

Questionnaires to Measure Teachers' and Students' Attitudes Toward Disability: A Systematic Literature Review (2012-2022)

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Abstract

Negative attitudes towards people with disabilities (PWD) are among the most significant barriers to becoming an inclusive society. The academy is the ideal place to create interventions that raise awareness about disability and positively change attitudes. It is necessary to apply a reliable measurement instrument to measure such change. To meet this need, researchers have two options: (1) build an ad hoc instrument or (2) find an already designed instrument. This paper aims to assist in the second option by characterising the questionnaires published in high-impact journals indexed in Scopus and Web of Science. Besides, we provide insight into teachers' and students' attitudes towards PWD according to the articles studied. Through a literature review under the precepts of PRISMA 2020, we searched for scientific articles on the construction or use of questionnaires to measure the attitude of teachers or students towards PWD. Thirty-seven scientific articles were selected, deriving a total of twenty-four questionnaires. In conclusion, we find that the Scale of Attitudes towards Persons with Disabilities (EAPD) is the most used and that there is more research on students' attitudes towards their peers with disabilities. Generally, the attitude towards PWD of both students and teachers is positive.

Keywords: attitudes; questionnaire; disability; education; systematic literature review.

1. Introduction

People with disabilities (PWD) are less likely to enter, remain and advance in their studies because some teachers do not want or feel obligated to teach them (WHO & World Bank 2011). Therefore, it is necessary to create disability awareness programs aimed at students and teachers, with which attitudinal barriers that limit the participation of PWD in society can be eliminated or at least reduced. Hence, measuring people's attitudes towards PWD with valid and reliable instruments is necessary to know whether these awareness programs produce positive changes.

The questionnaire is perhaps one of the favourite instruments used by researchers. However, for the questionnaire to obtain reliable data, it must be validated. Validating a questionnaire means that it measures what it intends to measure and serves the purpose for which it was designed (Blázquez Sánchez 2017). In this research, the main question we tried to answer is what are the questionnaires validated to measure the attitude of teachers and students towards PWD, and what have they measured? A systematic literature review (SLR) was conducted following PRISMA 2020 precepts to find the answer. This study is preceded by those of García-Fernández et al. (2017), Leal et al. (2020) and Freer (2021):

García-Fernández et al. (2017) analysed attitudes towards disability in education. They studied 925 papers published in Web of Science (WoS) from 2000 to 2011. As a result of the analysis, the authors identified 18 thematic categories; the three most remarkable are attitudes of teaching staff (12.2%), inclusion practices (9.9%), and family and school (9.6%). Student attitudes reached 4.4%, ranking eighth place.

Leal et al. (2020) conducted an SLR on the attitudes of students or professionals (in various fields) toward PWD. They analysed 96 Scopus articles from 1973 to 2019. As a result, they found 51 articles from the health area and 31 from education. They found 30 instruments to measure attitude being the most used the ATDP (Attitudes Toward Disabled Persons) by Yuker et al. (1970).

Freer (2021) conducted an SLR to synthesise and analyse the contributions to the research on students' attitudes toward disability. They studied 37 peer-reviewed journal articles from ERIC and APA PsycNet databases. One of the inclusion criteria was that the age of the participants should be between 6 and 18 years old. The findings indicate that students' attitudes toward disability can play an important role in inclusive education. Additionally, determinant factors and educational interventions can impact students' attitudes toward disability. Based on the findings of this SLR, there continues to be a need for determinant and intervention studies.

Unlike García-Fernández et al., our study has a time window from 2012 to 2022; unlike Leal et al., our study provides more specificity than their study (since we focus only on the educational field); and unlike Freer, our study covers all educational levels and also, we include teachers. We have focused only on the education area without considering health education since it merits an independent study. Another difference concerning the previous studies is that we conducted the literature search in Scopus and WoS.

