quiero embarcar y, que como bien sabéis, acaba ocurriendo. Por construir ese "hogar" al que regresar a cualquier hora del día y cualquier día del año. Poniéndole punto y final a este proyecto siento que estoy en paz con vosotros. Por el esfuerzo que habéis hecho para que yo pueda estudiar y disfrutar de todo lo que me gusta. Porque hace 10 años nos dijeron que no volvería a hacer deporte, que me dejara la carrera y hasta aquí hemos llegado. Y, sobre todo, por haber abierto las puertas de nuestro "hogar" a Martita, pieza clave de esta aventura.

A Marta: ¡gracias! Primero de todo por tu generosidad al cederme la oportunidad de aprovechar un proyecto que comenzamos juntas. Todo fue muy inocente al principio: "*a mí me gusta la línea de Actitudes hacia la Discapacidad", "¡ah! Pues a mí también, vamos a hablar con el profesor"*. Y pasó a convertirse en un juego: "*vámonos a la playa a llenar las pelotas de tenis de arena"*. Sin darnos cuenta, nos vimos involucradas en un proyecto a plena dedicación de la noche a la mañana. Ponerle punto y final a este

proyecto también me permite sentirme en paz contigo. Eres la que más de cerca ha vivido el día a día de este camino, así que también me quedo tranquila contigo.

A Raúl: ¡gracias! En la última reunión que tuvimos en tu despacho nos miramos y supimos que esto llegaba a su fin. Desde el primera día que Marta y yo entramos en ese mismo despacho (ahora mucho más decorado… jejeje) hubo conexión entre nosotros. Si me tuviera que quedar sólo con un recuerdo como profesor sería la primera vez que pusiste mi silla al lado de la tuya para mirar la pantalla del ordenador. Siempre me habías tratado de tú a tú, pero fue en ese momento cuando tu "actitud" demostró la "inclusión". Como amigo, me quedo con unas cañas que nos tomamos en Madrid, en un bar cualquiera, cerca de alguna parada de metro. El sentimiento que queda creo que es mutuo, en la última reunión que tuvimos lo hablamos. Nos ha costado llegar hasta aquí y aquí estamos. Sin tu ayuda jamás hubiera imaginado llegar tan lejos.

A Roberto: ¡gracias! Tu incorporación fue un punto de inflexión. Le diste un gran empujón y eras la pieza que faltaba. Meticuloso y riguroso. Detallista al máximo. Hasta en nuestra última conversación me has pedido que revisara el maravilloso documento de normativa APA. Seguro que la recompensa a todo tu esfuerzo te llega antes de lo que te imaginas.

A Celes: ¡gracias! Por circunstancias ajenas y formalismos tu nombre no aparece como directora de tesis pero sabes que este trabajo ha sido posible gracias a ti. Gracias por abrirnos las puertas de tu despacho y del centro educativo donde impartías clase.

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sido una experiencia inolvidable. Te aseguro que la historia ya la he contado innumerables ocasiones.

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A Alba: ¡gracias! Bueno… ¡qué decir! Jajaja esos cafés y cañas exprés en plan: vamos a ponernos al día en una hora que me tengo que volver a Benidorm. Lo de una hora sabemos que nunca se cumplió… Desde el primer día que te vi en el CID me saludaste como si nos conociéramos de toda la vida y, he de decir, que no es lo habitual por esos pasillos. Conexión instantánea. Desprendes autenticidad, cada vez más difícil de encontrar. ¡Ves buscando

fin de semana que con una hora no vamos a tener suficiente para ponernos al día!

En definitiva, a todos y cada uno de los que habéis puesto vuestro granito de arena para que haya podido llegar hasta aquí.

Sin más, quiero cerrar este apartado con un símbolo, bueno dos. Fue el primer material que Raúl nos mostró a Marta y a mí cuando daba los primero pasos de este camino. He perdido la cuenta de cuántas veces lo he disfrutado durante estos años. Me permite conectar con las raíces de toda esta aventura y comprender por qué y para qué todos estos años de dedicación.

“Presence without participation can be more isolating than no presence at all”

(Quass & Fraser, 1994)

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Index of Abbreviations

AFC: Análisis Factorial Confirmatorio.

AFE: Análisis Factorial Exploratorio.

AISDPE: Attitudes toward Inclusion of Students with Disabilities in Physical Education questionnaire.

ATDQ: Attitudes towards Disability Questionnaire.

ANOVA: Analysis of Variance.

CAIPE-R: Children's Attitudes toward Integrated Physical Education-Revised.

CAIPE-SP: Children's Attitudes toward Integrated Physical Education-Spanish.

CAS: Curriculum Awareness Intervention.

CATCH: Chedoke-McMaster Attitudes toward Children with Handicaps.

CFA: Confirmatory Factor Analysis.

CFI: Comparative Fit Index.

CNAAQ-2: Conceptions of the Nature of Athletic Ability Questionnaire.

EAADEF: Escala de Actitudes del Alumnado hacia la Discapacidad en Educación Física.

EF: Educación Física.

EFA: Exploratory Factor Analysis.

IFI: Incremental Fit Index.

ISC: Inside-Session Contact

KMO: Kaiser-Meyer-Olkin.

LSA: Learning Support Assistants.

MCCG: Motivational Climate Control Group.

PDS: Paralympic Day Session.

PE: Physical Education.

RMSEA: Root Mean Square Error of Approximation.

RMSR: Root Mean Square Residual.

SRMR: Standardized Root Mean Square Residual.

SEN: Special Educational Needs.

TLI: Tucker Lewis index.

UN: United Nations.

UNESCO: United Nations Educational, Scientific and Cultural Organization.

Abstract

The inclusion of people with disability in the society is fundamental for them to feel accepted by their peers without disability. To achieve it, education should try to improve the knowledge and attitudes towards people with disability. The educational centres are an ideal place to achieve this goal. Teachers have the opportunity to educate in values that favour acceptance of students with a disability by their peers without disability. Specifically, the subject of physical education (PE) presents a unique opportunity to get students to interact. Through games and sports (i.e. Boccia), students can experience what it would be like to have a disability and thus put themselves in the shoes of people with disabilities.

This thesis consists of four studies that show a logical thread. The first study analyses the three-dimensional model of the attitude of Triandis (1971) through the validation of a tool to measure the attitude of students towards their peers with a disability. In the second study, the authors examined the relationship between students' ability beliefs and their attitudes towards the inclusion of people with disability in PE. In addition, the influence of gender and prior contact/participation with people with disabilities was analysed. With study three, the psychometric properties a new tool were analysed. Finally, five intervention programs for PE were designed with the aim of combining different variables (i.e. motivational climate) and examining how they influence the change of students' attitudes toward inclusion in PE.

Study one analyses a tool based on the model of the attitude of Triandis (1971). According to this author, the attitude is represented by three constructs: cognitive, behavioural and affective. After the exploratory and confirmatory factorial analysis, a bi-dimensional attitude model was obtained, which allowed having a tool available to the teacher.

At this point, the authors set out to move forward and raised the analysis of the relationship between skill beliefs and attitudes towards the inclusion of students in PE classes. In addition, other variables such as gender and prior contact with people with disabilities were considered. The attitude presented a negative relationship with the ability beliefs of the entity. However, being a girl was positively related to the attitude toward people with disability. The previous participation variable presented favourable results in the behavioural and cognitive subscales. The previous contact presented more favourable attitudes in the subscale of behaviour and beliefs of the lower entity. It is essential to have valid and reliable tools to understand the characteristics of students in order to design intervention programs to improve attitudes.

With study three, the authors analyse the psychometric properties of the Attitude Scale of Students towards Disability in Physical Education (EAADEF). The tool presented excellent joint indexes in the confirmatory factorial analysis, as well as invariant with respect to the socio-demographic variables included. The high inter consistency values of the items and the attitude construct ($\geq$ .77) show that EAADEF is a new solution as an instrument for measuring attitude towards people with disabilities.

Finally, with study four, five improvement programs for knowledge and attitudes towards people with disabilities were designed and implemented. In addition, its relationship with the motivational climate generated by the PE teachers in their classrooms was considered. The three manipulated independent variables (contact or not with an athlete during PE classes, duration and motivational strategies) allowed to analyse the keys in the design of the interventions to improve the inclusion process. The results showed that

contact with para-athletes resulted in an improvement of attitudes towards inclusion. With these results, PE teachers have tools to design their teaching units to implement during their classes and improve knowledge and attitudes about people with disabilities.

Resumen

La inclusión de las personas con discapacidad en la sociedad resulta clave para que puedan sentirse aceptadas por sus iguales sin discapacidad. Para lograrlo la educación debe ir encaminada a mejorar el conocimiento y las actitudes hacia las personas con discapacidad. Los centros educativos se presentan como un lugar idóneo para lograr este objetivo. El profesorado tiene la oportunidad de educar en valores que favorezcan la aceptación del alumnado con discapacidad por parte de sus pares sin discapacidad. Concretamente, la asignatura de educación física presenta una oportunidad única para lograr que los y las estudiantes interactúen. A través de juegos y deportes (i.e. Boccia), el alumnado puede experimentar cómo sería tener una discapacidad y, así, ponerse en la piel de las personas con discapacidad.

La presente tesis está formada por cuatro estudios que muestran un hilo conductor lógico. El primer estudio somete a análisis el modelo tridimensional de la actitud de Triandis (1971) a través de la validación de una herramienta para medir la actitud del alumnado hacia sus pares con discapacidad. En el segundo estudio los autores examinaron la relación entre las creencias de habilidad de los y las estudiantes y sus actitudes hacia la inclusión de personas con discapacidad en EF. Además, se analizó la influencia del género y el contacto / participación previa con personas con discapacidad. Con el estudio tres, se analizaron las propiedades psicométricas del instrumento del estudio uno. Finalmente, se diseñaron cinco programas de intervención para educación física con el objetivo de combinar diferentes variables (i.e. clima motivacional) y examinar cómo influyen sobre el cambio de actitudes de los estudiantes hacia la inclusión en EF.

El estudio uno somete a análisis una herramienta basada en el modelo de la actitud de Triandis (1971). Según este autor, la actitud está representado por

tres constructos: cognitivo, conductual y afectivo. Tras los análisis factorial exploratorio y confirmatorio se obtuvo un modelo bidimensional de la actitud, que permitió contar con una herramienta al alcance del docente.

En este punto, los autores se dispusieron a seguir avanzando plantearon el análisis de la relación entre las creencias de habilidad y las actitudes hacia la inclusión del alumnado en las clases de EF. Además, se tuvieron en cuenta otras variables como el género y el contacto previo con personas con discapacidad. La actitud presentó una relación negativa con las creencias de habilidad de la entidad. Sin embargo, ser niña se relacionó positivamente con la actitud hacia las personas con discapacidad. La variable participación previa presentó resultados favorables en las subescalas conductual y cognitiva. El contacto previo presentó actitudes más favorables en la subescala de comportamiento y unas creencias de entidad más baja. Resulta fundamental contar con herramientas válidas y fiables para poder entender las características del alumnado para poder diseñar programas de intervención para la mejora de las actitudes.

Con el estudio tres, los autores analizan las propiedades psicométricas de la Escala de Actitudes del Alumnado hacia la Discapacidad en Educación Física (EAADEF). La herramienta presentó excelentes índices de ajunto en el análisis factorial confirmatorio, así como invariante respecto a las variables socio-demográficas incluidas. Los elevados valores de consistencia inter de los ítems y del constructo de actitud ($\geq .77$) demuestran que la EAADEF es una nueva solución como instrumento de medida de la actitud hacia personas con discapacidad.

Finalmente, con el estudio cuatro se diseñaron e implementaron cinco programas de mejora del conocimiento y actitudes hacia las personas con discapacidad. Además, se tuvo en cuenta su relación con el clima

motivacional generado por los y las docentes de EF en sus aulas. Las tres variables independientes manipuladas (contacto o no con para atleta durante clases de EF, duración y estrategias motivacionales) permitieron analizar las claves en el diseño de las intervenciones para mejorar el proceso de inclusión. Los resultados mostraron que el contacto con para-atletas resultó en una mejora de las actitudes hacia la inclusión. Con estos resultados, el profesorado de EF dispone de herramientas para diseñar sus unidades didácticas a implementar durante sus clases y mejorar el conocimiento y actitudes sobre personas con discapacidad.

Preamble

This project emerged in 2013 due to the Sports Performance and Health Master Degree organised by the University Miguel Hernández of Elche. Corresponding to the business practices, I chose the researcher topic on Attitudes toward Students with Disabilities, directed by Dr Raúl Reina, as the research tutor, and Dr María Celestina Martínez-Galindo, as the professional tutor. In collaboration with Marta María Cebrián-Sánchez, a Master classmate, we conducted a research together based on comparing different types of interventions designed to improve students' attitudes toward people with disabilities in physical education (PE).

To begin with we started working on the research line that Dr Raúl Reina had already started working on in this area. On the one hand, he was developing a tool to measure students' attitudes toward peers with disabilities in PE, while on the other hand, he had also published research comparing how the contact length with a person with disabilities could improve the attitudes toward people with disabilities (Reina, López, Jiménez, García-Calvo, & Hutzler 2011). My professional tutor, Dr María Celestina Martínez-Galindo, had experience working as a compulsory secondary education teacher, therefore, she knew as a teacher the student needs from the first day. Later, Dr Roberto Ferriz-Morell started working with us as an expert in developing and validating research questionnaires.

Dr Raúl Reina, Dr María Celestina Martínez-Galindo, Marta María Cebrián-Sánchez and I worked together for six months in two different sub-projects, which form the basis for this doctoral thesis. The first part was about creating a new instrument to measure the attitudes of students toward their peers with disabilities in PE. The second part involved designing five intervention types

to improve students' attitudes toward people with disabilities based on several variables (e.g., length of contact or awareness program design).

This dissertation is a novel, ambitious and above all, necessary project for two reasons: (1) the improvement of students' attitudes toward people with disabilities in PE, and (2) the inclusion of people with disabilities in our society. To accomplish the second part satisfactorily the first part had to be completed. This thesis, after all, intends to obtain a more in-depth and realistic knowledge about the inclusion process of people with disabilities. As a result, PE teachers would receive more realistic and concrete directions about how to include students with disabilities in their PE classes.

Outline of the Doctoral Thesis

Even that the United Nations (UN, 2006), established the "human rights and fundamental freedoms for all persons with disabilities without discrimination of any kind on the basis of disability" (p. 5), people with disabilities represent a target group historically related to being excluded of the society. In the attempt to change this situation, the UN (1975, 2018) worked decades to change attitudes and approaches toward persons with disabilities. As a result, 82 state members signed up to the Convention on the Rights of Persons with Disabilities (UN, 2006), 44 the Optional Protocol, and 1 ratified the Convention. Their purpose was to promote, protect, and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity (UN, 2006). This dissertation intends to follow these steps validating a tool to measure attitudes towards people with disabilities and contributing to the gap about the common components of effective disability awareness interventions (Lindsay & Edwards, 2013).

In order to accomplish with this statement, the structure of this dissertation is organised as follows:

- The general introduction (**Chapter I**) aims to provide a background about essential subjects related to the inclusion of students with disabilities and their peers' attitudes toward them.
- **Chapter II** presents the thesis rationale and the aims and hypothesis of the paper.
- **Chapter III** includes a study that analyses the Triandis' (1971) theoretical model about the attitude concept. This study aims to identify if the three components (i.e., cognitive, behavioural and affective) proposed by Triandis (1971) accomplish the analysis criteria to be included in the final

version of the tool design to measure student's attitudes towards peers with disabilities.

- **Chapter IV** evaluates the ability of beliefs, gender, and previous experiences that can affect students' attitudes toward their peers with disabilities. The *Conceptions of the Nature of Athletic Ability Questionnaire* (CNAAQ-S) and the *Attitudes toward Inclusion of Students with Disabilities in Physical Education* questionnaire (AISDPE) are analysed.
- **Chapter V** examines a new instrument proposal in the Spanish language to measure the attitudes toward disability in PE. This study tries to analyse the controversy around the three-dimensional model of the attitude (Triandis, 1971) presented in Chapter III.
- **Chapter VI** exposes the implementation of five awareness programs in PE and their effectiveness improving student attitudes toward classmates with a disability. The gender and previous contact of people with disability influence are also studied.
- **Chapter VII** contains the general discussion summarising the main findings of the four studies included in this doctoral thesis. Practical implications, methodological considerations and limitations are also discussed in this chapter, finalising with some recommendations and future research issues.
- **Chapter VIII** is a Spanish translation of Chapter VII.
- **Chapter IX** includes the references for this doctoral thesis.
- In **Chapter X,** all of the annexes cited in this document are included, for example, sports infographics.

Inclusive education represents more than just students with Special Educational Needs (SEN), it is referred to all students. The inclusion process

success is influenced by the school community attitudes, knowledge, experience and understanding (Evangelos, Vasiliki, & Nikolaos, 2017). As Slee and Allan (2001) described, inclusive schooling is a social movement against educational exclusion. Since schools are one of the places where children spend most of their time learning from and interacting with others (e.g., classmates or teachers), it seems reasonable to think that these institutions could represent a key factor building inclusive communities (Curcic, Gabel, Zeitlin, Cribaro-DiFatta, & Glarner, 2009).

Chapter 1

Conceptual Framework

1.1. Educational legislation related to the attention of students with disabilities

Since the Universal Declaration of Human Rights (UN, 1948) set up the right to education for every individual, the legal framework has been working in the same direction. As the Council of Europe (1986) established, the governments of the member states would take the necessary steps to ensure access to sports and recreational activities and for the needs of people with disabilities. The politicians are encouraged to orientate the laws for such persons so they may have adequate opportunities to take part in physical recreational activities. Following these policies, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 1990) main objective during the World Conference on Education for All was to guarantee the right to education regardless of individual differences.

The Salamanca Statement (UNESCO, 1994) meant the beginning of a legal framework looking for a more inclusive society. Regarding the educational system framework, the initiation was set up by the 92 governments. The objective was to ensure that every child would have the opportunity to achieve and maintain an acceptable level of learning, respecting their unique characteristics, interests, abilities and learning needs. After years of working together several representatives (i.e., UN member states), the Convention on the Rights of Persons with Disabilities (UN, 2006) was approved. Because of this, the importance of mainstreaming disability issues as an integral part of the relevant strategies of sustainable development was emphasized. Since then, the Spanish educational policies have been working to guarantee equal opportunities to students with disabilities.

In Spain, children have the right to a basic education to help them get their own personality and learning skills to their life in society (Ministerio de

Educación Cultura y Deporte, 1985). Since then, all the educational laws published in Spain (Ministerio de Educación Cultura y Deporte, 1990; 1995; 2002; 2013; Ministerio de Educación y Deporte, 2006) have been drawing a more inclusive framework to the educational system, on their purpose to ensure equal opportunities to each student. The Spanish educational system supported the normalisation and inclusion of the students with SEN through the adequacy of the teachings according to their requirements (Ministerio de Educación Cultura y Deporte, 1990). With the publication of the Organic Law 10/2002, December 23rd, for Quality in Education (Ministerio de Educación Cultura y Deporte, 2002), educational laws would not talk any more about students with SEN, so they would be referred as students with Specific Educational Needs.

The educational administrations (i.e., national and regional) have been the ones in charge of promoting the schooling and providing the resources that students with specific educational needs require (Ministerio de Educación Cultura y Deporte, 2002). One of the four general principles established by the Royal Decree 1631/2006 (Ministerio de Educación y Deporte, 2006) was to organise the compulsory secondary education system according to the common education and the attention to the students' diversity. The measures to attend the diversity of students is to ensure the achievement of the basic competencies should not promote any discrimination. Furthermore, the educational administrations are responsible to facilitate the required resources to all the students with Specific Educational Needs.

Following the current Spanish educational law (Ministerio de Educación Cultura y Deporte, 2013), the educational centres would have to adapt the general ways to teach according to their own characteristics and needs. The students' diversity should be seen as a principle by the educational

intervention, understanding that each student would receive personalised attention according to their own individualities (Ministerio de Educación Cultura y Deporte, 2014a). In terms of providing these students with specific educational needs are the tools to learn equitably as the educational system is responsible in identifying, assessing and intervening when necessary (Ministerio de Educación Cultura y Deporte, 2014b).

The regional legislation is where this doctoral thesis was conducted (i.e., Valencia Region), and its aim is to promote effective personal attention to all students. The development of appropriate motivational climates in the educational context include values of respect, tolerance, effort culture and personal growth (Conselleria de Educación Cultura y Deporte, 2015). The educational intervention should be adapted to each student characteristics, acknowledging their strengths and weaknesses. The educational centres must have a plan of attention to the diversity and educational inclusion to ensure that each student can achieve the objectives and competencies of the stage they are studying to the best of their ability (Ministerio de Educación Cultura y Deporte, 2014a; 2014b; 2015). According to this perspective, the educational laws should ensure the respect toward the students' needs, interests, motivations and aspirations.