The present study conducts a literature review to identify and characterise the questionnaires to measure the attitude of teachers and students towards PWD, in addition to knowing the attitude of teachers and students towards PWD.

2. Method

Literature identification procedure

The SLR followed the PRISMA 2020 guideline (Page et al. 2021) to find answers to the following research questions (RQ):

- (RQ-1) What are the validated questionnaires to measure the attitude of teachers and students in the area of education towards PWD?
- (RQ-2) To whom it was applied?
- (RQ-3) How was it structured?
- (RQ-4) What are the questions?
- (RQ-5) What is the type of the items?
- (RQ-6) How was the validation process carried out?
- (RQ-7) What was the theoretical foundation for its creation?
- (RQ-8) What were the studies' objectives, primary results, or conclusions?

The eligibility criteria for the selected articles were:

- Scientific articles published from 2012 to 2022 in open-access scientific journals indexed in Scopus and WoS.
- Scientific articles in english or spanish published in journals.
- Scientific articles in the area of Social Sciences and Education.
- Scientific articles that reference the validated questionnaire to measure the attitude of students and teachers towards PWD.

The scientific articles were searched in Scopus and WoS on September 30, 2022 with the following search strings:

Scopus

(TITLE-ABS-KEY (instrument OR questionnaire OR survey OR scale) AND TITLE-ABS-KEY (attitude OR perception) AND TITLE-ABS-KEY (people AND with AND disabilities OR disabled AND people) AND TITLE-ABS-KEY (teacher OR professor OR student OR learner OR education))).

Filters: Open Access. Date range: 2012 to present. Subject area: Social Science. Document type: Article. Source type: Journal. Language: English, Spanish.

Web of Science

Instrument OR questionnaire OR survey OR scale (Abstract) and attitude OR perception (Abstract) and people with disabilities OR disabled people (Abstract) and teacher OR professor OR student OR learner OR education (Abstract).

Filters: Open Access. Date range: 2012 to present. Research areas: Education Educational Research OR Social Science Other Topics. Research domain: Social Science. Document type: Article. Language: English, Spanish.

From the articles selected in the SLR, the next step was obtaining the questionnaires they used. Some articles included the questions; in others, it was necessary to look to primary sources (or other articles) to obtain the questions. Hence, in this study, two types of documents were analysed: (1) the articles found in the SLR, which we will call "SLR articles", and (2) the articles with the questions, which we will call "questionnaire articles". To answer RQ-1, RQ-3, RQ-4, RQ-5, RQ-6, RQ-7, the "questionnaire articles" were analyzed and to answer RQ-2 and RQ-8, the "SLR articles" were analyzed.

After the search, 137 articles were found in WoS and 85 in Scopus, totalling 222. After eliminating duplicate articles and reading abstracts, 49 articles measuring teachers' and students' attitudes towards disability were obtained. After reading the complete articles, 37 SLR articles were selected. Since several SLR articles used more than one questionnaire, resulting in a total of 52 questionnaire names. In the SLR articles that did not have the questionnaire questions, we searched for the primary source or other articles that did contain the questions. After eliminating those articles with the questionnaire that could not be accessed, the result was 24 questionnaire articles with their questions. Figure 1 explains this process.

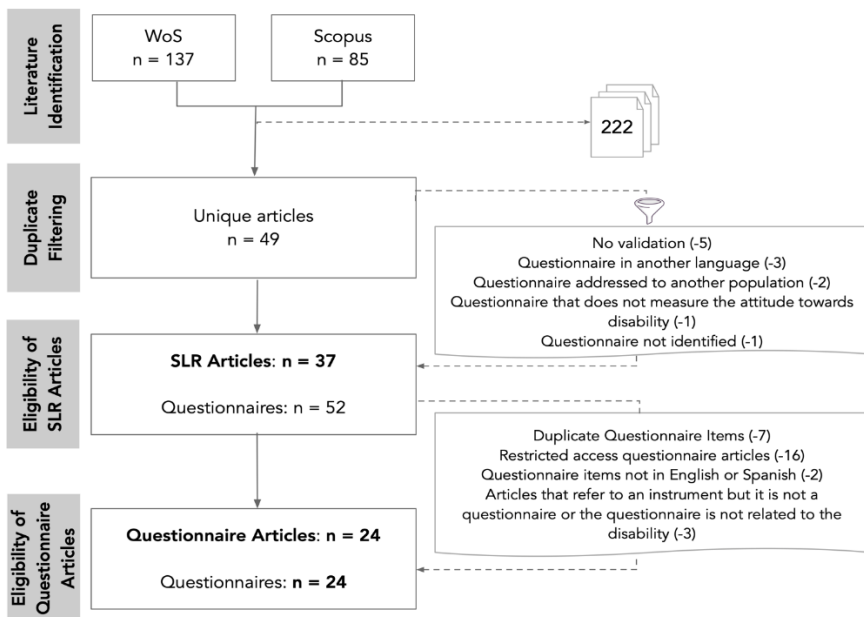


Figure 1. Overview of the selection process

Data collection and analysis procedure

The data extraction of the documents to answer the RQs was recorded on an electronic sheet. Then, the articles selected for the study were identified with no-sequential codes. The letter W is for WoS articles, S for Scopus, and Q for the questionnaire articles. Finally, descriptive and frequency analyses were used to examine the information.

3. Results and Discussion

SLR Articles

The items found in the SLR are 37: W01 (Tomczyszyn, Pańczuk, and Szepeľuk 2022), W02 (Rodríguez-Servián, Alcázar-Jiménez, and Cabeza-Ruiz 2022), W04 (Rojo-Ramos et al. 2022), W05 (Aykora and Uğraş 2020), W08 (Macías Gómez et al. 2019), W09 (Stamatović, Maksimović, and Zlatić 2019), W10 (Polo Sánchez and Aparicio Puerta 2018), W11 (Kunz, Luder, and Kassis 2021), W13 (Arias-Sanchez, Diez-Toscano, and Cubero Pérez 2020), W14 (A. Sharma, Malik, and Nagy 2022), W15 (Abellán, Sáez-Gallego, and Reina 2018), W18 (Kwon, Hong, and Jeon 2017), W19 (Álvarez Castillo and Buenestado Fernández 2015), W20 (González Cortés and Roses Campos 2016), W21 (Angenscheidt Bidegain and Navarrete Antola 2017), W22 (Alzyoudi, Opoku, and Moustafa 2021), W24 (Atoche-Silva et al. 2021), W25 (Reina et al. 2020), W26 (González Hernández and Baños Audije 2012), W27 (Negri-Cortés and Leiva-Olivencia 2021), W28 (Loreman, Sharma, and Forlin 2013), W29 (Felipe-Rello, Tejero-González, and Garoz Puerta 2020), W30 (Galván Ruiz and García Cedillo 2017), W31 (Benomir, Roderick., and Beail 2016), W32 (Cabezas Gómez et al. 2022), W35 (Hamad Alnahdi 2021), W36 (Araya Cortés, González Arias, and Cerpa Reyes 2014), W37 (Bermúdez and Navarrete 2020), W38 (Torres et al. 2019), S08 (Freer and Kaefer 2021), S10 (Ochoa-Martínez 2021), S11 (Goulden 2020), S13 (Abellán et al. 2020), S14 (Alorani, Ibrahim, and Al-Labadi 2020) S16 (Davidovitch et al. 2019), S20 (González Arias et al. 2016), S21(Castro et al. 2016).

Questionnaire metadata (RQ-1)

Table 1 shows the 24 questionnaires that could be found in the references of the SLR articles. Of the 24 questionnaires, the "Scale of Attitudes towards Persons with Disabilities (EAPD)", in its various publications (as an example Q12), and the questionnaire "Multidimensional Attitude Scale towards Persons with Disabilities (MAS)" (Q17) are two of the most used instruments.