1.2. Barriers and facilitators for the inclusion of students with disabilities in physical education

When Investigators (e.g., Reina et al., 2011) talk about inclusion of students with disabilities it seems to be relevant to identify the stakeholders involved to clarify their attitudes and behaviour impact on the inclusion process. The stakeholders are "organisations, networks and private individuals that have an interest in the local educational institutions and their activities, in which the activities are the PE classes" (Wilhelmsen & Sørensen, 2017, p.312).

Identifying the interests and claims of those involved in the educational process may help understand their behaviour. The more knowledge the research shows about the stakeholders' curiosities the best investigators can determine which groups and themes should be perceived as salient and requiring attention. As the nature of the impairment seems to be a key factor in the inclusion process, the interaction between different stakeholders is also presented as determinant to a successful inclusion process (Wilhelmsen & Sørensen, 2017). So, this may explain why people with similar impairments in similar contexts might experience the situation very differently.

Wilhelmsen and Sørensen (2017), in their systematic review examining the research published from 2009 to 2015 on inclusion of children with disabilities in PE, identified nine stakeholder groups involved in the inclusion process of students with disabilities: (1) in- and pre-service PE teachers, (2) PE teacher, (3) SEN coordinators and learning support assistants (LSA), (4) children with disabilities; (5) children without disabilities; (6) children with and without disabilities together; (7) parents; (8) multiple adult perspectives; and (9) PE policies. All these groups involved are going to be described more deeply in the following sections, except for number (5) which is discussed in section 1.3 as "Importance of attitudes for inclusion: the role of classmates".

1.2.1. In- and pre-service physical education teachers

Following the literature published, there does not seem to be significant differences between pre- and in-service teachers (Petkova, Kudláček, & Nikolova, 2012). PE teachers' intentions to include students with disability in their classes is positively predicted by teachers' attitudes toward people with disabilities (Wilhelmsen & Sørensen, 2017). So much so that Petkova et al. (2012) found attitude as the strongest predictor of inclusion when comparing it with others (e.g., subjective norm), when scientists focused on what would

help improve teachers' attitudes, the results suggested that teachers' perceived competence in teaching students with disabilities as the primary factor. Tant and Watelain (2016) and Wilhelmsen and Sørensen (2017), compiled and organised two categories where a list of factors was put together. In the purpose to find the optimal environment for the inclusion process, the in-service teachers' point of view was analysed to determine the barriers and facilitators (see Table 1) when including a student with disabilities.

Table 1
Attitude's barriers and facilitators to the in-service teachers' voices (Wilhelmsen & Sørensen, 2017)

Attitude facilitators	Attitude barriers
1. Peer acceptance	1. Class size
2. Teacher's motivation for inclusion	2. Time constraints
3. Teaching social skills	3. Inadequate guidelines in the national curriculum
4. Collaboration with LSAs	4. Lack of adapted physical education and professional development
5. Parents	5. Fear for pupils' safety
6. Other teachers	6. Possible negative impact on peers
7. Physiotherapists	7. Perceived impact of type and severity of impairment
8. Occupational therapists	8. Demeanour of pupils
	9. Facilitators

Attending to Tant and Watelain's (2016) review studying the PE teacher's perspective about the inclusion process in their classes, these authors concluded that the topic could be divided into two areas: (1) the factors that influence PE teachers' attitudes and predispositions toward that inclusion of students with disabilities, and (2) the factors that can positively influence the

inclusion of students with disabilities. Regarding the first factor, the lack of adapted PE training courses and teaching experience with students with disability appeared to be negatively related with PE teachers' attitudes toward the inclusion process (Block & Obrusnikova, 2007). Regarding the second factor, O'Brien, Kudláček and Howe (2009) found three variables that would help to achieve the successful inclusion of students with disability in PE: (a) appropriate PE training courses, (b) APE specialist assistance during PE classes, and (c) supportive PE curriculum toward the inclusion process.

When the focus is projected around the teacher-specific factors that influence their attitudes (Tant & Watelain, 2016), several variables (e.g., gender and age) have been analysed in order to accomplish a better understanding on how teachers' attitudes influence the inclusion process. Among the variables analysed, teachers' gender has been one of the most studied factors in the literature (e.g., see Doulkeridou et al., 2011). While some studies (e.g., Petkova et al., 2012) have considered gender as a factor that predicts significantly teacher's attitudes. Other studies (e.g., Fournidou, Kudláček, & Evaggelinou, 2011) have found that teachers' gender does not predict their intentions to include. Regarding teachers' age, the picture is similar, that is to say, Rizzo (1985) affirmed that younger teachers showed a more favourable attitude compared with older colleagues. However, several studies (e.g., Jerlinder, Danermark, & Gill, 2010) have not found any relationship between teachers' attitudes toward students with disabilities and their age.

There are also specific factors related to the students with disabilities that can influence their teachers' attitudes. Tant and Watelain (2016) classified these students' characteristics in four groups: disability label, age or class

level, type of disability, and the severity of the disability. According to these authors, all the factors would modify, at least partly, PE teachers' attitudes.

In summary, teachers' attitudes toward the inclusion of students with a disability are mainly influenced by the teachers' perceived teaching competence (Tant & Watelain, 2016). According to Coates (2012), when authors write about inclusive education they are talking about a phenomenon that gives the teachers a responsibility of adapting the content and promoting the encouragement of learning new abilities to all and every student.

1.2.2. Physical education teachers

The initial teacher training programs are the first steps that each professor takes on his or her academic formation. However, there are just a few studies listening to these stakeholders' voices. Piletic and Davis (2010) identified three emphasized topics in the adapted PE courses: (1) disabilities, instructional, and motivational strategies; (2) modifications, physical fitness, motor skills, and motor development of students with disabilities; and (3) writing and implementation of individual education plans. It would be interesting for the teachers to learn how their students behave to accomplish their objectives. However, the amount of time that PE teachers spent on teaching this topic wouldn't be enough (Lavay, Henderson, French, & Guthrie, 2012).

1.2.3. Children with disabilities

The inclusion of children with disabilities is the main goal of the whole inclusion process. Thus, their thoughts should be listened to when working on any part of this process (Wilhelmsen & Sørensen, 2017). On one hand, the children associate unfair competitive disadvantage, fear of injury, or bullying with negative feelings (Coates & Vickerman, 2010; Healy, Mset, &

Gallagher, 2013) and, on the other hand, they stand the importance of gaining access to the playing field where they feel like legitimate participants in the activities and having friends provides them with a supported feeling (Spencer-Cavaliere & Watkinson, 2010).

Haegele and Sutherland (2015) conducted a review examining qualitative inquiries about the perspective of students with disabilities toward their experiences in PE. The authors grouped thirteen studies in three topics: (1) toward typically developing peers, (2) toward physical educators, and (3) toward inclusion and exclusion. The most commonly explored perspective of students with disabilities is related to interactions with typically developing peers (Haegle & Sutherland, 2016). Here, the positive and negative interactions in PE represent the three subthemes, while positive interactions in PE may help build friendships between students with or without disabilities (Seymour, Reid, & Bloom, 2009). Any negative social comparisons, social isolation, and bullying culminate negative social experiences that students with disabilities perceive during PE classes (Haegle & Sutherland, 2016). Perspectives of students with disabilities on their physical educators can be divided as follows: disclosing disabilities, discrimination, and the PE teacher. Finally, from the perspective towards inclusion and exclusion themes emerge three other subthemes: forced exclusion which describes perceptions of being excluded from activities based on constraints in the environment or stakeholders; self-exclusion, that discusses situations where students decide themselves to refrain from participation in PE; and forced inclusion, that describes accounts where students with disabilities felt that inclusion in activities was mandatory regardless of modifications (Haegle & Sutherland, 2016).

Having students with disability perspectives in mind, inclusive of education doesn`t necessarily mean that students with disabilities would gain a positive experience. That is to say, properly implemented inclusive practices can yield positive effects, while poorly implemented practices will likely produce adverse effects (Lieberman & Houston-Wilson, 2009). In this sense, Haegle and Sutherland (2016) suggest that researchers keep exploring and identifying the needs of students with disabilities in PE to learn more about appropriate educational practices.

1.2.4. Children without disabilities

The final purpose when improving attitudes toward people with disabilities is to adjust the behaviour with the environment to facilitate getting along with other people (Triandis, 1971). The attitudes of children without disabilities toward their peers with disability are determinant in the inclusion process (Ocete, Pérez-Tejero, Franco, & Coterón, 2017). Their intentions to play with a peer with a physical disability in PE seem to correlate positively with behavioural beliefs, normative beliefs, control beliefs, social responsibility, social intimacy and task involvement (Obrusnikova & Dillon, 2012). Children with disability thoughts suggest that their peer's behaviour is a key factor in making them feel included (Spencer-Cavaliere & Watkinson, 2010).

The findings of various authors (e.g., Block, 1995; Reina et al., 2011; Vignes et al., 2009) also suggest that girls present more positive attitudes towards including children with disabilities than boys. However, other authors as Panagiotou et al. (2008) did not find significant interaction effects for gender after implementing an awareness program.

1.2.5. Children with and without disabilities together

The research in this field is recent. If the students with disabilities are the target group in the inclusion process, their peers without disabilities conformed one of the main stakeholders. During school time, children spend most of their weekdays with their classmates, so their experiences together could be significative to their growth. Children perspectives are considered a key role building environmental factors as barriers or facilitators for physical activity at school (Roult et al., 2014). The scientific evidence (e.g., see Pan, Liu, Chung, & Hsu, 2015) support that inclusive PE environments can promote greater participation in other school arenas for pupils with disabilities.

1.2.6. The voices of the parents and multiple adults

It seems reasonable to think that parents of children with disabilities should listen to know the needs they identify as to improve their child's life. They have expressed a need for expert education and more public talks about children's learning disabilities (Zivoder, Martic-Biocina, Mikecic, & Kozina, 2017). Parental satisfaction could be influenced by the ongoing and frequent communication and collaboration with PE and APE teachers, the attributes of the PE teacher, their child's PE placement, the provision of support staff, and appropriate modifications for their child (Chaapel, Columna, Lytle, & Bailey, 2012; Lieberman, Haibach, & Schedin, 2012; Perkins, Columna, Lieberman, & Bailey, 2013).

Rizzo (2013) identified a top ten issues in APE which is based on APE professionals' perspectives: (1) effective teaching behaviours, (2) inclusion, (3) assessment, (4) collaboration, (5) transition, (6) response to intervention (7) certification, (8) leadership, (9) behavioural management, and (10) evidence-based teaching. Exploring and prioritising the factors believed to

contribute the inclusion in PE have five main factors that are: in-service training, positive attitudes, support, modification and peer tutoring (Park, Koh, & Block, 2014). When studying, adults with disabilities identified PE as the arena where they had faced the larger percentage of negative experiences with physical activity (Bredahl, 2013). However, Wilhelmsen & Sørensen (2017) suggested that a small number of the studies actually took into consideration children's own voices, interests, and claims, which might differ quite a bit from adults' perspectives on inclusion.

1.2.7. Physical education policy

PE classes provide distinct opportunities for the acquisition of several skills (e.g., empathy), which define self-confident and socially responsible citizens. A well-designed curriculum promotes movement competence to structure thinking, express feelings, and enrich understanding (UNESCO, 2015). Governments should ensure PE policies that build inclusive environments to ensure all students their right of an active participation during the PE classes.

In numerous countries, educational policies have evolved toward inclusive education and they are encouraging mainstream schools to include students with disabilities (Tant & Watelain, 2016). The promotion of PE at schools involves introducing new or adapting existing policies which aim to raise general awareness of the lifelong social and educational value of physical and sports activity. However, the literature doesn't appear to investigate it that much (Wilhelmsen & Sørensen, 2017).

PE offers many possibilities to improve attitudes towards people with disabilities through the inclusion process. According to the European Commission (2013), the prescribed taught time for PE differs significantly from one country to another. As consequence, these opportunities would depend on the European country the teacher is teaching PE. In primary

education in 2011/12, the average teaching time is based on the recommended minimum per notional year which varies between 37 hours (Ireland) and 108 (France). At the secondary level, the range from 24-35 hours (Spain, Malta and Turkey), to 102-108 hours (France and Austria). Attending to these numbers, it could be perceived that even there are common guidelines to the educational curricula, each student would receive a significate different education depending on what country he or she studies.

1.3. Explanatory theories underlying the doctoral thesis

In the following paragraphs, a short conceptualisation is present about the theories this doctoral thesis is based on. The corresponding articles below also take an in-depth look at the theories in question.

1.3.1. Attitude Theory

Since Triandis (1971) published the "attitude and attitude change" theory has existed controversy on the literature around this theme (Íñiguez-Santiago, Ferriz, Martínez-Galindo, Cebrián-Sánchez & Reina, 2018). There are two common perspectives when talking about attitude: (1) understanding attitude as a predisposition to respond, and (2) represented by consistencies in the responses of individuals to social situations (Triandis, 1971). People have attitudes because attitudes provide a certain amount of predictability giving them a better understanding of the world around them and protection in their self-esteem, which allows expression of their fundamental values. Because of this, any previous experiences can be employed as a guide which usually corrects the outcome (i.e., attitude toward inclusion of students with disabilities in PE).

To define the attitude concept, scientists haven't used the same amount of components' attitude number (see Figure 1). Referring to the cognitive

component, people categorise the stimuli to simplify the task of responding to the environment (Triandis, 1971). However, doing this process involves losing a great amount of information (Allport, 1979; Bruner 1958). This could explain why people could react likewise in similar contexts. The way the person feels (affective component) about an attitude object is often determined by the previous association of the attitudes object with pleasant or unpleasant states of affairs (Triandis, 1971).

Attitudes are inferred from what a person says about an attitude object, from the way he or she feels about it, and from the way he says he or she will behave towards it (Triandis 1971). Attitudes are neither necessary nor sufficient causes of behaviour, they are "facilitative causes". The behaviour component is a function of attitudes, norms, habits, and expectancies about reinforcement. When all four factors are consistent there is consistency between attitudes and behaviour; but when the four factors are inconsistent, there is much less consistency. Attitudes alone do not predict behaviour; while attitudes together with norms and habits do (Triandis, 1971) Attitudes consist of three types of components: affect, cognition, and behavioural intentions. Behavioural intentions are related to overt action; but over action also is dependent on habits, norms, and other attitudes than the attitudes that are directly relevant to the behaviour toward a particular attitude object (Triandis, 1971). There is enough scientific evidence that these three types of components of attitude interact with each other and tend to become consistent.

When a person behaves he/she changes his/her cognition and affect to "bring them into line" with his/her behaviour, so that most of the cognitive elements found in a person at a given moment of time tend to be consistent (Triandis, 1971).

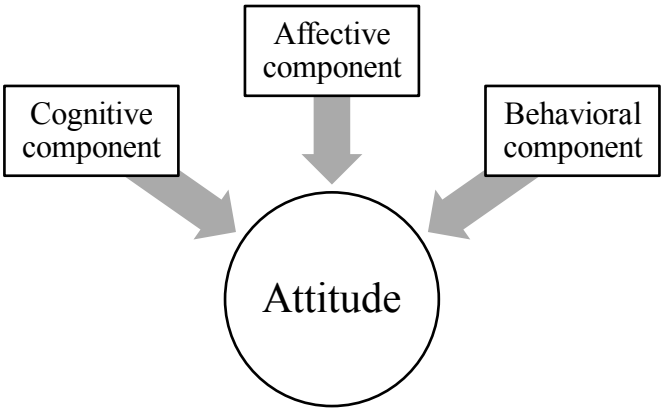


Figure 1. Triandis' attitude model (1971).

1.3.2. The Contact Theory

The Contact Theory (see Allport, 1979) describes the positive impact that direct face-to-face interactions can have on people's attitudes toward members of different social groups (e.g., race or age). According to this statement, the author proposed that increasing positive interactions between members of different social groups would lead to an increase in positive attitudes toward each other. One reason that prejudice arises, according to the contact hypothesis, is due to a lack of contact.

The science of improving attitudes toward people with disabilities has analysed different types of contact: direct and indirect contact (Allport, 1979). On the one hand, the direct contact has been divided by the literature given if it was structured or not (Iñiguez-Santiago, Ferriz, Martínez-Galindo, Cebrián-

Sánchez, & Reina, 2018). While direct, extended, and guided imagined contact interventions are effective in improving children's attitudes toward disability; there was no evidence for para-social contact (Armstrong, Morris, Abraham, & Tarrant, 2017). On the other hand, indirect contact has been classified by Armstrong et al. (2017) as: (1) extended contact, knowing a fellow "in-group" member has a close relationship with an "out-group member" (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997); (2) guided imagined contact, imagining a positive interaction with an out-group member (Turner, Crisp, & Lambert, 2007); and (3) para-social contact, being exposed to out-group members through their portrayal using media such as video (Schiappa, Gregg, & Hewes, 2005). Til the date, the only study (Godeau et al., 2010), reported no positive attitudes after the intervention based on a comprehensive educational project on disability presented the largest sample size of 784 PE students. However, less than 80% of the sample in this study was included in the assessment follow-up and it was reported that participants who were most likely to drop out of the intervention were boys and those with low socioeconomic status. Both of these factors have been reported to be closely associated with negative attitudes toward disability (Godeau, et al., 2010). Armstrong et al.'s (2017) review suggest that contact with people with disabilities can be an effective component for intervention developers to improve children's attitudes toward disability.

1.3.3. Theory of Achievement Goals

From a cognitive-social perspective of motivation, achievement goal theory (see Nicholls, 1984, 1989) analyses the primary intent of people in achievement contexts that is the demonstration of ability. In other words, how people interpret achievement and how they perceive the social context, within which they are operating, represents the centre for the achievement

motivation framework. The way in which people enter their ability and define a successful achievement of their goals has been related to motivational, cognitive, affective and behavioural outcomes in sport, school PE and exercise context (Ntoumanis & Biddle, 1999). The achievement goal theory represents a theoretical approach that explains children's motivation in PE (Nicholls, 1984, 1989).

Nicholls (1984, 1989) differentiates two meanings of ability respecting the achievement contexts that are manifested through two states: task and ego. The person implication toward the preference for one ability concept (task or ego) would depend on dispositional (students' individual perception) and environmental factors (characteristics of the achievement environment in which the individual finds himself, for example, the influence of PE teachers) (see Cervelló & Moreno, 2010).

Regarding dispositional factors (goal orientations), according to Nicholls (1984, 1989), task-oriented individuals do not differentiate effort and ability, and they believe that improvement through effort implies ability. On the other hand, ego orientation is based on a differentiated conception of ability, where effort and ability are clearly distinguished as causes of outcomes. Achievement goal theory assumes that these goal orientations are not bi-polar opposites of the same, construct, but orthogonal, meaning that an individual can be high, low or high and low in both orientations at any given time (Nicholls, 1984, 1989).

Concerning environmental factors (motivational climates), when an evaluation of performance and success are perceived as the achievement of mastery, individuals presented a task involvement state. These individuals achieved success through their ability demonstration. However, when the focal concerns are with social comparison they are ego involved orientated.

In this case, the ability is demonstrated when their performance is perceived to be better than of others, especially when it is achieved by exerting less effort. According to this, the majority of students that are task-oriented perceive a task climate and are intrinsically motivated (Gómez-López et al., 2015). In this study, the authors also concluded that the PE represents a main predictor variable of self-determination. Moreover, females scored higher than males along the three dimensions corresponding to intrinsic motivation, knowledge, achievement and stimulation and also in identified and external regulation extrinsic motivation.

The present findings indicated that girls and boys perceive PE classes in a different way. The current and previous empirical findings supported task-involving teaching methods in PE, in some cases, ego-involving climate should be considered. Both task and ego-involving teaching practices can be useful ways of developing preferred behaviours in PE classes (Gràsté & Watt, 2017)

Motivational, cognitive, affective and behavioural outcomes are considered in sport, school PE and exercise. Mastery motivational climate is associated with more adaptive motivational patterns, while a performance climate is linked with less adaptive or maladaptive motivational and affective responses (Ntoumanis & Biddle, 1999).

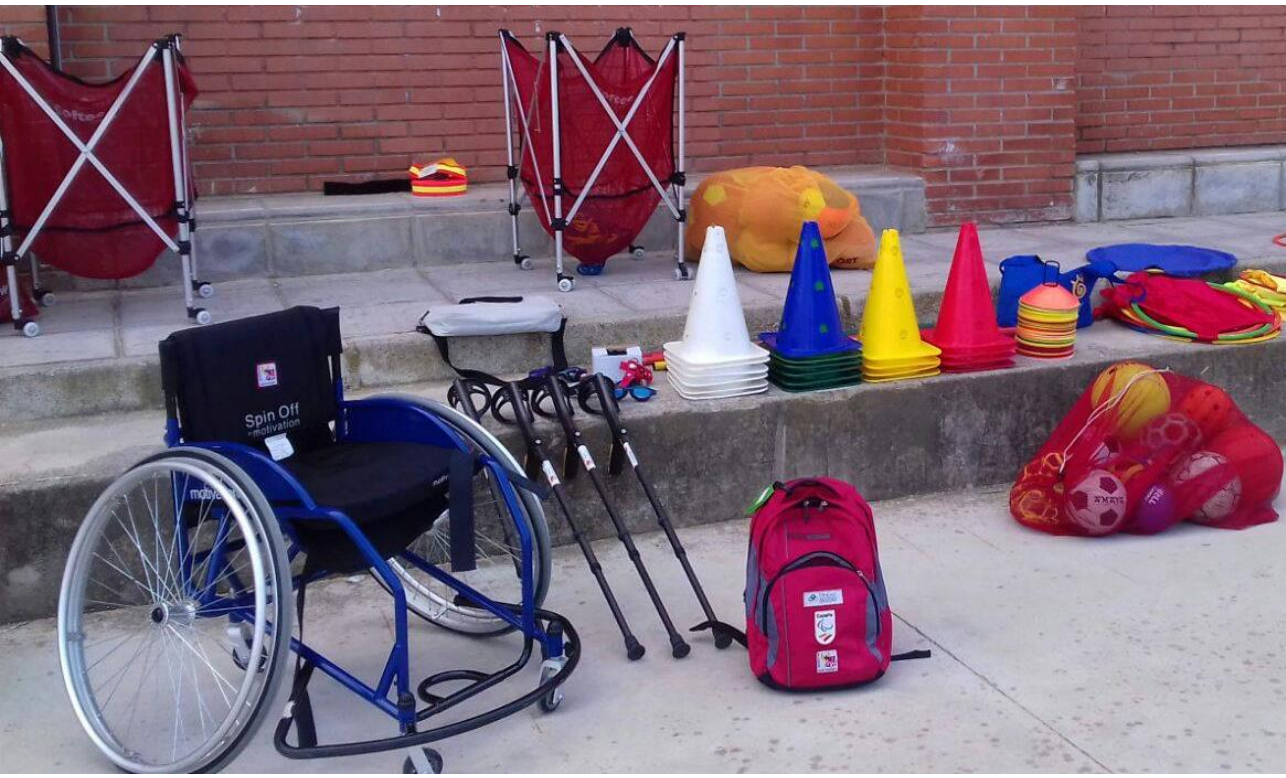
1.3.4. Implicit beliefs

According to Dweck and Leggett (1988), implicit beliefs are unconscious conceptions about the nature of human abilities and they exert a strong influence on motivational framework because they provide schemata through which all achievement-related events are interpreted and responded to. There are two basic implicit beliefs: incremental beliefs and entity beliefs. Those who hold an incremental belief regard ability as a malleable and incremental

quality that can be trained and developed, while those who hold an entity belief regard ability as fixed and, therefore, it is innate to the individual and cannot be improved for example through learning or training (Dweck, 1999).

Traditionally, in relation to the influence that teachers and equals (motivational climate) can exert on students' beliefs, researchers have analysed the relationship between the Achievement Goal Theory with less implicit beliefs. In this line, the results obtained by Vella, Braithewaite, Gardner and Christopher (2016) through a systematic review and meta-analysis conducted in the PE context pointed out that the most commonly studied correlates to implicit beliefs of goal orientations and motivational climate. The study of Vella et al. (2016) presents that incremental beliefs are positively associated with a task orientation, mastery or task climate, mastery-approach goals, and mastery avoidance, and are negatively associated with a performance or ego climate. In contrast, entity beliefs are positively associated with an ego orientation, performance or ego climate, performance-approach goals, and performance-avoidance goals, and are negatively associated with a mastery or task climate.

Chapter 2



Research Rationale, Aims and Hypotheses

2.1. Research rationale

The previous chapter explained the literature gaps regarding the inclusion of students with disabilities in the educational system, with special attention to PE. In this thesis, four studies are included (chapters III, IV, V and VI). Although each study will include a unique background in order to establish the research aims and hypothesis for these studies, the following needs have been identified:

- **Study 1:** lack of tools in the Spanish language to measure students' attitudes toward their peers with disabilities in PE. There is no consensus in the literature (Íñiguez-Santiago, Ferriz, Martínez-Galindo, Cebrián-Sánchez & Reina, 2017) about Triandis` (1971) three-dimensional attitude conception when validating instruments in the English and Spanish language.
- **Study 2:** how ability beliefs, gender, previous contact and experiences influence the inclusion process in PE. Analysing those variable effects on the children attitudes toward their peers with disabilities, it could be understood how their attitudes would be modified depending on these variables.
- **Study 3:** using the experience learned during the previous research, the results obtained in Study 1 were analysed. The Attitude hypothesis (Triandis, 1971) in the PE context was more deeply explored
- **Study 4:** many studies have been published in the last decades evaluating attitudes after applying awareness interventions, but there is no consensus in the literature about what variables should be used during awareness programs to improve the knowledge and the attitudes toward disabilities in PE.

2.2. Aims and hypothesis

2.2.1. Study 1: Attitudes toward Inclusion of Students with Disabilities in Physical Education Questionnaire (AISDPE): a Two-Component Scale in Spanish.

Objectives of the study 1.

- To establish the construct validity of a questionnaire in the Spanish language on attitudes toward the inclusion of students with a disability in PE classes.

The hypothesis of the study 1.

- Attitudes' toward inclusion in PE could be measured using a tool based on the three-dimensional attitude conception.

2.2.2. Study 2: Student Attitudes toward Inclusion in Physical Education: The Impact of Ability Beliefs, Gender, and Previous Experiences.

Objectives of the study 2.

- To analyse the relationships between students' entity and incremental beliefs and their attitudes toward inclusion in PE.
- To analyse the role of gender and previous contact or experiences on students' attitudes toward inclusion in PE.

The hypothesis of the study 2.

- PE participants with an entity belief will present less positive attitudes toward inclusion in PE than those participants with an incremental ability belief.
- Girls will have more positive attitudes toward inclusion in PE than boys.

- PE students who have previous experiences with persons with disabilities will have more positive attitudes toward inclusion than those who have not had contact with persons with disabilities.

2.2.3. Study 3: Factorial Analysis of the Attitudes' Scale toward Students with Disabilities in Physical Education (ASSDPE).

Objectives of the study 3.

- Optimizing an instrument to measure students' attitudes toward their peers with disabilities in PE.

The hypothesis of the Study 3.

- The scale toward students with disabilities in physical PE (ASSDPE) will show appropriate psychometric properties using a two-dimension hypothesized model, considering cognitive and behavioural attitude components.
- The ASSDPE will show invariance respect to four socio-demographic variables: gender, having had previous contact with a family member or friend with a disability, contact with a classmate with disability in PE and having practised physical activity with persons with disability.
- The ASSDPE will show positive correlations between the items, positive correlations between each item and the means of attitude and acceptable reliability (through internal consistency and construction of the instrument).

2.2.4. Study 4: Key Elements for Successful Inclusion in Physical Education when Comparing Contact, Duration and Motivational Strategies

Objectives of the study 4.

- To analyse the effects of five interventions designed to improve the attitudes of students toward inclusion in PE of classmates with disability and its effect on the perceived climate (task and ego).

The hypothesis of the study 4.

- Those groups with contact during the interventions would improve their attitudes toward peers with disability in PE in a higher extense than those without contact.
- Those groups with longer interventions will improve their attitudes to a higher degree.
- Using motivational strategies will affect the attitude ratio of improvement.

Chapter 3

Study 1

Attitudes toward inclusion of students with disabilities in physical education questionnaire (AISDPE): A two-component scale in Spanish.

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3.1. Abstract

In PE, acceptance by and interaction with peers without disabilities is one of the most important factors in determining whether a student with a disability has a successful experience, such as to be perceived as members of the class, to interact with peers, and to feel part of the group. This study establishes the construct validity of a questionnaire in the Spanish language on attitudes toward the inclusion of students with a disability in PE, according to a model where attitudes are considered to be comprised of three components: cognitive, affective, and behavioural. Nine hundred and seventy-six PE students (491 girls and 485 boys) from eight public educational centres took part in this study. Using Exploratory and Confirmatory Factor Analysis procedures, a two-component model of attitude was confirmed. Therefore, this questionnaire may be used for surveying attitudes and measuring the attitudinal change of students within the Spanish school system.

Keywords: attitude questionnaire, special educational needs, inclusive education, physical education.

3.2. Resumen

En educación física (EF), la aceptación e interacción con compañeros sin discapacidad es uno de los factores más importantes para que los alumnos con discapacidad tengan una experiencia educativa satisfactoria, tales como ser percibidos como uno más de la clase, interactuar con los compañeros, y sentirse parte del grupo. Este estudio muestra la validez de constructo de un cuestionario en español para evaluar las actitudes hacia la inclusión de alumnos con discapacidad en EF, de acuerdo a un modelo en el que la actitud se compondría de tres dimensiones: cognitivo, afectivo y comportamental.

Novecientos setenta y seis estudiantes de EF (491 chicas y 485 chicos) de ocho centros educativos públicos participaron en el estudio. Mediante el empleo de análisis factorial exploratorio y confirmatorio se ha confirmado un modelo bidimensional de la actitud hacia la inclusión de alumnos con discapacidad en EF. Este cuestionario podría ser empleado para analizar las actitudes y medir el cambio actitudinal dentro del sistema escolar español.

Palabras clave: cuestionario actitudes, necesidades educativas especiales, educación inclusiva, educación física.

3.3. Introduction

Inclusion of students with a disability in physical education (PE) classes as a part of an educational inclusion approach have been recommended by the Committee of Ministers of the European Union to member states for children and young people (Council of Europe, 2013). During the last decade, efforts have been made in several European countries, such as Greece (Panagiotou et al., 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 149.618 students with disabilities, which represents 1,9% of the total school population (MECS, 2014). More than half of the students with disability (55,98%) are with an intellectual or a learning disability, 36,07% with severe disorders (generalized development or behaviour/personality disorder), 10,94% with a physical activity limitation, 3,63% with multiple disability, 6,71% with hearing impairments, 2,89% with visual impairments, and 1,17% with other health conditions.

One of the key factors for successful inclusion is a favourable social environment that includes a positive attitude from social agents such as teachers, peer students, and parents (Reina et al., 2011). The importance of studying social attitudes toward inclusion is increased by the fact that in the World Health Organization's 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. 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 behavioural intention as well as cognitive and emotional components (see Vignes, Coley, Grandjean, Godeau, & Arnaud, 2008, for a review). Attitudes toward individuals with a disability are often charged with prejudice, including false cognitions, negative effect, and behavioural ignorance, and thus restrict these individual's degree of active participation in community life (Hutzler, Zach, & Gafni, 2005).

Acceptance by and interaction with peers without disabilities is one of the most important factors in determining whether a child with a disability has a successful experience in PE (e.g., Block, 2007). Being accepted by peers allows children with disabilities to be perceived as members of the class, to interact with peers, and to feel part of the group (Janney & Snell, 2006). Both positive and negative social experiences have been described in the literature. Blinde and McCallister (1998) reported that some students with a disability felt unwelcome in PE classes, and other researchers found that they are not always accepted or socially included (Hutzler Fliess, Chacham, & Van den Auweele, 2002). Goodwin and Watkinson (2000) described supportive and positive interactions with classmates on some occasions, as well as social

isolation at other times. Students rated their experiences as ‘good days’ or ‘bad days’, depending on the situation. On good days, they felt a sense of belonging, shared in the benefits of the activity, and were able to master tasks. On bad days their participation was restricted, they felt isolated, and their competence was questioned. In addition, students with disabilities themselves identified attitudes of others toward them as a barrier for a satisfactory school experience (Hogan, McLellan, & Bauman, 2000).

Most of the studies conducted to investigate variables in inclusive PE have focused on teachers rather than on students with or without disabilities (see Obrusnikova, Dillon, & Block, 2011). Then, various scales for measuring attitudes of teachers, parents, and students toward various aspects of inclusion have been developed (see Vignes et al., 2008). Some of these scales use the widely accepted three-component model of attitude (Eagly & Chaiken, 1993; Triandis, 1971) as a theoretical framework. According to this model, attitudes are considered to be comprised of three components: (1) cognitive, (2) affective, and (3) behavioural. However, various additional approaches exist (e.g., Bossaert & Petry, 2013), as well as self-completion instruments that are based on different theoretical models of the content of attitudes (de Boer, Timmerman, Pijl, & Minnaert, 2012; Vignes et al., 2008). Furthermore, there is a lack of psychometrically validated instruments to tap into the attitudes of peers toward students with disabilities that consider the three components of attitude (Vignes et al., 2008). So far, no satisfactorily validated instrument exists in the Spanish language for assessing students’ attitudes toward peers with a disability.

3.4. Method

3.4.1. Participants

Nine hundred and seventy-six PE students (491 girls and 485 boys) from eight public educational centres in the south of Spain participated in this study. Participants' age ranged between 12-17 years. Girls' mean age was 14.5 years (*SD* = 1.5) and boys' mean age was 14.6 years (*SD* = 1.5 years). Approximately half of the participants (56.86%) reported having a family member, friend, or close neighbour with some type of disability (boys = 253; girls = 302), and 281 (28.79%) (boys = 133; girls = 148) reported participation in physical activity with or having contact with persons with disabilities. The sample was randomly divided into two groups to enable exploratory and confirmatory analysis of the attitude's questionnaire. A group of 494 PE students (248 girls and 246 boys) was used for exploratory analysis and a group of 482 PE students (243 girls and 239 boys) for confirmatory analysis. The school board's approval for filling in the questionnaires by school children was received. An informed consent was signed by a parent of each of the participating students.

3.4.2. Instruments

3.4.2.1. Attitudes toward Inclusion of Students with Disabilities in Physical Education questionnaire (AISDPE)

The AISDPE is a modified version of the Attitudes toward Disability Questionnaire (ATDQ: Reina et al., 2011). This Spanish ATDQ includes 23 items and was used in a previous study examining the impact of an awareness program (based on soccer activities for people with visual impairment) on attitudes toward inclusion of students with visual impairments (Reina et al., 2011). The original Spanish ATDQ consisted of three attitude factors: cognitive (nine items; α = .78); emotional (seven items; α = .58); and

behavioural (seven items; α = .73). Although this ATDQ was also used in another study about inclusion in sport settings (Pérez-Tejero, Ocete, Ortega-Vila, & Coterón, 2012), its construct validity was not confirmed. For the current study, a revised AISDPE questionnaire was utilized. The major differences between the AISDPE and the ATDQ are the change of disability attribution to a more general description, and the addition of items to include 32 items in total, with a 5-point Likert scale (1 = *completely disagree* and 5 = *completely agree*). The items were sub-grouped by two of the three subscales recommended by Triandis (1971): (a) Cognitive perception of children with a disability, with 18 items. The items in this scale were related to the stereotyped view of children with a disability – those who are constantly in need of help, unable to enjoy life, sad, etc. An example of an item in this scale is 'If I were blind, I would not be able to do the things I regularly do'; (b) Behavioural readiness to interact with children with disabilities, made up of eight items. The items in this scale are related to interactions with children with a disability, for example trying to avoid them, not knowing what to say to them, etc. An example of an item in this scale is 'I will not participate in sport competitions together with people with disability'; (c) Emotional reactions, with six items. The items in this scale reflected emotions, such as annoyance, pity or sadness. An item example is 'It disturbs me that students with a disability who are in the classroom are changing the normal development of the lesson'.

3.4.3. Procedure

Administrators and teachers from different schools in the region were initially contacted to inform them of the study objectives and to request their collaboration in the study. Upon receiving the administrators' and teachers' approval, informed letters of consent were sent to the participants' parents.

The children whose parents returned the informed consent were invited to participate in the study. We administered the questionnaire under the supervision of an investigator, who was able to address any questions or concerns of the participants. The informed consent, as well as the questionnaire, were completed on an individual basis, and the participants were given a guarantee that their responses would remain anonymous. The participants needed roughly 15 minutes to complete all of the questions, and each participant's questionnaire was checked by the investigator to ensure that every item had been completed.

3.4.4. Statistical analysis

Descriptive statistics were calculated for all variables, and the results are presented as means ± standard deviations. We analysed the internal consistency of each factor using Cronbach's alpha coefficient and bivariate Pearson correlations (*r*). An integrated approach of exploratory and confirmatory factor analysis methodology (EFA and CFA, respectively; see Marsh et al., 2009) was followed to validate the construction of the AISDPE scale. Data analysis was performed using the Statistical Package for Social Sciences (version 22.0 for Windows, SPSS Inc., Chicago, IL, USA).

3.5. Results

3.5.1. Exploratory factor analysis

We conducted an exploratory factor analysis using principal components with direct Oblimin rotation to verify the attitudes' three-component model. After this analysis, the items were grouped into two factors: behavioural readiness to interact with children with disability (items: 2, 10, 17, 18, 19, 20, 21, 22, 29, 32) and cognitive perception of children with a disability (items: 1, 7, 9, 16, 24, 25, 26), with eigenvalues above 1.00 (4.30 and 1.71,

respectively) and a total explained variance of 35.70% (26.18% and 9.52%, respectively). Internal consistencies (coefficient α) for each subscale are presented in Table 2.

3.5.2. Confirmatory analysis

We used the method of a maximum likelihood estimation with a bootstrapping procedure because the Mardia multivariate ratio was 56,06. This procedure provides an average of the obtained estimates from bootstrap resampling and its standard error. It also compares the estimated values without the bootstrap with the measurements obtained by the resampling, indicating the level of bias. Considering confidence intervals (the difference between the higher and lower estimated values in the different resampling analysis), regression weights, and standardized regression weights, the zero score was not within the confidence limits, which means that the estimated values were significantly different from zero. Nevertheless, the estimation results were robust and therefore were not affected by the lack of normality (Byrne, 2001).

Similarly, we considered a number of fit indexes to evaluate the goodness-of-fit of the measurement models with the empirical data. The goodness-of-fit indices were: χ^2, χ^2/df, RMSEA (Root Mean Square Error of Approximation), RMSR (Root Mean Square Residual), and incremental indexes: CFI (Comparative Fit Index), IFI (Incremental Fit Index), and TLI (Tucker Lewis index) (McDonald & Marsh, 1990; Mulaik et al., 1989). These fit indices are considered acceptable when χ^2/df is less than 5, the incremental indexes (IFI, CFI, and TLI) are equal to or greater than .90, and the error rates

Table 2

Exploratory factor analysis of the principal components with direct oblimin rotation, standardized regression weights, skew, and kurtosis

	Behavioral readiness	Cognitive perception	Standardized regression weights	Skew	Kurtosis
1. I think that people with disabilities have more difficulty than other people in reaching the same personal and/or professional achievements.		.52	.32	-.77	-.56
2. People with disabilities cannot adapt to a competitive environment.	.41		.34	1.31	.74
7. I'll highlight if I participate with people with disabilities in physical activity or sport.		.41	.35	-.53	-.80
9. Blind people must always receive help from a guide.		.55	.40	-.02	-1.14
10. Students with disabilities should not participate in regular physical education classes because they could disturb the progress of other classmates.	.53		.57	.61	-.51
16. I would not like the teacher to tell me that I have to help a person with disabilities.		.57	.50	.26	-.89
17. I prefer not to interact with people with disabilities.	.45		.63	1.48	1.50
18. If I have a relative with disability, I´ll avoid talking about it with others.	.73		.46	1.25	.48
19. I would not sit in the classroom close to a peer with disability.	.58		.64	1.83	2.68
20. I would not elect for my sport team to include a peer with disability.	.78		.37	1.65	5.38
21. I would not participate as a volunteer at a camp for people with disabilities, where I had to help them in the shower, at meals, etc.	.57		.60	.65	-.74
22. Should I have a disability, my lifestyle would totally change.	.61		.69	1.19	.54
24. People with disability are usually less intelligent than other people.		.53	.50	.23	-.90
25. In general, people with disabilities are less sociable.		.47	.50	-.51	-1.05
26. Most people with disabilities cannot care for themselves.		.63	.51	.18	-.76
29. People with disability must practice specific and independent sports.	.52		.54	.93	-.27
32. If I become a wheelchair user due to an accident my life will not make sense.	.56		.42	.70	-.74
% variance	26.18	9.52			
% total variance	35.70				
Eigenvalue	4.40	1.62			
α	.80	.74			

Note. α = Cronbach's alphas.

(RMSEA and RMSR) are equal to or less than .05 (Hu & Bentler, 1999). Following an initial analysis, we saw that the overall results of the model were not adjusted properly. Modification indices settled four interactions standardized errors (in particular, between the errors of the items 17 and 18, 18 and 19, and 1 and 7), and a new analysis was conducted whose results showed a better fit of the model (Figure 2): χ^2 (38, N = 976) = 257.09 p = .00, χ^2/df = 2.24, CFI = .90, IFI = .90, TLI = .90, GFI = .94, RMSR = .05, RMSEA = .05. Standardized regression weights ranged from .32 to .69.