Questionnaires Q12, Q19 and Q37 were not found in the primary sources, but the questions were found in other articles.

Table 1. Questionnaires to measure the attitude towards PWD

Cod.	SLR Art.	Name of the Questionnaire / Acronym / Reference	Addressed to	Disability
Q01	W15	Attitudes towards Inclusion of Students with Disabilities in Physical Education Questionnaire (AISDPE) (Reina et al. 2016)	Students	General
Q02	S14	Attitude toward Disabled Persons (ATDP) (Yuker, Block, and Young 1970)	People with and without disabilities	General
Q03	W02	CAIPE-In y CAIPE-Vi (Rodríguez-Servián, Alcázar-Jiménez, and Cabeza-Ruiz 2022)	Students	Visual and intellectual
Q04	W02	Actitudes de los alumnos hacia la integración en Educación Física (CAIPE-R) (Ocete et al. 2017)	Students	General
Q06	W02	Attitudes towards Integrated Physical Education-Spanish version (CAIPE-SP) (Cordente-Mesas et al. 2016)	Students	General
Q08	W22	Chedoke-McMaster Attitudes towards Children with Handicaps (CATCH) scale. (Rosenbaum, Armstrong, and King 1986)	Students	General
Q10	S08	Educators' Attitudes toward Disability Scale (EADS) (Freer 2018)	Professors	General

Cod.	SLR Art.	Name of the Questionnaire / Acronym / Reference	Addressed to		Disability
Q12	W37, W08, W38, S20	Escala de Actitudes hacia las Personas con Discapacidad (EAPD) de 1992. Cuestionario hallado en (Moreno et al. 2006)	Unspecified		General and specific
Q17	W01, W05, S11	Multidimensional Attitude Scale toward Persons with Disabilities (Findler, Vilchinsky, and Werner 2007)	Unspecified		General
Q19	W35	Mental Retardation Attitude Inventory-Revised (MRAI-R). Cuestionario hallado en (Hampton and Xiao 2008)	Students		Intellectual disability
Q21	W11	Sentiments, Attitudes, and Concerns about Inclusive Education Revised Scale (SACIE-R) (Forlin et al. 2011)	Teachers preparation (Students)	in	General
Q23	W04	Escala de Actitud hacia el Alumnado con Discapacidad en Educación Física para la etapa de Educación Primaria (EAADEF-EP) (Abellán et al. 2020)	Students		General
Q24	S11	The Social Worker's Attitudes Toward Disability Scale (SWADS) (Cheatham, Abell, and Kim 2015)	Professionals and students of social work		General
Q26	W11	Teacher Efficacy in Inclusive Practice Scale (TEIP) (U. Sharma, Loreman, and Forlin 2012)	Professors		General
Q29	S20	Escala de Actitudes hacia las Personas con Discapacidad (EAPD) de 2016 (González Arias et al. 2016)	Professionals in the areas of health and education		General
Q30	S10	Actitudes de los universitarios hacia los estudiantes con discapacidad (Suriá Martínez, Ordóñez Rubio, and Martínez Maciá 2015)	University students		General
Q34	W30	Cuestionario de actitudes hacia personas con discapacidad (Galván Ruiz and García Cedillo 2017)	School students		Various disabilities
Q35	W32	Goratu Questionnaire (Cabezas Gómez et al. 2022)	Secondary education students		Intellectual disability
Q37	W21	Escala de Opinión acerca de la Educación Inclusiva. Cuestionario hallado en (Bravo and Cardona Moltó 2013)	Teachers and managers		Special educational needs
Q43	W09	No name (Stamatović, Maksimović, and Zlatić 2019)	Teachers preparation (students)	in	General
Q44	W13	No name (Arias-Sanchez, Diez-Toscano, and Cubero Pérez 2020)	Professors		General
Q45	W20	No name (González Cortés and Roses Campos 2016)	University students		General
Q48	W14	Attitude Scale for High School Teachers (ISHST) (Wiggins 2012)	High school teachers		General
Q52	W29	The CATCH Scale (Felipe-Rello, Tejero-González, and Garoz Puerta 2020)	School students		General