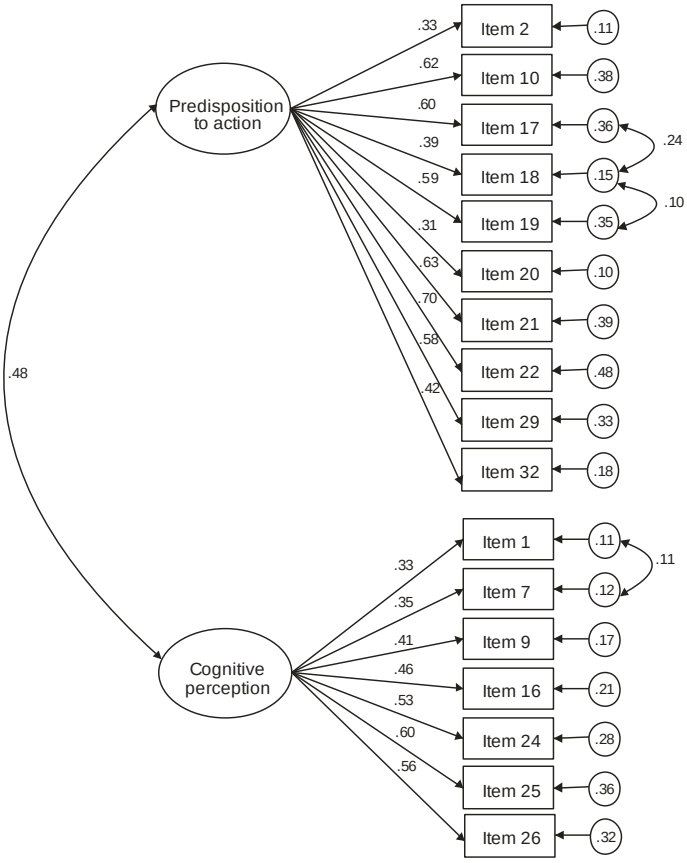

Figure 2. Confirmatory factor analysis of a two-factor model of Attitudes toward inclusion of students with disabilities in a PE scale. The ellipses represent the factors or dimensions of the scale and the rectangles show the different items. All regression weights are standardized and are statistically significant (p < .05). The error variances are represented by the small circles.

3.5.3. Descriptive and Correlation Analysis

The cognitive subscale of attitudes toward people with disabilities was the most valued (cognitive = 3.16 ± .71; behavioural = 1.88 ± .68). The two variables had a significant and positive correlation to each other ($r = .39$; $p < .001$).

3.6. Discussion

Studies reporting experiences of students with a disability in PE show that inclusion is not always successful (Block & Obrusnikova, 2007). One of the biggest disappointments revealed in the literature on inclusion in PE is the finding of limited social interaction with peers without disabilities (e.g., Place & Hodge, 2001), which can lead to limited social learning opportunities for the students with disabilities (Odom, McConnell, & McEvoy, 1992). In the current study, we validated a new scale in Spanish to measure the attitudes toward inclusion in PE classes.

Regarding the new 32-item scale used in this study, the advantage of a two-component attitudes model with a distinction between the cognitive and behavioural components was confirmed over the three-component model. This finding is in line with Rosenbaum, Armstrong, and King (1986), who also suggested that a two-component model might be a better solution. In addition, in accordance with de Boer et al. (2012), it is likely that there is no such thing as a three-component model, and that all theoretical distinctions within the concept 'attitude' highly intercorrelate with each other. However, a strong relationship between the three components is underlined by Albarracín, Johnson, and Zanna (2005). They state that attitudes are evaluative tendencies that can both be inferred from and have an influence on, beliefs, affect, and behaviour: 'Beliefs, affect, and behaviour are seen as

interacting with attitudes rather than as being their parts' (p. 5). Furthermore, Ajzen (2005) stated that most of the data reported in the literature are quite consistent with a single component model because factor analyses in the studies revealed a single factor explaining most of the variance present in the data. Thus, the number of attitude components is still a matter of debate (de Boer et al., 2012).

The level of comprehension of the statements could have some impact on the reliability of the scale. In other words, it may be preferable to use vignettes instead of statements, where the student can think of how to act in the situations that the questionnaires present. Attitude measurements should be based on a well-considered conceptual framework. A closer look at the conceptual framework behind a number of attitude scales revealed that many of these scales lack any theoretical basis (de Boer, Pijl, & Minnaert, 2010, 2011), which hampered the interpretation of the scales. The cognitive component in the student scales often focused on items reflecting knowledge about the behaviour of children with disability. Feelings of fear, shame, and joy were measured by items belonging to the affective component. The behavioural component was often measured by items reflecting the students' willingness in school and during their free time to interact and show support for children with disabilities (de Boer et al., 2012).

Some authors prefer to work with a two-component (e.g., Ajzen, 2005) or a single-component model (e.g., Dillon & Kumar, 1985). A number of studies using a two-component scale were able to differentiate between the cognitive and affective components, while the behavioural intention was excluded (e.g., Bagozzi & Burnkrant, 1985). In contrast, some authors have proposed the single-component model, assuming that a distinction between the three components cannot be reasonably made (e.g., Dillon & Kumar, 1985).

Because an internal consistency of .70 or more is generally judged as acceptable (Hopkins, 2000), α coefficients for each of the AISDPE sub-scales demonstrated acceptable values in the current study for the cognitive and behavioural subscales (α = .82 and α = .75, respectively), but not for the values of the affective subscale. These results are in accordance with previous findings of Reina et al. (2011), in a study that explored the effect of two awareness programs (a 6-day vs. a 1-day program) on children's attitudes toward peers with a visual impairment.

In accordance with Ocete-Calvo, Pérez-Tejero and Coterón (2015), one of the keys to facilitating awareness of the situation of students with disabilities in education should be to promote activities for students without disabilities where they can experience and learn about disabilities. Then, the development of the scale of this study can evaluate children's' attitudes toward inclusion of students with disabilities in PE, adapted to the Spanish context. Using EFA and CFA procedures, a two-component model of attitude was confirmed.

Chapter 4

Study 2

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

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4.1. Abstract

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 (ages 11-16, 491 girls and 485 boys), who responded to ability beliefs and attitudes questionnaires. Ability beliefs (entity and incremental) and the three sociodemographic variables predicted 20.4% and 9% of the behavioural and cognitive subscales of attitudes, respectively. Students with higher scores for entity beliefs of ability had a less favourable attitude toward inclusion. Girls reported more favourable attitudes toward inclusion than boys. Students who indicated previous participation in physical activities with children with disabilities showed attitudes that were more favourable in both the behavioural and cognitive subscales; while those who reported a previous contact had more favourable attitudes in the behavioural subscale and lower entity beliefs. However, the three-sociodemographic variables had a lower contribution to the explained variance of attitudes.

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

4.2. Resumen

Este estudio aborda las asociaciones entre las creencias de las habilidades de los estudiantes y las actitudes hacia la inclusión en la educación física, así como el impacto del género y el contacto / participación previa con niños con discapacidad en estas variables. Se realizó un estudio transversal con 976 estudiantes (edades 11-16, 491 niñas y 485 niños), que respondieron a cuestionarios de creencias y actitudes de capacidad. Las creencias de

habilidad (entidad e incremental) y las tres variables sociodemográficas predijeron el 20.4% y el 9% de las subescalas conductuales y cognitivas de las actitudes, respectivamente. Los estudiantes con puntajes más altos para creencias de habilidad de la entidad tenían una actitud menos favorable hacia la inclusión. Las niñas informaron actitudes más favorables hacia la inclusión que los niños. Los estudiantes que indicaron participación previa en actividades físicas con niños con discapacidades mostraron actitudes que fueron más favorables tanto en las subescalas conductuales como cognitivas; mientras que aquellos que informaron contacto previo tenían actitudes más favorables en la subescala de comportamiento y creencias de entidad más bajas. Sin embargo, las tres variables sociodemográficas tuvieron una menor contribución a la varianza explicada de las actitudes.

Palabras clave: necesidades educativas especiales, concepto de habilidad, discapacidad, niños.

4.3. Introduction

Inclusion of students with a disability in physical education (PE) classes as a part of an educational inclusion approach have been recommended by the Committee of Ministers of the EU 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 et al., 2008), Turkey (Özer et al., 2013), and Portugal (Campos et al., 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 behaviour/personality disorder, 16.64% with generalized development disorders, 8.34% with physical impairments, 5.17% with a hearing impairments, 3.01% with multiple disabilities, and 2.26% with a visual impairments (Ministerio de Educación, Cultura y Deporte, 2014).

One of the key factors for successful inclusion is a favourable social environment that includes positive attitudes from social agents such as teachers, peer students, and parents (Reina et al., 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 behavioural 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 behavioural ignorance, and thus restrict these individual's degree of active participation in community life (Hutzler et al., 2005).

Children without disabilities can play a critical role in fostering respect, dignity, and acceptance of a classmate with a disability, and having favourable beliefs about him or her may ultimately lead to a stronger intention to play with this classmate (Kalymon, Gettinger, & Hanley-Maxwell, 2010; Obrusnikova et al., 2010). In contrast, having a less favourable attitude

toward a classmate with a disability, for example due to her or his being different, may lead to a weak intention to play with this classmate and ultimately to her or his social isolation (Obrusnikova et al., 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 behaviour 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 physical education 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 physical education domain (e.g., Haag, 1989). In the English-speaking literature, the link between physical education, sports pedagogy and kinesiology has been recognized more recently, "enabling us to think about the process of knowledge production and reproduction across the many sub-disciplines of kinesiology" (Tinning, 2008, p. 405). For this reason, within the scope of this study, the attitude toward participation in physical education 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.

4.3.1. 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 behaviours (Burnette, O´Boyle, VanEpps, Pollack, & Finkel, 2013). This concept has been applied to sport, physical activity and physical education contexts (see Vella et al., 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 behaviours 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' behaviours, 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 behavioural correlates (e.g., physical activity, task performance, self-regulation, self-handicapping, reactions to success and failure, effort) (Li, Lee, & Solmon, 2005; 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.

4.3.2. 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 ($d = .35$). Authors of other studies have also reported better attitudes of girls, such as Slininger, Sherrill, and Jankowski (2000) ($.21 < d < .96$, trivial-to-large), van Biesen, Busciglio, and Vanlandewijck (2006) ($.14 < d < .69$, trivial-to-moderate), and Campos et al. (2014) (girls > boys aged 11-16, $p < 0.05$). However, there are some exceptions, such as the studies of Archie and Sherrill (1989) and Bebetsos et

al. (2014) where differences between attitudes of female and male PE class participants were trivial.

Concerning gender and ability beliefs, the meta-analysis by Vella and colleagues (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.

4.3.3. Previous contact and experiences

No consensus exists about the 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 favourable attitudes in students with the 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 the previous contact. However, Campos et al. (2014) demonstrated that children who have a family member, friend, or neighbour with disability have a significantly more favourable 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 the 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.

4.4. Method

4.4.1. Participants

Participants were comprised of a convenience sample of 976 students participating in PE from eight public educational centres 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.

4.4.2. Instruments

4.4.2.1. Conceptions of the Nature of Athletic Ability Questionnaire (CNAAQ-2)

The Spanish-language version of the 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., 2005) and Europe (Warburton & Spray, 2008),

reporting reliability scores for the entity (.79 and .75-to-.81, respectively) and the incremental (.76 and .77-to-.81, respectively) ability beliefs.

4.4.2.2. The Attitudes toward Inclusion of Students with Disabilities in Physical Education questionnaire (AISDPE)

The 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: *behavioural 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 sub-scales mean a less favourable attitude toward inclusion in PE of peers with disabilities. This scale is based on a multi-disability 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 behavioural 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 (behavioural) for this scale.

4.4.2.3. Socio-demographic 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: "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, neighbour, or friend) outside of school?".

4.4.3. 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 centres that collaborated in this study; 36 single data collection sessions were conducted. The questionnaires were administered by the teacher responsible for the group (24-to-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 minutes to complete all of 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%.

4.4.4. 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 analysed for each attitudinal subscale (i.e., dependent variables) by means of a Multiple Factorial ANOVA. 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 behavioural component of attitude (comparing groups by previous participation), and three times for the cognitive component of attitude. Additionally, effect sizes (*d*) were calculated and interpreted as follows: greater than or equal to .8 (large), less than .8 and greater than or equal to .5 (moderate), less than .5 and greater than or equal to .2 (small), and lower than .2 (trivial) (Cohen, 1988).

The three socio-demographic 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 (behavioural and cognitive). The possible collinearity among the predictive variables was explored through three steps: i) examining the correlations among the variables, ii) assessing the tolerance values (TOL) for the predictive variables, and iii) analysing the Variance Inflation Factor (VIF) coefficients.

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

4.5. 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 (SD = 1.5 years). The mean age of the boys (n = 485) was 14.6 (SD = 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 neighbour 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 (α = .69) and the incremental (α = .79) perceptions of ability factors as well as for the cognitive (α = .72) and the behavioural (α = .80) subscales of the AISDPE.

Table 3 shows that the entity belief scores were considerably lower than those of the incremental beliefs (overall M = 2.25, SD = .76 and M = 4.19, SD = .77, respectively). In addition, the scores in the cognitive subscale were higher than those in the behavioral subscale (overall M = 3.16, SD = .71 and M = 1.88, SD = .68, respectively), which means, however, a less favorable attitude (see Instruments in the Method section). The multiple factorial ANOVA (gender*participation*contact) reported no significant interactions between these three independent variables, analysing the main effects for its dichotomous levels (Table 3). First, regarding gender, boys showed higher scores than girls in both the behavioral (p = .001, d = .994, large) and cognitive (p = .022, d = .631, large) subscales of attitude, and for the entity perception of ability (p = .001, d = 958, large). Secondly, 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 = .940, large), and lower scores of entity belief (p = .019, d = .651, moderate). Thirdly, 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 = .674, moderate) and cognitive (p = .009, d = .740, moderate) subscales of attitude.

Table 3
Factorial analysis of variance for gender, previous participation, and previous contact variables

Gender	*M* ± *SD* Boys	*M* ± *SD* Girls	*F*(1, 975)	*p*	*d*
Entity belief	2.38 ± .81	2.13 ± .70	13.64	.001	.958
Incremental belief	4.23 ± .78	4.15 ± .77	.89	.346	.156
Behavioral subscale of attitude	2.06 ± .76	1.71 ± .53	33.38	.001	.994
Cognitive subscale of attitude	3.25 ± .72	3.04 ± .71	5.28	.022	.631
Previous contact	*M* ± *SD* Yes	*M* ± *SD* No	*F*(1.975)	*p*	*d*
Entity belief	2.19 ± .77	2.34 ± .76	5.52	.019	.651
Incremental belief	4.20 ± .79	4.18 ± .76	.02	.883	.052
Behavioral subscale of attitude	1.78 ± .61	2.03 ± .74	12.40	.001	.940
Cognitive subscale of attitude	3.14 ± .73	3.19 ± .70	.01	.995	.050
Participation in physical activities	*M* ± *SD* Yes	*M* ± *SD* No	*F*(1.975)	*p*	*d*
Entity belief	2.17 ± .77	2.29 ± .77	1.35	.246	.213
Incremental belief	4.26 ± .70	4.16 ± .80	2.48	.115	.350
Behavioral subscale of attitude	1.77 ± .63	1.93 ± .69	5.83	.016	.674
Cognitive subscale of attitude	3.06 ± .75	3.21 ± .70	6.79	.009	.740

Note. M = Mean, SD = Standard Deviation.

Table 4 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 (Tacq, 1997); however, this statement does not comply with the results of this study as correlations between the variables were less than .39 ($p < .05$). On the other hand, values of less than .10 to .20 for TOL and more than 5 to 10 for VIF also indicate collinearity between the variables (Menard, 1995; Cea, 2002). The variables for this study comply with these standards for both TOL and VIF.

Table 4
Linear regression analyses for variables predicting behavioural and cognitive subscales of attitude

Variables	β	t	p	TOL	VIF	F change	ΔR^2
Behavioural subscale of attitude						49.83	.204**
Entity belief	.321	10.97	< .001**	.958	1.044		(.139)
Incremental belief	-.063	-2.17	.030*	.987	1.013		(.003)
Gender	.197	6.75	< .001**	.963	1.038		(.042)
Previous contact	.121	4.11	< .001**	.943	1.060		(.014)
Previous participation	.054	1.83	.068	.950	1.052		(.006)
Cognitive subscale of attitude						19.21	.090**
Entity belief	.229	7.31	< .001**	.958	1.044		(.055)
Incremental belief	.148	4.82	< .001**	.987	1.013		(.022)
Gender	.078	2.49	.013*	.963	1.038		(.006)
Previous contact	-.014	-.45	.655	.943	1.060		(.000)
Previous participation	.087	2.77	.006*	.950	1.052		(.007)

Note. TOL = Tolerance; VIF = Variance Inflation Factor; * $p < .05$; ** $p < .01$.

All the independent variables explained 20.4% of the variance of the behavioural 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 behavioural 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 behavioural 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 behavioural subscale, while those with higher incremental belief have a less favourable attitude with regard to the cognitive subscale.

Gender was a positive predictor in both the behavioural and cognitive components of the attitude toward inclusion in PE (4.2% and .6%, respectively), with a more positive attitude among girls than boys (positive β and t values). Regarding the previous contact, multiple regression analyses revealed a significant contribution to explain the variance of the behavioural dimension of attitude (1.4%, $p < .001$), while previous participation significantly contributed to the variance of the cognitive subscale of attitude (.6%, $p = .006$).

4.6. Discussion

Given the importance of favourable 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 analysed the associations of the beliefs held by students in PE from southern Spanish

schools had concerning their ability and their attitudes toward the 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.

4.6.1. 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 (behavioural = 13.9%, cognitive = 5.5%), meaning that the higher scores of entity beliefs could be related to a less favourable 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 the 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 behavioural 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 favourable attitudes toward peers with disabilities for measures of behavioural intent (i.e., actual or intended behaviour) 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 physical education 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 physical education goals associated with intentions of students without disabilities to play with a hypothetical peer with a physical disability in PE, considering their behavioural beliefs (e.g., "I would have a new friend in physical education") as the basis for the development of the students' attitude. Behavioural 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 behaviours (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).

4.6.2. Gender differences

As hypothesized, the girls in our study showed more favourable attitudes toward inclusion than boys, but a little contribution of this variable to the regression models was observed (.6-to-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 behavioural and cognitive dimensions. The trend of more favourable 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 and colleagues (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 practising 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, behavioural 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 favourable attitudes toward inclusion and that

competitiveness potentially influences the observed gender differences, with more favourable 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.

4.6.3. 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 favourable attitude toward inclusion, but only for the behavioural subscale. In addition, we also found a significant contribution to the explained variance of the behavioural 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 favourable 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 favourable attitudes toward inclusion (both behavioural 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 behavioural 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 el al., 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 (.6% to .7%), therefore, led us to conclude that the hypotheses could not be supported.

4.7. 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 Chedoke-McMaster Attitudes Toward Children with Handicaps (CATCH; Felipe-Rello, 2017) or Children's Attitudes Toward Integrated Physical Education-Spanish (CAIPE-SP; Cordente-Mesas, González-Víllora, Block, & Contreras-Jordán, 2017; Ocete, Pérez-Tejero, Franco, & Coterón, 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 a 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 the 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 behavioural attitude and entity belief it is necessary to have a greater understanding of 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 favourable 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 analysing how much influence the perceived ability has or which profile of belief (entity or incremental) is more favourable for that acceptance.

4.8. 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 behaviours toward students with disabilities, and how they teach in inclusive settings, as these significantly influence the intentions and behaviour of their students without disabilities. In accordance with Campos, Ferreira, and Block (2013), further research is needed on attitudes, feelings, and intentional behaviour 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 behaviours, with the aim of promoting a more favourable and inclusive educational environment.

Chapter 5

Study 3

Factorial Analysis of the Scale of Attitudes towrads Students with Disabilities in Pysical Education (EAADEF) [Análisis Factorial de la Escala de Actitudes hacia el Alumnado con Discapacidad en Educación Física (EAADEF)]

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5.1. Abstract

The inclusion of students with disabilities in physical education (PE) is directly influenced by the peers´ attitudes, which requires valid and reliable tools to measure this attitude. The aim of this study was to create and to analyze the psychometric properties of an instrument to measure attitudes toward the inclusion of students with disabilities in the PE classes. This study involved 609 PE students, from 14 to 19 years old. Four EFA and CFA were conducted. We analyzed the psychometric properties of the scale (cognitive and behavioural components) and its relation with four socio-demographic variables. The reliability of the cognitive component was below that recommended and the EFA didn't support a model formed by two dimensions of the attitude. A one-dimensional measure with four elements of the behavioural component was obtained. The Attitudes Scale toward Students with Disabilities in Physical Education (ASSDPE) revealed excellent adjustment indexes in the CFA and it is invariant with respect to the socio-demographic variables. High values of internal consistency of the items and for the attitude construct ($\geq$ .77) were also found. This scale offers new solutions to some limitations revealed in previous instruments to evaluate attitudes toward disability in PE.

Keywords: inclusion, special needs, awareness, inclusive physical education**.**

5.2. Resumen

La inclusión de estudiantes con discapacidad en EF está influida directamente por la actitud que los compañeros presentan al respecto, siendo necesario contar con herramientas válidas y fiables para evaluar dicha actitud. El objetivo de este estudio fue crear y analizar las propiedades psicométricas de un instrumento para medir la actitud hacia la inclusión del alumnado con

discapacidad en las clases de EF. Participaron 609 estudiantes de EF, de 14 a 19 años. Se realizaron cuatro análisis factoriales exploratorios (AFE) y un análisis factorial confirmatorio (AFC). Se analizaron las propiedades psicométricas de la escala (componente conductual y cognitivo) y su relación con cuatro variables socio-demográficas. La fiabilidad del componente cognitivo estuvo por debajo de lo recomendado y el AFE no apoyó un modelo formado por dos dimensiones de la actitud. Se obtuvo una medida unidimensional con cuatro ítems del componente conductual. La Escala de Actitudes del Alumnado hacia la Discapacidad en Educación Física (EAADEF) reveló excelentes índices de ajuste en el AFC, y se reveló invariante respecto a las variables socio-demográficas. También se encontraron valores altos de consistencia interna de los ítems y del constructo de actitud (≥ .77). Esta escala ofrece una nueva solución a algunas limitaciones reveladas en instrumentos de medida anteriores.

Palabras clave: inclusión, necesidades especiales, sensibilización, educación física inclusiva.

5.3. Introduction [Introducción]

El establecimiento de estrategias educativas para fomentar la inclusión de estudiantes con discapacidad en las aulas permite su aceptación por parte de sus iguales sin discapacidad, propiciándose relaciones positivas (Vignes et al., 2008). Resulta pues necesario programar e implementar acciones concretas y continuadas para lograr una plena aceptación e inclusión (Aguado, Alcedo, & Arias, 2008). Según Lindsay and Edwards (2013), los programas educativos (e.g., simulaciones, intervenciones curriculares, contacto con personas con discapacidad), orientados a provocar un cambio de actitud y la aceptación de

estudiantes con discapacidad, pueden romper con los estereotipos y advertir acerca de las barreras existentes para con su inclusión.

Para lograr una educación inclusiva, diferentes investigadores (e.g., Flórez, Aguado, & Alcedo, 2009) han reconocido la importancia que tienen las actitudes mostradas por el alumnado sin discapacidad y el profesorado, así como los contenidos impartidos, debiendo estar éstos adaptados al alumnado con discapacidad en cada aula y contexto. Según Campos et al. (2014), de todas las áreas del currículum, son las clases de EF las que, por sus características curriculares y estructurales, propician una mayor interacción entre pares con y sin discapacidad, fomentando una participación activa y efectiva de todo el alumnado (Ocete, 2016).

Para Triandis (1971), la actitud es una idea provista de una carga emocional que predispone a poder realizar una serie de acciones ante un determinado tipo de situaciones sociales. Este autor propuso una concepción de la actitud dividida en tres componentes: la idea (componente cognitivo), la emoción asociada a esa idea (componente afectivo), y la predisposición a la acción (componente conductual). Vignes et al. (2008) realizaron en diferentes disciplinas una revisión de los instrumentos que medían la actitud bajo este paradigma (educación, psicología, epidemiología, rehabilitación y pediatría). De los 19 instrumentos analizados, tanto cuantitativos como cualitativos, dos medían los tres componentes de la actitud, uno los componentes cognitivo y comportamental, y 16 un único componente (cuatro el afectivo, cinco el conductual y siete el cognitivo). De los resultados encontrados se desprende la necesidad de discutir sobre la idoneidad del modelo conceptual y tridimensional de la actitud propuesto por Triandis (1971). Así, debido a la proliferación de proyectos educativos que están permitiendo avanzar de la teorización de modelos, estrategias y protocolos, a la aplicación práctica de

las teorías inclusivas en EF en contextos reales (Reina et al., 2016), es preciso contar con instrumentos de medida válidos y fiables (Lindsay & Edwards, 2013).

En el contexto de las clases de EF, son escasos los instrumentos que se han elaborado para medir la actitud, especialmente en español. Ocete (2016) adaptó al contexto español el *Children's Attitudes Toward Integrated Physical Education-Revised* (CAIPE-R, Block, 1995), recientemente validado por Cordente-Mesas et al. (2017) y denominado CAIPE-SP. Aunque el CAIPE-R se presenta como una herramienta apropiada para EF (Campos et al., 2014), las versiones existentes no disponen, por ejemplo, de análisis de invarianza de diferentes variables demográficas como se aborda en el presente estudio.

Reina et al. (2016) elaboraron la AISDPE, incorporando una definición del concepto de discapacidad como objeto social de referencia para poder responder a los ítems del cuestionario. La AISDPE presentó una versión inicial formada por 32 ítems (18 para el componente cognitivo, ocho para el conductual y seis para el afectivo). Los AFE y AFC apoyaron una versión con dos de los tres componentes de la actitud: cognitivo (siete ítems) y conductual (10 ítems). El cuestionario ofreció unos valores aceptables de consistencia interna (alfa de Cronbach $\geq .74$), así como una correlación moderada entre ambos constructos. Sin embargo, no se realizaron suficientes análisis para determinar su validez (e.g., análisis de invarianza respecto al género).

Los instrumentos de medida disponibles en la actualidad para analizar la actitud hacia la inclusión de personas con discapacidad en el contexto educativo, podrían evolucionar a fin de ofrecer mejores evidencias de validez y fiabilidad (Flórez et al., 2009). Esta necesidad que transciende al contexto de EF (e.g., no se conoce si el AISDPE permite relacionar la actitud con el género o el haber tenido contacto previo con personas con discapacidad), se

acentúa si se tiene en cuenta el escaso número de herramientas de las que se dispone para medir la actitud.

Identificada esta necesidad en la bibliografía, el objetivo de este estudio fue desarrollar una escala para medir la actitud hacia el alumnado con discapacidad en EF. En primer lugar, se analizaron las propiedades psicométricas de un modelo hipotetizado de dos sub-escalas, que consideró los componentes cognitivo y conductual del modelo de tres componentes de las actitudes (Reina et al., 2016). En segundo lugar, se analizó la invarianza para cuatro variables socio-demográficas que podrían ser relevantes para evaluar las actitudes del alumnado hacia sus compañeros con discapacidad: a) género, b) tener contacto con un familiar o amigo con discapacidad, c) tener contacto con un compañero con discapacidad en EF y d) haber participado previamente en una actividad deportiva con personas con discapacidad. En tercer lugar, se calculó la correlación entre los ítems, evaluando la consistencia interna y de constructo del instrumento.

5.4. Method [Método]

5.4.1. Participants [Participantes]

Participaron 609 estudiantes (319 chicas y 290 chicos) de EF, con edades comprendidas entre los 14 y 19 años (M = 15.66; SD = 1.07). El alumnado pertenecía a cinco centros educativos de tres localidades españolas, y se encontraban cursando 3º y 4º de educación secundaria obligatoria, así como 1º de bachillerato (educación secundaria postobligatoria). El alumnado recibía dos sesiones a la semana de EF, con una duración de 55 minutos cada una de ellas.

5.4.2. Measures [Medidas]

5.4.2.1. Scale of Attitude towards Students with Disabilities in Physical Education (EAADEF) [Escala de Actitud hacia el Alumnado con Discapacidad en Educación Física (EAADEF)]

Se incluyeron ocho ítems de la EAADEF, cuatro por factor (ver Anexo 1), para el componente conductual (e.g., "*prefiero no relacionarme con personas con discapacidad*") y cognitivo (e.g., "*las personas con ceguera siempre han de llevar un guía que los acompañe de un lado para otro*") del modelo de tres componentes de las actitudes (Triandis, 1971). Se empleó una escala Likert de 1 (*totalmente en desacuerdo*) a 5 (*totalmente de acuerdo*) y la sentencia previa: "En educación física, con respecto a las personas con discapacidad…". Puntuaciones más altas en la escala indican una actitud menos inclusiva o facilitadora de la participación del alumnado con discapacidad en EF.

5.4.3. Socio-demographic variables [Variables socio-demográficas]

Se incluyeron cuatro variables respecto al: a) género (chico o chicha), b) tener contacto con un familiar o amigo con discapacidad ("*¿Tienes un familiar o amigo/a cercano con discapacidad?*"), c) tener contacto con un compañero con discapacidad en EF ("*¿Has tenido alguna vez un compañero/a con discapacidad en tu clase de educación física?*") y d) haber participado previamente en una actividad deportiva con personas con discapacidad ("*¿Has participado en alguna actividad deportiva con personas con discapacidad?*"). Para la pregunta respecto al género los participantes marcaban con una equis la opción correspondiente, mientras que para el resto de preguntas debían responder marcando entre dos opciones de respuesta: "Sí" o "No".

5.4.4. Procedure [Procedimiento]

Después de una revisión de la literatura científica, cuatro expertos en el ámbito de la discapacidad y de las ciencias de la actividad física y del deporte, redactaron ocho ítems (cuatro del componente conductual y cuatro del cognitivo) para medir las actitudes hacia la discapacidad en EF. La elaboración de los ítems se apoyó en el modelo de actitud de Triandis (1971) y otras escalas previas (e.g., Bossaert & Petry, 2013; de Boer et al., 2012; Reina et al., 2016). Seguidamente, para evaluar la validez de contenido, los ítems fueron revisados por dos expertos ajenos. Para la inclusión, exclusión o modificación de los ítems elaborados, se tuvieron en cuenta las siguientes condiciones: (a) incluir aquellos ítems donde hubiera un 100% de coincidencia favorable entre los expertos; (b) revisar y reformular los ítems para los que no se alcanzara un consenso del 100%; y (c) excluir y sustituir por un nuevo ítem aquellos donde no hubiera una coincidencia del 100%. Después de su evaluación, ambos expertos indicaron un 100% de consenso para incluir los ocho ítems, sin necesidad de ninguna modificación. Finalmente, los ítems fueron intercalados en la EAADEF para su administración.

El muestreo no fue aleatorio, pues los cinco centros educativos que participaron fueron seleccionados atendiendo a la proximidad geográfica y voluntariedad de participar. Todo el procedimiento seguido, hasta lograr la validación de la EAADEF, siguió las directrices éticas de la *American Psychological Association* (2010).

En la parte superior del cuestionario se añadió la siguiente explicación del término discapacidad: "*una persona con discapacidad es aquella, que debido a la alteración de una estructura o función corporal (física, sensorial o intelectual), tiene limitaciones a la hora de realizar las actividades que serían*

normales" (adaptado de la Clasificación Internacional de Funcionalidad, Discapacidad y Salud; OMS, 2001).

5.4.5. Data Analysis [Análisis de datos]

Para analizar las propiedades psicométricas del cuestionario se realizaron AFE y un AFC. Siguiendo las recomendaciones de Brown (2006), la muestra total fue dividida de forma aleatoria en dos subgrupos. Con la primera sub-muestra de 311 estudiantes (162 chicas y 149 chicos) se realizaron los AFE, mientras que la segunda sub-muestra de 298 estudiantes (157 chicas y 141 chicos) se empleó para un AFC y el resto de análisis del estudio.

En primer lugar, para comprobar si los ítems seleccionados se agrupaban en dos factores independientes, se realizaron AFE mediante el método de extracción por componentes principales (sin fijar el número de factores a extraer) y rotación oblicua (promax), dado que podían obtenerse factores correlacionados de manera moderada (Brown, 2006). Para comprobar la idoneidad de aplicar el AFE se empleó el estadístico Kaiser-Meyer-Olkin (KMO) y la prueba de esfericidad de Bartlett.

En segundo lugar, para testar el modelo factorial propuesto, se realizó un AFC. Para este modelo, dado que el coeficiente de Mardia reveló que no se cumplió la distribución de normalidad (media normalizada = 14.85), se utilizó el método de máxima verosimilitud junto con el procedimiento de *bootstrapping*. Los estimadores no se vieron afectados por la falta de normalidad, por lo que fueron considerados suficientemente robustos (Byrne, 2001). Para analizar la bondad de ajuste se utilizó un conjunto de varios índices: ratio entre chi cuadrado y grados de libertad (χ^2/gl), CFI, IFI, RMSEA y RMSR. Dado que el χ^2 es muy sensible al tamaño muestral (Jöreskog & Sörbom, 1993), se empleó el χ^2/gl, para el que se consideran aceptables

valores inferiores a 3 (Schermelleh-Engel, Moosbrugger, & Müller, 2003). Por su parte, los índices incrementales (i.e., CFI e IFI) mostrarían un ajuste aceptable con valores iguales o superiores a .95, mientras que para los índices de error se consideran aceptables valores iguales o inferiores a .06 para el RMSEA y .08 para el RMSR (Hu & Bentler, 1999).

En tercer lugar, se comprobó la invarianza de la estructura factorial con respecto a las cuatro variables socio-demográficas, requiriendo la ausencia de diferencias significativas entre el modelo sin restricciones (Modelo 1) y el modelo con pesos de medida invariantes (Modelo 2) (Byrne, Shavelson, & Muthén, 1989). Además, se calcularon los estadísticos descriptivos, correlaciones bi-variadas entre los ítems y consistencia interna de la escala (alfa de Cronbach = α) y del constructo (índice Omega = ω). Se utilizaron los paquetes estadísticos Statistical Package for Social Sciences (versión 21.0 para Windows, SPSS Inc, Chicago, IL, USA) para los AFE, y AMOS 20.0 para el AFC.

5.5. Results [Resultados]

5.5.1. Exploratory factor analysis, analysis of internal onsistency of the scale and the construct [Análisis factoriales exploratorios, análisis de consistencia interna de la escala y del constructo]

Se realizó un primer AFE para comprobar si los ítems creados para los componentes conductual y cognitivo de la actitud se agrupaban en dos factores. La medida de adecuación muestral de KMO (.76) y la prueba de esfericidad de Bartlett ($\chi^2 = 471.74$; $gl = 28$; $p < .001$) indicaron la posibilidad de efectuar este análisis. El AFE identificó dos factores (ver Tabla 5), obteniendo todos los ítems valores de saturación iguales o por encima de .50 en su factor correspondiente, a excepción del ítem 6 del componente

cognitivo, que no llegó a saturar de acuerdo al valor mínimo recomendado (≥ .40) (Nunnally, 1978).

Tabla 5
Análisis factorial exploratorio inicial de la EAADEF

Ítems	Factores	
	1	2
Ítem 1	.78	-.05
Ítem 3	.73	.02
Ítem 5	.81	-.05
Ítem 7	.79	.05
Ítem 2	.22	.51
Ítem 4	-.06	.72
Ítem 6	.27	.38
Ítem 8	-.15	.74
Varianza explicada	34.65%	15.81%
Varianza total	50.46%	

Nota. Factor 1 = componente conductual; Factor 2 = componente cognitivo

Debido al bajo valor de saturación obtenido para el ítem 6, un segundo AFE fue realizado excluyendo este ítem. El AFE mantuvo los dos factores iniciales, obteniendo todos los ítems valores de saturación entre .51 y .81 en su factor correspondiente. El componente conductual (37.63%) y el cognitivo (17.76%) explicaron un 55.39% de la varianza total. No obstante, aunque el componente conductual presentó un valor adecuado de consistencia interna (α = .79) y de fiabilidad de constructo (ω = .78), el componente cognitivo mostró un valor para ambos indicadores de fiabilidad por debajo de lo recomendado (.41 y .56, respectivamente).

Debido a la baja fiabilidad del componente cognitivo, se realizó un tercer AFE forzando el análisis para la extracción de un solo factor, que agrupara los componentes conductual y cognitivo con el objetivo de aumentar el valor de fiabilidad de la escala, explicando así un 37.63% del total de la varianza.

Sin embargo, los tres ítems del componente cognitivo obtuvieron valores de saturación entre .21 y .46, mientras que los del factor conductual presentaron valores que oscilaron entre .79 y .75. Así, la posibilidad de un cuestionario de dos factores fue descartada, pasando a testar un modelo factorial que considerara solamente el componente conductual.

Como se puede observar en la Tabla 6, el cuarto AFE reveló unos valores de saturación para los ítems de .75 o superiores, y una varianza explicada del 61.23%. Debido a los buenos valores de saturación para todos los ítems, a que se obtuvo el porcentaje de varianza explicada más alto de todos los AFE realizados y que además los valores de fiabilidad de los ítems ($\alpha = .79$) y del constructo conductual ($\omega = .78$) fueron buenos, se eligió este modelo unidimensional de cuatro ítems para ser testado en un AFC con la segunda sub-muestra de 298 estudiantes.

Tabla 6
Análisis factorial exploratorio de los ítems de la EAADEF

Ítems	Factor
Ítem 1	.79
Ítem 3	.75
Ítem 5	.78
Ítem 7	.81
Varianza explicada	61.23%

5.5.2. Confirmatory factor analysis [Análisis factorial confirmatorio]

Se realizó un AFC (Tabla 7) para testar la estructura factorial de un único factor de cuatro ítems del componente conductual, obteniendo unos índices de ajuste excelentes: χ^2 (2, $N = 298$) = 2.908, $p < .001$; $\chi^2/gl = 1.45$; CFI = .99; IFI = .99; RMSEA = .039; RMSR = .018. Los pesos de regresión estandarizados obtenidos para los ítems fueron ≥ .57.

Tabla 7
Análisis factorial confirmatorio de la EAADEF

Ítems	Pesos de regresión estandarizados	Varianzas residuales
Ítem 1	.63	.68
Ítem 3	.77	.45
Ítem 5	.74	.40
Ítem 7	.57	.60

5.5.3. Invariance analysis [Análisis de invarianza]

Los índices de ajuste para los modelos de invarianza multi-grupo analizados en función de las cuatro variables socio-demográficas (Tabla 8) no revelaron diferencias significativas en el estadístico χ^2 entre el Modelo 1 y el Modelo 2.

5.5.4. Descriptive statistics, correlation between ítems, internal consistency of the instrument and the construct [Estadísticos descriptivos correlación entre ítems, consistencia interna del instrumento y del constructo]

La Tabla 9 muestra cómo el alumnado reflejó una puntuación media global para la actitud negativa hacia la discapacidad por debajo del rango medio de la escala (M = 1.77; DT = 1.15). Además, se reveló una correlación positiva y moderada entre todos los ítems, mientras que la correlación entre cada ítem y la media global de actitud hacia la discapacidad en EF fue positiva en todos los casos, oscilando entre .73 y .81 ($p < .001$). Para los indicadores de consistencia interna del instrumento y del constructo, se obtuvieron valores de $\alpha = .77$ y $\omega = .78$, respectivamente.

Tabla 8

Análisis de invarianza por género, familiar o amigo con discapacidad, compañero de educación física con discapacidad, participación en actividad deportiva con persona con discapacidad

Invarianza por género								
Modelos	χ^2	*gl*	χ^2/gl	$\Delta\chi^2$	Δgl	CFI	IFI	RMSEA
Modelo 1	3.76	4	.94	-	-	.99	.99	.00
Modelo 2	5.37	7	.77	1.61	3	.99	.99	.00
Modelo 3	21.22	8	2.65	17.46**	4	.95	.95	.08
Modelo 4	50.70	12	4.23	46.95***	8	.84	.84	.11
Invarianza por contacto con familiar o amigo con discapacidad								
Modelo 1	17.07	4	4.27	-	-	.96	.96	.11
Modelo 2	19.51	7	2.79	2.44	3	.96	.96	.08
Modelo 3	20.98	8	2.62	3.91	4	.96	.96	.07
Modelo 4	30.86	12	2.57	13.80	8	.94	.94	.07
Invarianza por contacto con compañero con discapacidad en clase de EF								
Modelo 1	4.04	4	1.01	-	-	.99	.99	.01
Modelo 2	10.76	7	1.54	6.73	3	.99	.99	.04
Modelo 3	10.84	8	1.36	6.81	4	.99	.99	.04
Modelo 4	28.88	12	2.41	24.84**	8	.95	.95	.07
Invarianza por haber participado en actividad deportiva con persona con discapacidad								
Modelo 1	3.84	4	.96	-	-	.99	.99	.00
Modelo 2	5.66	7	.81	1.82	3	.99	.99	.00
Modelo 3	5.70	8	.71	1.86	4	.99	.99	.00
Modelo 4	14.57	12	1.21	10.73	8	.99	.99	.03

Nota. ** = $p < .01$; *** = $p < .001$; EF = Educación Física; χ^2 = Chi Cuadrado; *gl* = Grados de Libertad; χ^2/gl = Chi Cuadrado entre los grados de libertad; Δgl = Incremento de los grados de libertad; CFI = Comparative Fit Index; IFI = Incremental Fit Index; RMSEA = Root Mean Square Error of Aproximation.

Tabla 9

Estadísticos descriptivos, Alfa de Cronbach, Índice Omega y correlaciones entre los Ítems de la EAADEF

Ítems-Factor	*M*	*DT*	1	2	3	4	5
1. Ítem 1	1.55	.99		.51	.46	.32	.73
2. Ítem 3	1.72	1.03			.56	.43	.81
3. Ítem 5	1.87	1.03				.45	.81
4. Ítem 7	1.94	1.09					.74
5. Actitud global	1.77	1.15					

Nota. Todas las correlaciones fueron significativas ($p < .001$). *M* = Media; *DT* = Desviación Típica.