Population (RQ-2)

Country

Research on the attitudes of students and teachers towards PWD has its prevalence in Spain with 15 publications (W02, W04, W08, W10, W13, W15, W19, W20, W25, W26, W7, W29, W32, S13, S20). Mexico follows it with three (W30, W38, S10), then with two articles Canada (W28, S08), Chile (W36, S21), the United States (W18, S11) and Uruguay (W21, W37); the rest of countries, with one article, appear in Figure 2.



Figure 2. Geographical distribution of SLR articles

Ages

The overall average age across all investigations is 20 years. Two studies had children aged 3 to 5 years as participants (W18, W30). Eight studies involved young people aged 9 to 19 years (W02, W04, W15, W29, W32, W25, W26, S13); in five studies, the age ranged from 15 to 34 years (W01, W19, W22, W24, W27) and in four studies the participants ranged from 20 to 70 years (W10, W38, S08, S20).

Educational level

There are three studies conducted at the initial or elementary level (W10, W18, W30), five in the first level (W04, W29, W30, W37, S13), nine in the second level (W02, W15, W25, W26, W27, W29, W32, S16, S8), eighteen in the third level (W01, W05, W08, W09, W11, W13, W14, W19, W20, W22, W24, W28, W31, W35, W36, S08, S10, S11), and three in the fourth level studies (W08, W14, W38).

Population

The study population is mostly students (in 33 articles except for W21, W37, S20 and S21), in seven articles study teachers' attitudes (W21, W27, W31, W37, S16, S20, S21) and three articles both (W27, W31, S16). There are six studies in public institutions (W04, W10, W22, W25, W37, S13), three in private institutions (W10, W32, W36), and two in public institutions (W32, W10). W37 analyses the attitude of teachers in rural and urban schools.

Structure of the questionnaires (RQ-3)

Dimensions

Of the 24 questionnaires, 5 (Q01, Q08, Q17, Q24 and Q34) explicitly describe that they were based on Triandis' three-component model: cognitive, emotional and behavioural (1971). Other

questionnaires mention that they took this same model as a reference. A total of 533 items were obtained from 24 questionnaires (all items can be consulted at <https://bit.ly/3k0qjcs>). In this study, we manually classified these three dimensions. In addition, we added the dimension of rights and inclusion because it was mentioned in some questionnaires. The questionnaire with the most significant number of items is Q02 (ATDP), with 80 items, and the smallest is Q23 (SASDPE-PE), with 4. Of all the items, 43.1% correspond to the cognitive component, 23.3% to the behavioral, 19.1% to the emotional and 14.5% to the rights and inclusion.

Demographic characteristics

It was found that only six questionnaires (Q01, Q02, Q08, Q24, Q26 and Q34) did not ask participants about their demographic characteristics. In the others, gender is the most frequently asked variable (67%), followed by age (45%), and in third place is asked about the respondents' experience or familiarity with PWD (29%).

Questionnaire questions (RQ-4)

Relevant terms

Using Python's WordCloud library, the text of the 533 items was analysed, and a tag cloud was constructed to highlight the important terms of each dimension (see Figure 3). The terms disability, disabled, student, pupil, pupil, education, prepositions, articles, conjunctions and other related terms were abolished because they were too common.



Figure 3. Word cloud by dimension

Sentiment towards disability

In order to know how the items of the questionnaires are presented, the text of each one was analysed manually, and they were classified into two groups considering their connotation or

sentiment towards PWD: Positive (47.0%), negative (45.9%), in favour of equal treatment (2.1%), and in favour of differentiated treatment (5.0%). For each dimension, there is an example of the questions according to their positive (green colour) or negative (red colour) connotation (see Figure 3).

Item characteristics

Based on the four dimensions into which each item was classified, a second, more detailed classification was carried out. Based on the different classification schemes used in the questionnaires, they were grouped according to the characteristics described in Figure 4.

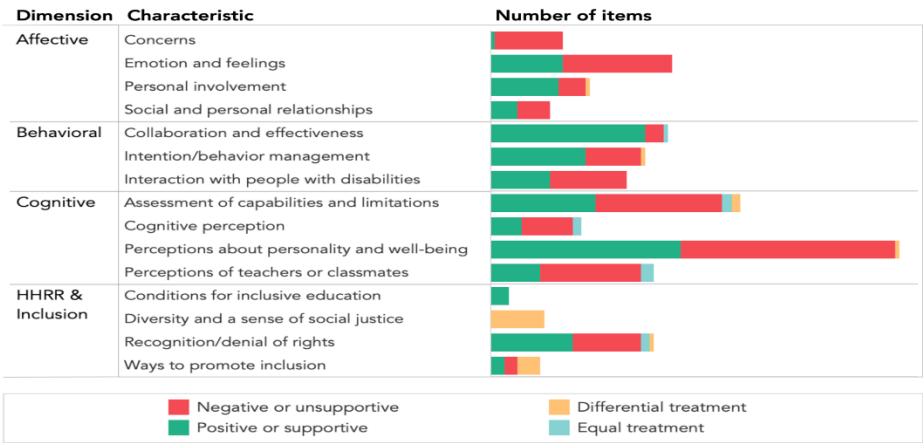


Figure 4. Characteristics of the items

Types of items and responses (RQ-5)

Items

Questionnaires have a variety of question types, such as: conditional sentences (e.g., "If I initiate the conversation, he/she will thank me"), case-based conditional sentences (e.g., "If Pedro were in my Physical Education class, I would talk to him/her and be his/her friend"), interrogative sentences (e.g., "Do you think people with disabilities can have friends?"). Positive statements (e.g., "People with disabilities can lead a normal social life") and negative statements (e.g., "I would not mind having a person with a disability as a friend"). A few questions do not use positive language (e.g., "It would be appropriate for people with disabilities to work and live with normal people").

Type of response

In all 24 questionnaires, items were designed with Likert scales, the difference being the number of options ranging from 3 to 7 points. Only the Q45 questionnaire includes a variety of response types, such as 5-point Likert, dichotomous and multiple choice.

Validation (RQ-6)

According to Hinki (1995), there are three phases (P) to create a rigorous measurement scale: (P1) item development, (P2) scale development and (P3) scale evaluation. They, in turn, consist of 9 steps (S): (P1S1) domain identification, (P1S2) content validity, (P2S3) expert validation, (P2S4) sampling, (P2S5) item reduction, (P2S6) factor extraction, (P3S7) dimensionality testing, (P3S8) reliability testing, and (P3S9) validity testing. Table 2 explains what each step involves. In addition, the questionnaire items' level of depth (high - green, medium - yellow, low - red, null - grey) with which the validation process was carried out was analysed according to its phases and steps (see Figure 5).