5.6. Discussion [Discusión]

El objetivo de este estudio fue desarrollar y validar un instrumento para medir en el contexto español la actitud hacia el alumnado con discapacidad en EF, ofreciendo evidencias de que la EAADEF es un instrumento válido y fiable para ello. El modelo de hipótesis de dos sub-escalas de la actitud fue rechazado, resultando una estructura factorial unidimensional, compuesta por el componente conductual. Contar con una herramienta breve, válida y fiable permitiría una fácil aplicación en futuros programas de intervención en los que se sensibilice hacia la discapacidad.

Para llegar al modelo unidimensional de la EAADEF fue necesario realizar cuatro AFE y un AFC. Aunque considerar el constructo con una sola dimensión no se encuentra inicialmente en línea con el modelo teórico de actitud de Triandis (1971), el modelo unidimensional obtenido en este estudio sí que coincidiría con las sugerencias del autor sobre la elaboración de escalas. En este sentido, Triandis (1971) indicó que para validar los instrumentos de medida se suelen adoptar definiciones restringidas, y como consecuencia de ello, la actitud podría ser entendida como un constructo unidimensional. Además, los resultados de este estudio sí parecen estar apoyados por un gran número de evidencias (ver revisión de Vignes et al., 2008) que han identificado esta misma problemática respecto al número de dimensiones. En esta línea, de Boer et al. (2012) proponen una concepción de la actitud bien como: un constructo único e indivisible (unidimensional), un constructo bidimensional (formado por dos componentes), o un constructo tridimensional.

Los estudios previos de Reina et al. (2011) y Reina et al., (2016), con una población similar en el contexto de EF, ya confirmaron las limitaciones de medida del componente afectivo de la actitud. El ATDQ (Reina et al. 2011)

encontró valores de $\alpha \leq .64$ para la dimensión afectiva. Por su parte, la AISDPE (Reina et al., 2016) es una escala con dos componentes, que no incluyó el afectivo. Además, en ninguno de los dos casos se ha demostrado que la medida de la actitud sea invariante (e.g., género o contacto previo con personas con discapacidad), una de las innovaciones de este trabajo en pro de la validez de la herramienta elaborada.

Si bien evaluar la actitud solamente a través del componente cognitivo podría ser una limitación conceptual, los resultados obtenidos en el último AFE de este estudio sugieren que la EAADEF ofrece una buena medida del constructo para el contexto de EF, obteniendo una varianza explicada del 61.23%, superior al 35.98% explicado por la reciente validación del CAIPE-SP al contexto español (Cordente-Mesas et al., 2017). También se podría tener en cuenta que esta limitación conceptual sería menos trascendente si se considera que en EF el componente más representativo de la actitud hacia las personas con discapacidad podría ser aquel que represente la manera de actuar o intervenir de forma práctica con los demás, es decir, el componente conductual. No obstante, dada la dificultad que se manifiesta en la bibliografía para medir la actitud hacia la discapacidad a través de un modelo tridimensional, y a que algunos autores (e.g., de Boer et al., 2012) sugieren que el mantener las dimensiones del constructo atendería más a un argumento teórico que a una sólida base empírica, es posible que el número de factores que forman un instrumento venga determinado por el contexto específico en el que la actitud sea medida. Pero ésta es una posible explicación a la variedad de herramientas que hasta la fecha existen, por lo que nuevos estudios deberían comprobar esta hipótesis. Otro posible argumento puede deberse al hecho de que Triandis no conceptualizara inicialmente el constructo de actitud para ser medido en contextos en los que se interactúe con personas con

discapacidad (Bossaert & Petry, 2013). En cualquier caso, futuros trabajos deberían confirmar si para EF: primero, resultaría mejor un único modelo factorial, o podrían ser igualmente válidos y coexistir diferentes modelos para explicar la actitud (e.g., instrumentos con una, dos o/y tres dimensiones), y segundo, en el caso de resultar un modelo de dos dimensiones o más, si predominaría alguno de los componentes del constructo.

Los resultados del análisis de consistencia interna apoyaron la validez factorial de la EAADEF. En primer lugar, se revelaron buenos valores de consistencia interna para los ítems (α) y para el constructo (ω) de actitud. En segundo lugar, se obtuvo una correlación moderada y positiva entre todos los ítems y la medida global de actitud. En tercer lugar, y posiblemente uno de los resultados más prometedores, se obtuvieron mejores pesos de regresión para los ítems de la EAADEF con respecto a la AISDPE, que parecen dotar de mayor calidad la medida del constructo (i.e., pesos de regresión de la EAADEF ≥ .57, mientras que de la AISDPE fueron ≥ .31). Futuros trabajos podrían analizar si la actitud que muestran los estudiantes se mantiene estable a lo largo del tiempo, analizando así la estabilidad temporal de la EAADEF.

Los resultados del análisis de invarianza muestran que la EAADEF puede ser administrada para chicos y chicas, así como entre el alumnado que ha mantenido o no contacto con: familiar o amigo con discapacidad, estudiante con discapacidad en clase de EF, y/o persona con discapacidad en una actividad deportiva. Estudios previos han relacionado la actitud hacia la discapacidad en EF con variables como el género o el contacto previo con una persona con discapacidad (Campos et al., 2014; Reina et al., 2011, 2016). Sin embargo, la mayoría de los instrumentos utilizados hasta la fecha, como el CAIPE-R (Campos et al., 2013), el CAIPE-SP (Cordente-Mesas et al., 2017), el CATCH (Rosenbaum et al., 1986) o el AISDPE (Reina et al., 2016), no han

ofrecido evidencias de que fuera posible establecer tales relaciones. Así, los resultados de invarianza aquí presentados permiten comparar las puntuaciones medias obtenidas de la EAADEF con las cuatro variables socio-demográficas analizadas. Esta aportación puede ser interesante para realizar programas de intervención con grupos experimentales, manipulando algunas de estas variables socio-demográficas.

Aunque todavía son necesarias futuras investigaciones que confirmen la estructura factorial de la actitud para el contexto escolar, los resultados obtenidos sugieren que la EAADEF puede ser un instrumento válido y fiable para medir la actitud hacia el alumnado con discapacidad en EF en el contexto español. Esta nueva escala es una herramienta breve y rápida de administrar que: i) ayudaría a los investigadores a identificar los antecedentes y consecuencias de las actitudes hacia la inclusión del alumnado con discapacidad en EF; e ii) ofrecería a los docentes de EF una herramienta que permita evaluar la puesta en práctica de una metodología inclusiva.

Chapter 6

Study 4

Key Elements for Successful Inclusion in Physical Education when Comparing Contact, Duration and Motivational Strategies

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6.1. Abstract

Purpose: The aim of this study was to examine how different awareness programs influence students' attitudes toward inclusion in physical education (PE).

Method: 534 PE students completed a pre- and post-test composed of two questionnaires: the CAIPE-R (attitudes toward inclusion) and the PMCSQ-2 (ego vs task climate). Three independent variables (contact or not with a para-athlete during PE classes, duration, and motivational climate strategies) were combined through the five awareness programs implemented in this study.

Results: An improvement of the attitudes toward inclusion was found in those groups that had contact with para-athletes during the intervention at natural PE settings.

Discussion/Conclusion: These findings could assist PE teachers in educating students to improve their knowledge and attitudes about people with disabilities, having different strategies and resources to conduct awareness lessons in their regular PE classes.

Keywords: special education needs, Paralympics, disability, ego involvement, task involvement, awareness

6.2. Resumen

Objetivo: El propósito de este estudio fue examinar cómo diferentes programas de sensibilización influyen en las actitudes de los estudiantes hacia la inclusion en educación física (EF).

Método: 534 estudiantes de EF completaron un pre- y post-test formado por dos cuestionarios: el CAIPER-R (actitudes hacia la inclusion) y el PMCSQ-3 (clima ego vs clima tarea). Se combinaron tres variables independientes (contacto o no con para-atleta durante clases de EF, duración y estrategias

motivacionales) a través de cinco programas de sensibilización que se implementaron en este estudio.

Resultados: Se encontró una mejora de las actitudes hacia la inclusión en los grupos que tuvieron contacto con para-atletas durante la intervención en condiciones naturales en educación física.

Discusión/Conclusión: Estos resultados podrían ayudar al profesorado de EF a educar a los estudiantes para mejorar su conocimiento y actitudes sobre personas con discapacidad, teniendo diferentes estrategias y recursos para implementar sesiones de sensibilización en sus clases de educación física.

Palabras clave: necesidades educativas especiales, Juegos Paralímpicos, discapacidad, orientación ego, orientación tarea, conciencia

6.3. Introduction

Ensuring equal opportunities at all levels of an inclusive education system and lifelong learning represents the achievement of the education rights for persons with disabilities (United Nations, 2009). The inclusive education concept is defined as "an ongoing process aimed at offering quality education for all while respecting diversity and the different needs and abilities, characteristics and learning expectations of the students and communities" (UNESCO, 2008, p. 18). Inclusive education may benefit from promoting friendships among students with and without disabilities as well as adolescents' sociomoral competences (Grütter, Gasser, & Malti, 2017). When focusing on the Spanish educational system on the students with special education needs (i.e. a disability), they represent the 2.6% of the students included in general education schools (MECD, 2017). Specifically, in the Spanish community where this study was conducted, the number of students with a disability was higher: 3.3%, so it seems reasonable to deeply analyze

the inclusion process of children with disability. Preventing school dropout represents the main goal of the educational inclusion approach when analyzing the inclusion process of students with a disability (Council of Europe, 2013).

Since physical education (PE) classes represent a proper environment to improve attitudes and knowledge using sports, inclusive awareness programs in PE should be promoted (Campos, Ferreira, & Block, 2014). The attitudes toward students with a disability are considered a cornerstone for inclusion (Armstrong, De Boer, Pijl, & Minaert, 2014), so children's lack of knowledge about disabilities can adversely affect these attitudes (Lindsay & Edwards, 2013). The literature has suggested that awareness programs could improve students' attitudes toward their peers with disability (Reina et al., 2011), and some researchers (Campos et al., 2014) also proposed that well designed PE interventions should be implemented to achieve better knowledge about and relationship with people with disabilities.

According to McKay, Block, and Park (2015), awareness programs offer an avenue for raising knowledge and improving attitudes toward people with disability. In this line and according to their purpose to identify the key elements of effective awareness interventions, Lindsay and Edwards (2013) conducted a systematic review to set up recommendations for designing future programs aimed at changing attitudes. These authors classified the type of interventions based on the mode of delivering the information: (i) social contact (Allport, 1954): children are exposed to a person with disability; (ii) simulation-based interventions: students experiment with how it would be to have a disability; (iii) curriculum-based interventions: including presentations, games, classroom exercises, plays and puppet shows, and stories; (iv) multi-media curriculum: videos explaining para-sports; and (v)

multi-components: combining the components mentioned above. Although Lindsay and Edwards (2013) contributed to the field with these guidelines for how to effectively develop awareness and knowledge interventions to improve attitudes toward people with disabilities, is not clear in the literature the best approach to attain this goal.

A remarkable program design of awareness program improving attitudes and knowledge toward people with disabilities is the Paralympic School Day (PSD) develop by the International Paralympic Committee (IPC) (2006). Created by specialists in Paralympic sport, disability and pedagogy, the PSD was created to raise awareness and understanding in schools about persons with disability (IPC, 2006), at the same time that represents a platform for attitude change (McKay, 2013). During the PSD, participants interact with and learn from para-athletes in a purposeful manner, coming to understand that disability is not synonymous with other-ness (McKay, Haegele, & Block, 2018). The IPC published (IPC, 2006) a sequence of cards for the teachers to use in the regular PE classes. The main idea was that the PE teacher had the possibility on their hands to implement during their lessons plans. Maybe the key factor of the PSD is that represents an attitude change intervention based on scientific theories such as the Contact Theory (Allport, 1954). According to Allport's (1954), under the right conditions, contact with people different from oneself will lead to an attitude change.

Armstrong, Morris, Abraham and Tarrant (2017) classified the studies published about the effectiveness of school-based interventions for improving children's attitudes toward disability through direct or indirect contact with people with disabilities. While direct contact is understood as interacting personally with a peer, indirect contact was defined as follows: (1) extended contact: knowing a fellow "in-group" member who has a close relationship

with an "out-group member" (e.g. Wright, Aron, McLaughlin-Volpe, & Ropp, 1997); (2) guided imagined contact: imagining a positive interaction with an out-group member (e.g. Turner, Crisp, & Lambert, 2010); and (3) para-social contact: being exposed to out-group members through their portrayal in media such as video (e.g. Schiappa, Gregg, & Hewes, 2005). Direct and indirect contact with students with a disability is effective at improving children's attitudes toward disability (Armstrong et al., 2017). It seems reasonable to think that the promotion of inclusive activities in which students without a disability could experience having a disability and learn about peers with disabilities while interacting with them might be effective for improving their knowledge about and their attitudes toward peers with a disability. Furthermore, this fact would help students with disability experience a successful inclusion at school, such as being perceived as members of a class, interacting with peers, and feeling part of the group (Reina et al, 2016).

When designing awareness programs to improve the inclusion process, the length of the intervention represents a variable to consider (Brown, Ouellette-Kuntz, Lysaght & Burge (2011). For a deeper understanding about how long the contact must be during the awareness programs for an effective attitude change intervention, some authors (e.g. Reina et al, 2011) have analyzed how the length of this contact may affect the attitude improvement, concluding that the six-day design was more effective than just one day. Other studies proposed periods from a two-hour intervention (e.g. Krahé & Altwasser, 2006) to a twenty-session program (Slininger, Sherrill, & Jankowski, 2000). There does not seem to be a consensus in the literature about how long the contact must be for an effective attitude change intervention.

In this research stream, achieving an effective inclusion of students with a disability, the teacher's attitude is presented as a relevant aspect (Elliot, 2008; Oswald & Swart, 2011). Following the findings by Block (1994), a positive attitude toward teaching students with disability represents a model that the other students will follow when interacting with them. Recently, De Boer and Minnaert (2017) found that attitudes, knowledge about disability, and teaching strategies of regular school teachers play a role in realizing inclusive education. Thus, the motivational climate that teachers developed in their PE classes could be a key factor in the students' motivation. Therefore, it seems reasonable to think that there might be a relationship between the motivational climate perceived by students in PE and attitudes toward students with a disability.

Supported by the achievement goal theory (Ames, 1992), the motivational climate refers to a contextual or situational psychological perception experienced in school classes that directs the goals of action. Ames (1992) and Ames and Archer (1988) introduced the term "motivational climate" to designate the different environments that significant adults (e.g., PE teachers) create in environment achievement (e.g. PE classes). The climate generated by the PE teacher can be identified as follows: (1) task-involving climate (i.e., the teacher emphasizes self-improvement, learning a task, and cooperative learning) and (2) ego-involving climate (i.e., the teacher emphasizes the performance and the comparison between subjects, giving students limited options to choose from). Research based on the achievement goal theory in PE (e.g., Bryan & Solmon, 2012; Halliburton & Weiss, 2002; Ntounamis & Biddle, 1999; Wallhead & Ntoumanis, 2004) supports that a task-involving climate is positively associated with intrinsic motivation, fun, or physical

activity, whereas an ego-involving climate has been correlated with negative affectation or depression, among other variables.

As Ntounamis and Biddle (1999) concluded, the mastery motivational climate is associated with more adaptive motivational responses, while the performance climate is linked with less adaptive or maladaptive motivational and affective responses. Since then, the literature has been trying to identify the influence that the motivational climate has in different fields (e.g. sports, physical activity, PE). Focusing in the school setting, namely in PE, task- and ego-involving teaching practices appear as useful ways of developing adaptive behaviours during classes (Grãsten & Watt, 2017). However, to the best authors' knowledge, there is no previous research analyzing how the motivational climate perceived by the PE students influence their attitudes toward their peers with a disability.

Therefore, the present study analyzed this very phenomenon. Having the guidelines of Lindsay and Edwards (2013) as a reference for well-designed methods of intervention to change attitudes toward disabilities, the authors tried to discern the optimal variable combination to build an effective awareness program. The following variables were manipulated: the duration of the program, contact (and its frequency) with para-athletes, and using motivational strategies during the regular PE sessions. Combining these variables, five programs were designed and implemented in five different educational centres. The main objective of this study was to analyze the effects of five interventions designed to improve the attitudes of students toward inclusion in PE of classmates with a disability, and also its effect on the perceived climate (task and ego). It was hypothesized that: (i) those groups with contact during the interventions would improve their attitudes toward peers with disability in PE than those without contact; (ii) those groups with

longer interventions will improve their attitudes to a higher degree; and (iii) using motivational strategies will affect the attitude ratio of improvement.

6.4. Method

6.4.1. Participants

Participants included a convenience sample of 534 PE students (283 girls, M_{age} = 15.97; *SD* = 1.07 yr.; 251 boys, M_{age} = 15.95; *SD* = 1.16 yr.) from five public educational centres in the south of Spain (see Table 10). Depending on the group the students were included in, they received from one to seven sessions of compulsory PE with a duration of 55 min per session. With regard to having had prior contact with individuals with disabilities, 37.72% indicated that someone in their family or a close friend has a disability, 69.62% indicated that they have or have had a classmate with a disability in one of their general education classes, 51.60% indicated that they have or have has a classmate with a disability in one of their PE classes, and 34.78% indicated that they have had contact with a person with a disability in a sports activity.

Table 10
Descriptive data for the five natural groups in this study

Group	N	Boys		Girls	
		N	Age	N	Age
Group 1 (CAS+ISC)	113	52	15.85 ± 1.04	61	15.76 ± 1.12
Group 2 (CAS+PDS)	106	45	15.28 ± 1.12	61	15.48 ± 1.00
Group 3 (CAS)	82	45	15.97 ± 1.23	37	16.04 ± 1.24
Group 4 (PDS)	109	51	16.33 ± 1.12	58	16.54 ± 0.85
Group 5 (MTCG)	124	58	16.22 ± 1.03	66	16.08 ± 0.87

Note. N = Number; CPE = Contact in Physical Education; CAS = Curriculum Awareness Sessions; ISD = Inside-Session Contact; PDS = Paralympic Day Session; MTCG = Motivational Climate Control Group.

6.4.2. Measures

6.4.2.1. Children's Attitude toward Integrated Physical Education-Revised (CAIPE-R)

Ocete, Lamata, Coterón, Durán and Pérez-Tejero (2017) translated and validated the original CAIPE-R (Block, 1995) to the Spanish context. The questionnaire is composed of three parts: student initial information description (e.g., MCIS), hypothetical classmate with disability, and 13 items belonging to two scales: one general that measures the attitudes toward inclusion in PE (e.g., "It would be nice to have María/Carlos in physical education class") and the other specific, measuring attitude toward sports adaptation (e.g., "María's/Carlos's baskets may be worth three points"). The Likert scale used ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The reliability for the two sub-scales was: .74 for the general and .78 for the specific.

6.4.2.2. Perceived Motivational Climate in Sports Questionnaire (PMCSQ-2)

To assess students' perceptions of the motivational climate created by their teachers, the PMCSQ-2, proposed by Newton, Duda, and Yin (2000) and translated into Spanish by González-Cutre, Sicilia, and Moreno (2008), was used in this study. The Spanish version of PMCSQ-2 was reported as being a valid and reliable tool for measuring motivational climate in Spain (González-Cutre et al., 2008). The questionnaire begins with this statement: "Please think about how it has felt to play on your team throughout this season. What is it usually like on your team?" It comprised 33 items, grouped into two factors: the task-involving climate (e.g., "The teacher wants us to try new abilities"), composed of 17 items, and the ego-involving climate (e.g., "The teacher gets angry when a classmate makes a mistake") comprising 16 items.

The participants answered on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores related positively with the correspondent scale. Cronbach reliability scores were .84 for the task-involving climate and .90 for ego-involving climate factors.

6.4.3. Study design

This study used a pre-post design with five natural groups (Table 11). The independent variables for the study were having contact with para-athletes, the length of the awareness program, and using some motivational strategies such as multimedia or infographic materials. To find the optimal combination between these variables to improve students' attitudes toward people with disabilities, combining those variables the authors designed five interventions (see Table 11): (1) CAS (Curriculum Awareness Intervention) + ISC (Inside-Session Contact), (2) CAS + PDS (Paralympic Day Session), (3) CAS, (4) PDS, and (5) MCCG (Motivational Climate Control Group). As a novelty, in this study, the teachers were instructed on several motivational strategies (see Table 12; Ames, 1992) to implement during the sessions.

Table 11
Description of the awareness and information techniques used

Group	Number sessions	Techniques	Motivational strategies	Main features
Group 1 (CAS+ISC)	7	Information Multimedia Simulation (x6) Contact (x3)	Yes	- Introductory session (video + pre-test). - Two sessions per para-sport. - Learning progressively about it having contact with para-athletes with disabilities of each sport during sessions 2, 4 and 6.
Group 2 (CAS+PDS)	8	Information Multimedia Simulation (x7) Contact (x1)	Yes	- Introductory session (video + pre-test). - Two sessions per para-sport (learning progressively about it). - Paralympic Day Session: three stations (one per para-sport) having a para-athlete with disabilities on each one (students played ten minutes each para-sport).
Group 3 (CAS)	7	Information Multimedia Simulation (x6)	Yes	- Introductory session (video + pre-test). - Two sessions per para-sport. - Learning progressively about it, but no contact with para-athletes.
Group 4 (PDS)	2	Information Multimedia Simulation (x1) Contact (x1)	Yes	- Introductory session (video + pre-test). - Paralympic Day Session: three stations (one per para-sport) having a para-athlete with disabilities on each one (students played ten minutes each para-sport).
Group 5 (MCCG)	6	Simulation (x6)	No	- Two sessions per sport (learning progressively about it).

Note. CAS = Curriculum Awareness Sessions; ISC = Inside-Session Contact; PDS = Paralympic Day Session; MCCG = Motivational Climate Control Group.

Table 12
Motivational strategies provided to the teachers to encourage attitude toward inclusion

Motivational Strategies	Description	Example
Tasks and activities	Applying cooperative exercises and games.	In football 5-a-side, the student simulating the visual impairment must follow his/her guide instructions.
Authority	Letting students make their own decisions about their learning.	In the Boccia games, they had to choose the strategy to win.
Recognition, punishments and rewards	Ensuring equal opportunities to each student getting rewards.	Prioritizing qualitative practice instead of quantitative practice.
Correction and feedback	Using positive feedback normally.	"Nice try. Now try to receive the pass by placing your feet in a 'V' shape".
Group	Grouping together students with flexibility and heterogeneity.	Combining them depending on their characteristics.
Evaluation	Using criteria related to the personal progress and the tasks domain.	Asking them about the process instead of the results.
Time	Giving opportunities and time to progress.	Giving students second opportunities to try in case they failed at the first one.

As a previous step at the beginning of the study, the ethics committee of the Miguel Hernandez of Elche University approved the study implementation. The authors contacted the five PE teachers who participated in this study to explain the program they would implement during their regular PE classes. As they allowed, the authors informed the schools and ask the institutions for the necessary permissions. At this point, each teacher was concretely informed about how to conduct his or her program. The first common step was sending informed consent letters to students' parents or tutors, and all the students obtained approval.

Four of the five teachers were trained together during three sessions. The first day, they watched two videos about the London Paralympic Games. Then they were asked several questions to discuss what they thought after watching the videos (e.g., "Do you think the athletes of the video had a good PE experience when they were at school?"). Following a random allocation, the different designs were exposed to them. This way, they could share their thoughts about which one they could develop at their educational centres (i.e., in terms of facilities and equipment availability). They had two weeks to think about and analyze everything related to the project before the second training session.

The next step consisted of explaining to them every detail about each intervention (see Table 11) and double-checking that they were available to implement it (e.g., schedule, facilities and equipment availability, student profile, participating para-athletes). When all this information was clear, the four teachers received the guidance specifically designed for every type of intervention the investigators had previously prepared. At the last training session, the PE teachers shared their reflections about the designs. Their thoughts were highly valued by the investigators and the teachers helped to define every detail about the awareness lessons. During the training period, the authors provided several motivational strategies (see Table 12) to the PE teachers (see Ames, 1992; Garcia-Calvo, Santos-Rosa, Jimenez, & Cervelló, 2005). The goal was to use them to improve the effectiveness of each program (Groups 1 to 4).

Regarding the purpose to have an MCCG to compare the results obtained, there was a fifth teacher who did not participate in the training period. This teacher just received the awareness program information document (the

didactic unit) to implement it with the students (i.e., no videos or infographics, nor contact with para-athletes).

The questionnaires were given to the participating students before (pre-test) and after (post-test) the corresponding intervention. The students' anonymity was guaranteed by a codifying system designed by the authors in collaboration with the PE teachers. Before starting each intervention, each PE teacher except the one for Group 5 applied the introductory session, which included the pre-test, two videos about the Paralympic Games (i.e., "Sport Doesn't Care Who You Are" and the highlights of a Paralympic Games), several questions related to each video (e.g., "What disabilities do you think the athletes that appear on the video have?") to work within the awareness process, an infographic flyer for each student with the essential information of each Paralympic sport, and three explanatory videos about each para-sport (Boccia, sitting volleyball, and football 5-a-side). All the information and documents related to the study implementation can be checked in the Appendix.

6.4.4. Data analysis

As a starting point, the mean group differences for each variable (attitudes, task-involving and ego-involving climates) were analyzed by means of ANOVA for repeated measures. Due significant differences were observed between groups in the pre-intervention scores ($p < .05$), an analysis of covariance was conducted (ANCOVA), controlling for that difference because the interventions were conducted with natural groups. In addition, to avoid possible error rates for comparisons in the ANOVA analysis, Greenhouse-Geisser interpretation was used in conjunction with the Mauchly's Test of Sphericity. The pre–post-intervention ratios were calculated in the three measured variables, analyzing between groups

differences by a one-way ANOVA. A Tukey's HSD (honestly significant difference) analysis was used for multiple comparisons between intervention groups.

Partial eta-square (ηp^2) values were also calculated as a measure of effect size for mean differences with the following interpretation: above 0.26, between 0.26 and 0.02, and lower than 0.02 were considered large, medium, and small, respectively (Pierce, Block, & Aguinis, 2004). All analyses were performed using the SPSS package (version 24, SPSS Inc., Chicago, IL, USA) with a significance level chosen at $p < 0.05$.

6.5. Results

Table 13 shows the within-group differences from the repeated-measures ANOVA. About the attitudes toward inclusion of peers with disabilities in PE classes, an overall improvement was obtained ($p < .001$, $\eta p^2 = .074$, moderate). In particular, the three groups with awareness lessons and contact (CAS + ISC, CAS + PDS, PDS) significantly improved their attitude scores ($p < .001$), and all of them had moderate effect sizes ($.152 < \eta p^2 < .234$). On the other hand, the group with the awareness lessons without contact, but using motivational strategies (CAS), showed improvement in their attitude scores that was close to significant ($p = .070$, $\eta p^2 = .060$, moderate), while the MCCG decreased their attitude scores significantly ($p = .009$, $\eta p^2 = .054$, moderate). Concerning the perceived climate by PE students, no modifications were observed in the task-involving climate, both in the overall effect and for every intervention group. However, the overall effect ($p < .001$,

ηp^2 =.037, moderate) and all the groups except for the PDS group increased their ego-involving climate scores ($p < .05$), with low-to-moderate effect sizes ($.036 < \eta p^2 < .123$).

Table 13

Within-group differences after intervention in the attitudes toward inclusion and perceived motivational climate

Variable	Group	Pre-Test *M* ± *SD*	Post-Test *M* ± *SD*	*F* (df)	*p*	ηp^2
Attitudes	CAS + ISC	3.61±.62	3.80±.67	19.87 (112)	.001	.152
	CAS + PDS	3.72±.67	4.04±.63	34.44 (105)	.001	.249
	CAS	4.04±.53	4.17±.52	3.42 (57)	.070	.060
	PDS	3.89±.61	4.14±.59	32.66 (108)	.001	.234
	MCCG	3.79±.51	3.68±.55	6.99 (123)	.009	.054
	Overall	3.79±.60	3.93±.63	40.99 (511)	.001	.074
Task-involving climate	CAS + ISC	3.91±.55	3.81±.70	1.67 (112)	.199	.015
	CAS + PDS	4.14±.53	4.09±.59	1.56 (105)	.215	.015
	CAS	4.04±.58	4.09±.60	.41 (57)	.524	.007
	PDS	4.20±.56	4.25±.62	2.39 (108)	.125	.022
	MCCG	3.84±.61	3.81±.72	0.29 (119)	.504	.004
	Overall	4.02±.58	3.99±.68	0.84 (511)	.361	.002
Ego-involving climate	CAS + ISC	2.11±.68	2.22±.67	4.11 (112)	.045	.036
	CAS + PDS	1.82±.58	1.92±.72	6.10 (105)	.015	.055
	CAS	1.80±.67	1.99±.82	7.85 (57)	.007	.123
	PDS	1.55±.45	1.54±.51	.18 (108)	.892	.001
	MCCG	2.33±.64	2.48±.81	6.52 (119)	.009	.054
Overall		1.95±.67	2.05±.76	19.47(511)	.001	.037

Note. M = Mean, SD = Standard Deviation; df = Degrees of Freedom; ηp^2 = Effect size; CAS = Curriculum Awareness Sessions; ISD = Inside-Session Contact; PDS = Paralympic Day Session; MCCG = Motivational Climate Control Group.

For the post-intervention values, the ANCOVA revealed between-group differences in the CAIPE scale [$F(4.505) = 14.65$; $p < .001$; $\eta p^2 = .101$, moderate], task-involving climate [$F(4.505) = 3.07$; $p = .016$; $\eta p^2 = .023$, small], and the ego-involving climate [$F(4.505) = 4.52$; $p = .001$; $\eta p2 = 0.034$, small]. In addition, gender differences existed in the CAIPE [boys = 3.77 ± .65, girls = 4.07 ± .58; $F = 9.93$; $p = .002$; $\eta p^2 = .019$, small] and ego-involving

climate [boys = 2.14 ± .78, girls = 1.98 ± .77; $F = 4.59$; $p = .033$; $\eta p^2 = .009$, small]. No significant interactions were observed among intervention groups or the gender of the PE students.

Figure 3 shows the between-group differences for the calculated variable "attitude ratio," considering gender scores as well. Between-group differences were obtained [$F = 11.41$; $p < .001$; ηp2 = .081, moderate], and the pair comparisons conducted by a Tukey's HSD revealed significant differences between the MCCG with respect to the CAS + ISC ($p < .01$), CAS + PDS ($p < .01$), and PDS ($p < .01$) groups, with an increase in the attitude scores for the three groups in which information, multimedia, and contact were used. In addition, the CAS group also indicated significant differences with respect to the CAS + PDS ($p < .01$) and PDS ($p < .05$) groups, showing a lower attitude change than the two groups for which the Paralympic Day session was conducted. No significant differences were observed between both girls and boys in attitude ratio or interaction gender*intervention, with a similar ratio for girls and boys in all the groups, except for the CAS group, in which boys had a greater change in their attitudes. No significant differences were obtained in the task- and ego-oriented climate ratios after interventions.

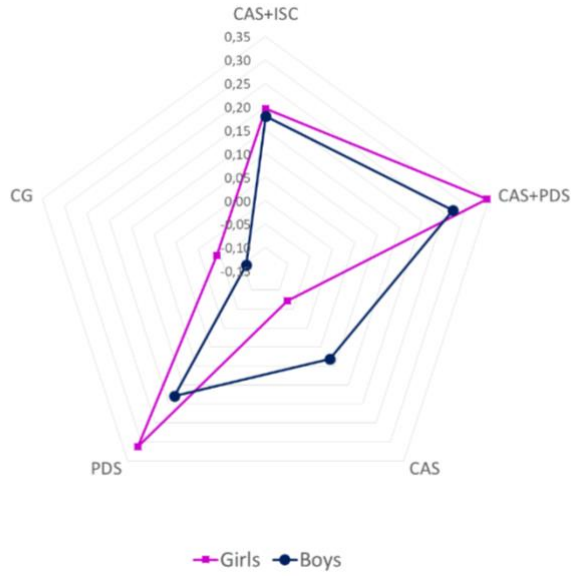


Figure 3. Between intervention groups differences.

6.6. Discussion

The main objective of this study was to analyze the effects of different interventions to improve the attitudes of students toward inclusion of classmates with disability in PE, manipulating the duration of the intervention (i.e., one to seven sessions), the contact with para-athletes (i.e., yes or no), and the use of motivational strategies during teaching (i.e., yes or no). The relationship between the motivational climate (task-involving and ego-involving climates) and the attitudes toward inclusion in PE have been also analyzed.

In order to find the optimal combination of variables to design awareness programs to change PE students' attitudes toward their peers with disabilities, the authors implemented different options to check which one would work best. The proper combination of several components represents a key factor when looking for the success of awareness interventions (Lindsay & Edwards, 2013). The results obtained by the current study are in line with this

conclusion: three groups (CAS + ISC, CAS + PDS and PDS) showed significantly better attitudes after the interventions and one group (CAS) was close to significant.

Regarding the CAIPE-R results, the contact with a para-athlete is also presented as a key element in improving attitudes toward people with disabilities; that is, the CAS + ISC, CAS + PDS, and PDS groups showed significantly better attitudes after each program implementation. McKay (2018) recently "unpacked" the components of Allport's (1954) Contact Theory, namely equal status, cooperation, personal interactions, and support from authority. According to McKay (2018), working to align with the components of contact can enhance positive experiences, facilitating an inclusive culture and creating a platform for attitude change.

In addition, the motivational strategies to create an appropriate environment used by the PE teachers might also play a relevant role during the intervention. This could also influence how the para-sport content is taught to improve knowledge and attitudes toward individuals with disabilities. Such is it that the MCCG was the only group that did not improve their attitudes, while the CAS group showed favourable results close to significant. However, following the results obtained by the rest of the groups (CAS + ISC, CAS - PDS, and PDS groups), having contact with a para-athlete is presented as the key factor when improving attitudes and knowledge towards the inclusion process using the motivational climate. That is to say, even the program design is applicable to improving attitudes when using motivational strategies, and the difference between achieving significant results or not is indicated by contact with a para-athlete during the interventions. These outcomes are in line with the conclusions of the systematic review and meta-analysis published by Armstrong et al. (2016). These authors concluded that

the most effective type of contact appears to be extended contact (i.e., knowing a fellow "in-group" member who has a close relationship with an "out-group member") and direct contact (i.e., face-to-face interactions with individuals with disabilities), while programs without contact would not improve one's attitude toward people with disabilities after the interventions (De Boer, Pijl, Minnaert, & Post, 2014). Based on this, the first hypothesis for this study can be accepted.

According to De Boer et al. (2014), talking with the students about disabilities represents a first step in shaping the attitudes because this encourages them to think about disabilities. Comparing the design of the five interventions, only one lesson (i.e., the introductory session) differentiates the MCCG from the other four programs. The author's intention was to understand whether the knowledge conveyed in the introductory session would influence the experience in the subsequent sessions, influencing the success of the intervention. The way PE teachers implemented their classes might be positively related to their attitudes toward including students with disabilities in their PE classes (De Boer, Pijl, & Minnaert, 2011). Accordingly, the MCCG was the only group in the present study that did not show any improvement in students' attitudes after the intervention.

The length of the program appeared to be another factor to consider when looking for effective awareness interventions. Educators should carefully choose appropriate interventions to meet the needs of the children in their classes while considering age appropriateness and the diversity of the students. It is also important for educators to be cognizant of the broader social factors that influence attitudes toward disability (Lindsay & Edwards, 2013). Only when students with and without disability learn to understand and appreciate each other can they work and progress together toward a better

understanding (Schwab, 2017). However, comparing the attitude improvement ratio of the CAS + PDS and PDS groups (2 vs. 8 sessions), we found similar improvements for the groups, supporting how significant the contact with the para-athlete was. Therefore, the second hypothesis for this study is not confirmed.

To the best of the authors' knowledge, there is no evidence in the literature that would relate the effect of motivational strategies with the attitudes toward inclusion of students with a disability in PE classes. In the compulsory education system, PE classes are a great environment to create physical activity habits, so it might be interesting to study the motivational processes that occur in them (González-Cutre et al., 2008), including the relationship between the motivational processes and students' attitudes toward their peers with disabilities. It is reasonable to believe that having an appropriate motivational climate in the PE classes would help students reach the best attitude possible. As a novel contribution, the authors learned that (1) the task-involving climate remained the same based on pre- and post-test results and (2) the ego-involving climate was increased after implementing each awareness program, except for the PDS group. One reason for this finding could be the short length of the program; that is, the students experienced each para-sport just 10 minutes, which could be associated with not having enough time to feel competitive on the field. In addition, para-sport may create competitive dynamics in content that is new to the students. Novelty may help teachers keep their students motivated and attentive, as well as open to new content (Ocete et al., 2017). Another reason could be related to the "state of involvement" (Moreno & Cervelló, 2010). That is, the students might adapt their motivational preference in the new context of the classroom after learning about Paralympic sports and how to play them.

When analyzing the variables that could influence that attitudes of children without disabilities toward their peers with disability, a recent review (Wilhelmsen & Sørensen, 2017) did not include the relationship between motivational climate and attitudes. The present study showed modifications to the task-involving climate in all groups, except for the PDS group. It seems reasonable to think that PE teachers should create motivational strategies and inclusion strategies to improve attitudes toward students with disabilities. Therefore, the third hypothesis for this study is accepted.

This study contributes to the literature by analyzing the relationships between students' attitudes toward other students with disabilities and the motivational climate perceived by the PE students using different interventions in natural settings in which contact, the duration of the intervention, and the motivational strategies were manipulated. The contact with people with disabilities (i.e., para-athletes) seems to be a key factor when designing a successful intervention program to improve PE students' attitudes toward individuals with disabilities.

Future research should look for the students' motivations for proper design interventions. Further work could focus on analyzing the impact of novelty on those students who had never experienced any type of contact (direct or indirect) with people with disabilities. There is no singular solution to inclusion within PE classes, but rather it is a combination of actions (e.g., becoming reflexive) that supports this process. A multi-layered approach could make a difference in how all the students in class experience inclusion, including those students positioned as "disabled" (Petrie, Devcich, & Fitzgerald, 2018).

Having in mind the study published by McKay, Park and Block (2017) after the implementation of the study, future research should apply a fidelity

criteria instrument to measure the contact theory, seeking to control and explain the manner in which PSD satisfied the four components of contact theory. Also, the awareness programs implementation by the PE teachers should be controlled in the future by using fidelity check tools. As their background should be analyzed (i.e. years of experience teaching PE their previous experience with students with a disability).

As for limitations, the authors recognize that there are three principal points that would improve this study. First, the PE students belonged to natural groups and their initial level of attitude and climate perception was not possible to control. For this reason, however, an analysis of covariance was conducted, avoiding the bias of the interventions' interpretation. Second, the possibility of including a sixth group, a full control group, experimenting no intervention design could be a future option in further research. However, the authors tried to control the contact, length, and motivational strategies between the five groups. Third, a follow-up test should be considered in future studies to check if the changes are kept over the time.

Chapter 7

Conclusions

7.1. Conclusions

Inclusion is a teaching and learning process for the society, so it seems reasonable to think about school as a starting point to improve it. The educational environment involves teachers and students and it also affects family members, school workers (e.g., administrators) and other professionals who have contact with the scholars. The overall purpose of this dissertation was: i) to establish the constructive validity of a questionnaire in the Spanish language on attitudes toward the inclusion of students with disability in PE classes while checking if the tridimensional attitude´s framework (Triandis, 1971) is reliable; ii) to examine the relationships between three variables (students' entity and incremental beliefs, gender and previous experience) and students' attitudes toward inclusion in PE; iii) to validate a shorter version of the AISDPE and to present validity (e.g., invariance toward sociodemographic variables) and liability evidence; and iv) to analyse the effects of five interventions designed to improve the attitudes of students toward inclusion in PE of classmates with a disability and its consequence on the perceived climate (task and ego).

Students with disabilities experiences could be influenced by their relationships with their classmates without disabilities. Interacting with their peers, feeling part of the group and, thus, the perception of being a member of the class seem to be key factors within the inclusion process. To the best authors' knowledge, there was a lack in the literature of a satisfactorily validated Spanish instrument to measure attitudes toward children with disability in PE. As a first step (Study 1), this dissertation analysed the construct validity of the AISDPE, based on the three-dimensional attitude model (Triandis, 1971). According to the results, the AISDPE is a valid and reliable tool to measure students' attitudes toward peers with disabilities in

PE. Furthermore, a two-component model was confirmed by the results: (1) behavioural readiness to interact with children with disability (10 items), and (2) cognitive perception of children with a disability (7 items). Having reliable tools to measure students' attitudes towards peers with disabilities would help teachers knowing their students' attitudes towards people with disabilities.

Main Conclusion Study 1:
The AISDPE scale is a two-component model (behavioural and cognitive dimensions). The results confirm it as a valid and reliable tool to measure students' attitudes toward peers with disabilities.

As a second step (Study 2), this dissertation' purpose was getting a better understanding of how several variables may influence the attitudes toward people with disabilities. Analysing the ability beliefs (entity and incremental), gender and previous contact or experiences with children with special education needs would help to clarify how they influenced the students' attitudes towards their peers with disabilities. As it is shown by the results, entity beliefs and attitude are negatively related when including peers with disabilities in PE. For its part, the behavioural dimension was the only one presenting a low contribution to the relationship between incremental beliefs and the attitudes toward inclusion. It was also confirmed that the cognitive subscale correlated negatively with a positive attitude toward students with a disability. Children's attitudes toward including a peer with a disability in their PE classes could be significantly predicted by incremental and ability beliefs. Regarding gender, girls tend to have more positive attitudes toward students with disabilities than boys. Also, previous contact and participation in physical activities with people who have disability variables predicted positively on the students' attitude. Designing awareness programs based on

these results could improve their quality when implementing them with the students.

Main Conclusion Study 2:
When studying students' attitudes towards their peers with disabilities in PE variables as ability beliefs, gender or previous contact should be carefully analyze to understand how these may influenced on them.

Following the results obtained by the study 1, a new study (study 3) evaluated a two-dimensional (behavioural and cognitive components) scale (EAADEF) to measure the attitude toward inclusion of students with disabilities in PE. The EAADEF was revealed as a one-dimensional model (behavioural component), valid and reliable, comprised of four items. This new tool is invariant to: (1) gender, (2) having a family member or friend with a disability, (3) having had contact with a classmate with disability in PE and (4) having previously participated in a sports activity with people with a disability. A one-dimensional model (behavioural component) comprised of four items was supported. The EAADEF was presented as a valid and reliable tool to measure students' attitudes toward peers with disabilities in PE. The results showed that the instrument was invariant respect to the four variables included. The EAADEF was presented as a short and useful instrument to help teachers measuring their students' attitudes toward the inclusion process.

Main Conclusion Study 3:
The EAADEF is a one-dimensional model (behavioural component), short (four items), valid and reliable instrument to measure attitudes towards inclusion, invariant to gender, having a family member or friend with a disability, having had contact with a classmate with disability in PE and having previously participated in a sports activity with people with a disability.

As a final step after collecting and analysing the previous data (Study 4), five interventions programs were designed. The contact with a person with disabilities appeared to be a key element when working to improve attitudes towards peers with disabilities. Despite the length of the program should carefully choose depending on the characteristics of the target group, similar results were found in the study when comparing two vs eight sessions. The motivational climate that the teacher generates in their classroom would be determinant for the success of the intervention. In addition, while the task-involving climate showed similar results on the pre-test and post-test moments, the ego-involving climate seems to be influenced by the length of the program. The task-involving climate would represent a better atmosphere to implement the awareness program to improve knowledge and attitudes toward disability.

Main Conclusion Study 4:
The contact with a person with disability may be a key factor when applying interventions to improve attitudes towards people with disabilities.

Chapter 8

Conclusiones

8.1. Conclusiones

La inclusión representa un proceso de enseñanza y aprendizaje para la sociedad, por lo que parece razonable pensar en la escuela como un punto de partida para mejorarla. El entorno educativo incluye no sólo al profesorado y los estudiantes, sino también a los miembros de la familia, trabajadores escolares (por ejemplo, administradores) y aquellos profesionales externos que tienen contacto con los académicos. El propósito general de esta tesis fue: i) establecer la validez de constructo de un cuestionario en español sobre la inclusión de estudiantes con discapacidad en clases de educación física mientras se verifica si la conceptualización tridimensional de la actitud (Triandis, 1971) es factible; ii) examinar las relaciones entre tres variables (creencias de entidad e incremental de los estudiantes, género, y experiencia previa) y las actitudes de los estudiantes hacia la inclusión en educación física; iii) validar una versión más corta del AISDPE y presentar evidencias de validez (e.g. invarianza respecto a variables socio-demográficas) y fiabilidad; e iv) analizar los efectos de cinco intervenciones diseñadas para mejorar las actitudes de los estudiantes hacia la inclusión en EF de compañeros y compañeras con discapacidad y sus consecuencias en el clima percibido (tarea y ego).

Las experiencias del alumnado con discapacidad podrían verse influenciadas por sus relaciones con sus compañeros y compañeras de clase sin discapacidad. Interactuar, sentirse parte del grupo y, por lo tanto, la percepción de ser miembro de la clase parecen ser factores clave dentro del proceso de inclusión. Existía un vacío en la literatura acerca de la existencia de un instrumento en español para medir las actitudes hacia los niños con discapacidad en las clases de educación física. Como primer paso, esta tesis analizó la validez de constructo del AISDPE, basado en el modelo de actitud

tridimensional (Triandis, 1971). De acuerdo con los resultados, el AISDPE es una herramienta válida y confiable para medir las actitudes de los estudiantes hacia los compañeros y compañeras con discapacidad en educación física. Además, los resultados confirmaron un modelo de dos componentes: (1) preparación conductual para interactuar con niños y niñas con discapacidad (10 ítems) y (2) percepción cognitiva de niños y niñas con discapacidad (7 ítems). Tener herramientas fiables para medir las actitudes de los estudiantes hacia las personas con discapacidad ayudaría al profesorado a conocer las actitudes de sus estudiantes hacia el colectivo que nos ocupa.

Conclusión Principal del Estudio 1:
La escala AISDPE contiene dos componentes (dimensión comportamental y cognitiva), mostrándose como una herramienta válida y fiable para evaluar las actitudes de estudiantes de educación física hacia sus pares con discapacidad.

Como segundo paso, el propósito de esta tesis doctoral fue llegar a una mejor comprensión de cómo varias variables pueden influir en las actitudes hacia las personas con discapacidad. Analizar las creencias (entidad e incremental), el género y el contacto previo o las experiencias con personas con discapacidad ayudaría a aclarar cómo influyeron en las actitudes de los estudiantes hacia sus compañeros y compañeras con discapacidad. Como demuestran los resultados obtenidos, las creencias y actitudes de entidad se relacionan negativamente cuando se incluye a compañeros y compañeras con discapacidad en educación física. Por su parte, la dimensión conductual fue la única que presentó una baja contribución a la relación entre las creencias de habilidad de tipo incremental y las actitudes hacia la inclusión. También se confirmó que la subescala cognitiva se correlacionó negativamente con una actitud positiva hacia los estudiantes con discapacidad. Las actitudes de los

estudiantes hacia la inclusión de una persona con discapacidad en sus clases de educación física podrían predecirse significativamente por las creencias de habilidad de tipo incremental y de habilidad. En cuanto al género, las niñas tienden a tener actitudes más positivas hacia los estudiantes con discapacidad que los niños. Además, el contacto previo y la participación en actividades físicas con personas con discapacidad predijeron positivamente la actitud de los estudiantes hacia su inclusión. El diseño de programas de sensibilización basados en estos resultados podría mejorar la calidad de los mismos al implementarlos con los estudiantes.

Conclusión Principal del Estudio 2:
Se sugiere que al estudiar las actitudes de estudiantes de educación física hacia sus pares con discapacidad, variables como las creencias de habilidad, el género o el contacto previo sean analizadas con profundidad para entender cómo podrían influir en ellas.

Siguiendo los resultados obtenidos del Estudio 1, un nuevo trabajo (Estudio 3) evaluó una escala bidimensional (componentes comportamental o cognitivo) (EAADEF) para medir la actitud hacia la inclusión de estudiantes con discapacidad en educación física. La EAADEF se reveló como un modelo unidimensional (componente comportamental válido y fiable, formado por cuatro ítems). Esta nueva herramienta es invariable respecto al (1) género, (2) tener un familiar o amigo con una discapacidad, (3) haber tenido contacto con un compañero o compañera de clase con discapacidad en educación física, y (4) haber participado previamente en una actividad deportiva con personas con discapacidad. Se confirmó un modelo unidimensional (componente de comportamiento) compuesto por cuatro ítems. La EAADEF se presentó como una herramienta válida y fiable para medir las actitudes de los estudiantes hacia sus pares con discapacidad en educación física. Los resultados

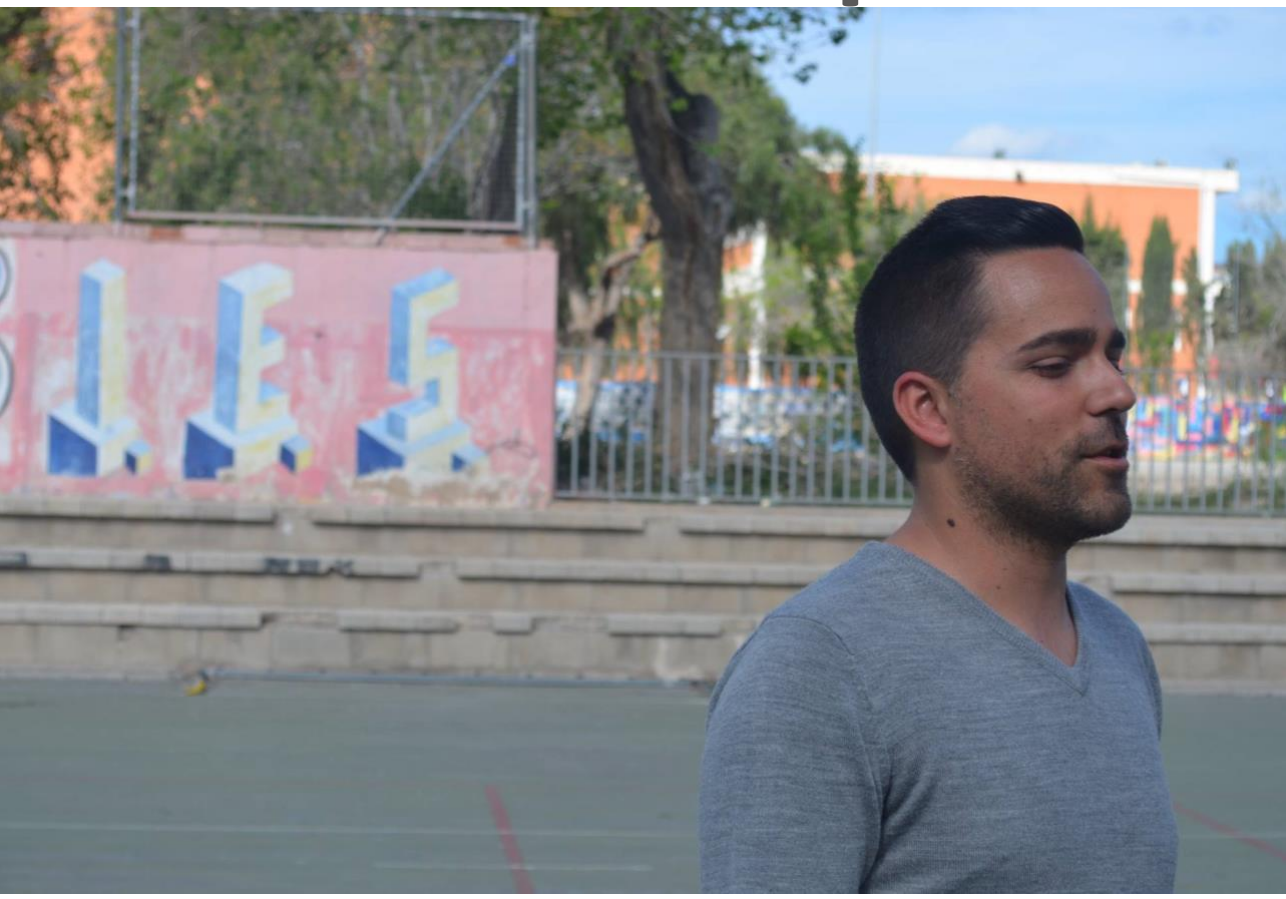
mostraron que el instrumento era invariante con respecto a las cuatro variables incluidas. La EAADEF se presentó como un instrumento breve y útil para ayudar al profesorado para medir las actitudes de sus estudiantes hacia el proceso de inclusión.

Conclusión Principal del Estudio 3:
La EAADEF es un escala unidimensional (componente comportamental), breve (cuatro ítems), válida y fiable, invariante al género, a tener un familiar o amigo/a con discapacidad, a haber tenido contacto con un compañero/a con discapacidad en las clases de educación física y a haber participado previamente en una actividad deportiva con personas con discapacidad.

Como paso final después de recopilar y analizar los datos anteriores, se diseñaron cinco programas de intervención en contextos naturales de educación física. Tras su implementación y análisis de los resultados, el contacto con una persona con discapacidad pareció ser un elemento clave cuando se trabaja para mejorar las actitudes hacia los compañeros y compañeras con discapacidad. A pesar de la duración del programa, se encontraron resultados similares en el estudio al comparar dos con respecto a ocho sesiones. El clima motivacional que genera el profesorado en clase sería determinante para el éxito de la intervención. Si bien el clima orientado a la tarea mostró resultados similares en los momentos previos y posteriores a la intervención, el clima orientado al ego parece estar influenciado por la duración del programa. El clima orientado a la tarea representaría un mejor ambiente para implementar programas de concienciación para mejorar el conocimiento y las actitudes hacia la discapacidad.

Conclusión Principal del Estudio 4:
El contacto con una persona con discapcidad se presenta como un factor determinante al aplicar intervenciones en educación física encaminadas a la mejora de las actitudes hacia personas con discapacidad.

Chapter 9



Epilogue: Limitations and Future Research

9.1. Limitations of Study 1: AISDPE: a two-component scale in Spanish

- Further research is needed in terms of more deeply analysed the Triandis (1971) conception of attitude.
- According to Mullan, Markland and Ingledew (1997), standardised regression weights under the recommendation (> .40) were obtained to CFA.
- Future research should analyse if the AISDPE is invariable to gender, previous contact, participation in physical activity with children with SEN.
- To analyse temporal stability of the AISDPE to provide more evidence of their reliability.

9.2. Limitations of Study 2: Ability beliefs, gender, and previous experiences influenced attitudes toward inclusion in PE7.3.2. Limitations of Study 2

- According to the previous research, the literature should agree about what instruments the investigators should use when measuring each theory construct (e.g. TPF or Contact Theory).
- The understanding of the perceived ability beliefs by the students could not be appropriate because of vignettes were not included (De Boer et al., 2014).
- The stability of perceived ability beliefs should be explored in future research by longitudinal or intervention designs.
- The variability in abilities across SEN categories may represent a barrier when looking for the consensus about the association between the previous contact variable and attitudes toward people with disabilities.

9.3. Limitations of the Study 3: attitudes Scale toward students with a disability in physical education (ASSDPE)

- Future research is needed confirming the attitude construct within the scholar context, specifically in PE.
- The school centre nature should be analysed to see if this variable influences the attitudes toward students with SEN.
- Temporal stability should be analysed in future research in measuring instruments that analyse attitudes in PE.

9.4. Limitations of the Study 4: Key Elements for Successful Inclusion in Physical Education when Comparing Contact, Duration and Motivational Strategies

- The initial level of attitude and climate perception were not controlled as the participants belonged to natural groups.
- In the future, a full control group should be included.
- To analyse the changes over time a follow-up test should be conducted.

9.5. General limitations

- The school centres where the students belonged were not specifically chosen. That is to say, the predisposition of the PE teachers was the determinant factor to include them on these studies. However, their motivation regarding data collection and conducting interventions was guaranteed.
- Participants´ heterogeneity was evident in some features (e.g. age). Anyway, they were all studying at high school.
- The teacher and students' family variables (e.g. parents' attitudes) were not considered.
- The novelty variable effected should be analysed when exposing students to awareness interventions.

9.6. Future research

- This thesis suggests that the three-dimensional attitude conception formulated by Triandis (1971) as Bossaert and Petry (2013) affirmed has been used for decades to develop instruments measuring attitudes toward people with disabilities, is no more valid as theoretical sustenance. Instead and according to Triandis (1971), those who are interested in designing tools to measure the attitude toward the inclusion process need to use a one-dimensional attitude conception (studies 1 and 3).
- The one-dimensional model should be confirmed as a valid and reliable framework to develop tools that evaluate attitudes toward people with disabilities in any context (study 3).
- A deep analysis of the type of disability variable would help clarify if and how this could influence the students' attitudes (study 2).
- The contact with people with disabilities it seems is relevant when improving attitudes toward people with disabilities, thus professionals interested in improving the inclusion process should design in awareness interventions utilising structured contact with someone with a disability (study 4).
- Including qualitative instruments may help to give a better understanding of how attitudes toward people with disabilities could be improved in PE, especially about the type, context or frequency of the contact.

Chapter 10

Epílogo: Limitaciones y Futura Investigación

10.1. Limitaciones del Estudio 1: AISDPE: una escala de dos componentes en español

- Se necesita investigación futura para analizar con más profundidad el constructo de actitud de Triandis (1971), indagando en la estructura factorial más apropiada para medir el constructo de actitud hacia las personas con discapacidad en EF.
- De acuerdo con Mullan, Makland e Ingledew (1997), se obtuvieron resultados de regresión por debajo de lo recomendado (> .40), por lo que nuevos estudios podrían desarrollar nuevos ítems más afines al constructo.
- La investigación futura debería analizar si la AISDPE es invariable según el género, el contacto previo y la participación en actividad física con alumnado con discapacidad, así como con otras variables relacionadas con la actitud e identificadas como claves por la literatura específica.

10.2. Limitaciones del Estudio 2: Creencias de habilidad, género y experiencias previas influidas por las actitudes hacia la inclusión en EF

- De acuerdo con la evidencia previa, la literatura debería consensuar qué instrumentos emplear para medir los constructos teóricos que se usaron (e.g. TPB ó Hipótesis del Contacto).
- Los estudiantes pudieron no comprender adecuadamente las creencias de habilidad porque no se incluyeron viñetas (De Boer et a., 2017).
- La estabilidad de las habilidades percibidas debería ser analizada en el futuro por investigaciones longitudinales y de intervención.
- La variabilidad de habilidades entre las categorías de discapacidad quizá representen una barrera al buscar un consenso sobre la asociación de experiencias previas y las actitudes hacia personas con discapacidad.

10.3. Limitaciones del Estudio 3: escala de actitudes hacia estudiantes con discapacidad en educación física (EAADEF)

- Se necesita investigación futura que confirme un constructo unidimensional de actitud en el contexto escolar, así como en diferentes etapas educativas, específicamente en EF.
- La naturaleza del centro escolar debería ser analizada para ver si esta variable puede influir en las actitudes hacia estudiantes con discapacidad en EF.
- La estabilidad temporal debería ser analizada en investigaciones futuras al medir con instrumentos que analizan las actitudes hacia las personas con discapacidad en EF.

10.4. Limitaciones del Estudio 4: Elementos Clave para una Inclusión Exitosa en Educación Física Comparando Contacto, Duración y Estrategias Motivacionales

- El nivel inicial de la actitud y la percepción del clima no fueron controlados ya que los estudiantes pertenecían a grupos naturales.
- Futuros trabajos debería de incluir un grupo control en el experimento.
- Para analizar los cambios en el tiempo nuevos estudios podrían incluir un re-test.

10.5. Limitaciones generales

- Los centros escolares a los cuales pertenecían los estudiantes no fueron seleccionados de forma aleatoria. En este caso, la predisposición de los centros educativos y de su profesorado de EF fue el factor determinante para tomar parte en el estudio. Sin embargo, la motivación de los colaboradores hacia la recogida de datos e implementación de las intervenciones estuvo garantizada.

- La heterogeneidad de los participantes fue evidente en algunas variables analizadas como en el caso de la edad del alumnado. Este hecho es un reflejo de la realidad de los centros educativos.
- Variables asociadas con el profesorado y familiares de los estudiantes (e.g. actitudes de los padres) no se tuvieron en cuenta.
- Respecto al Estudio 5, el efecto de la variable "novedad" sobre la actitud debería ser analizada en el futuro al exponer a los estudiantes ante intervenciones de concienciación.

10.6. Investigación futura

- Esta tesis sugiere que la concepción tridimensional formulada por Triandis (1971) que tal y como afirman Bossaert & Petry (2013) ha sido usada durante décadas para desarrollar instrumentos que miden las actitudes hacia personas con discapacidad, no sería una base teórica válida tal y como fue concebida al inicio. De acuerdo con Triandis (1971), aquellos interesados en diseñar herramientas para medir la actitud hacia el proceso de inclusión necesitan emplear el modelo unidimensional de la actitud (estudio 1 y 3).
- El modelo unidimensional debería ser confirmado como una estructura válida y fiable para desarrollar herramientas que evalúen actitudes hacia personas con discapacidad en cualquier contexto, especialmente en EF (estudio 3).
- Un análisis profundo que incluyera como variable el tipo de discapacidad debería de ayudar a aclarar cómo afectaría a las actitudes de los estudiantes (estudio 2) hacia las personas con discapacidad en EF.
- El contacto con personas con discapacidad en EF parece ser relevante cuando se mejoran actitudes hacia personas con discapacidad, por lo que

los profesionales interesados en mejorar el proceso de inclusión en EF, podrían diseñar programas de intervención utilizando contacto estructurado con personas con discapacidad (estudio 4).

- La inclusión de instrumentos de medida cualitativos en las investigaciones ayudaría a entender mejor el proceso por el cual puede mejorar la actitud hacia la discapacidad en las clases de EF, y por ende, a la inclusión del alumnado con discapacidad. Por ejemplo, sería de interés indagar en las consecuencias y efectividad que puediera tener experimentar diferentes tipos de contacto, contextos o frecuencia de contacto con personas con discapacidad sobre las actitudes del alumnado.

Chapter 11

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Chapter 12

Appendix

12.1. Appendix: didactic unit documents

Document	QR Code (English)	QR Code (Spanish)
Sessions: Football 5-a-side		
Sessions: Sitting Volleyball		
Sessions: Boccia		
Video: London Paralympic Games 1		
Video: London Paralympic Games 2		
Video: Football 5-a-side		
Video: Sitting Volleyball		
Video: Boccia		