Table 2. Process for creating measurement scales according to Hinki

Phase/Step	Product of the validation process
P1S1	The existence of the domain or construct refers to the concept, attribute or latent characteristics of the object of study. Besides, a systematic review process for constructing the item system (Haynes, Richard, and Kubany 1995).
P1S2	The existence of information-gathering processes with high data quality standards(Hinkin 1995).
P2S3	The existence of validation processes by expert focus groups or any activity that allows validation of the domain and construct of the measurement instrument. Processes that guarantee that the measurement is significant for the population under study (Fowler 1995; Morgado et al. 2018).
P2S4	The existence of information-gathering processes with high data quality standards (MacCallum et al. 1999; Clark and Watson 1995).
P2S5	The existence of item reduction processes to ensure parsimonious, functional and internally consistent items (Thurstone 1947).
P2S6	The existence of factor extraction processes through multivariate techniques to determine the significant domain or construct (McCoach, Gable, and Madura 2013).
P3S7	The existence of dimensionality tests through clustering, confirmatory factor analysis or variance tests, among others (Brown 2015).
P3S8	The existence of consistency tests on the measurement instrument (Cronbach 1951).
P3S9	The existence of a systematic process from steps 1 to 8 (Raykov and Marcoulides 2011)

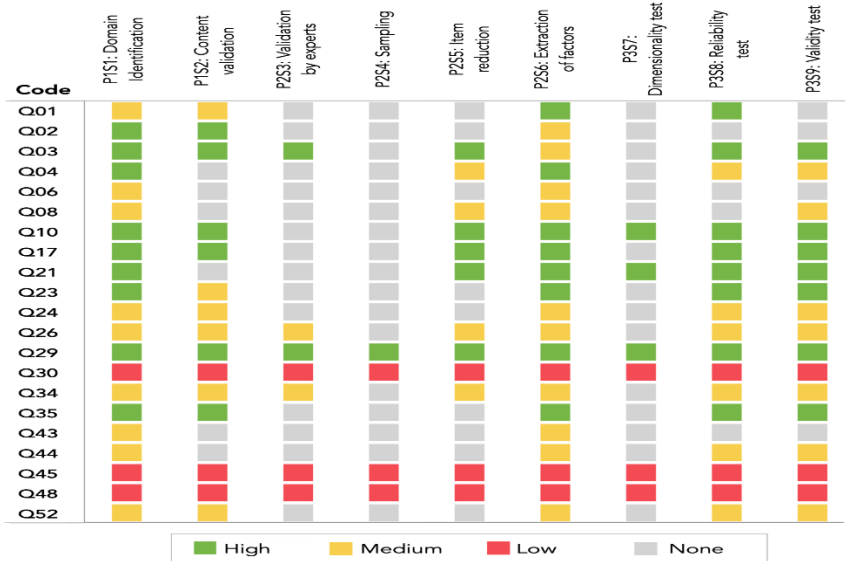


Figure 5. Level of compliance associated with the validation phases and steps

Theoretical foundation (RQ-7)

Most questionnaires on attitudes toward PWD (Q01, Q03, Q08, Q17, Q23, Q24, Q26, Q29, Q30, Q34, Q35, Q48, Q52) were based on Triandis' three-component model: cognitive, emotional and behavioural. Triandis defines attitude as an emotionally charged idea that predisposes to a class of actions in the face of a given class of social situations. As such, attitudes include behavioural intention (how one acts or what one does), as well as cognitive (what one thinks or knows) and emotional (what one feels) components (1971). Examples of this triad are:

- Cognitive dimension: "I think that people with disabilities have more difficulty than others in achieving the same personal and/or professional accomplishments."
- Emotional dimension: "I am afraid to be around someone with a disability."
- Behaviour dimension: "I usually keep contact with people with disabilities short and end them as soon as possible".

The rest of the questionnaires do not identify the theoretical framework on which they are based or mention it superficially.

Intent (RQ-8)

Objectives of the SLR articles (RQ-8)

The objectives of the 37 SLR articles can be grouped as indicated in Table 3.

Table 3. Objectives of the SLR articles.

Objective	SLR Articles
Construction and validation of the questionnaire	W02, W09, W13, W29, W30, W32, S13, S20
Comparison of two population groups	W28, W31, W36, W38, S21
Comparison with other studies	W01
Educative intervention	W15, W25, W26, S10
Exploration of people's attitudes regarding sociodemographic factors...	W37, W38, S08
...in general	
...age	W19, W24
...gender	W04, W13, W19, W24
... geographic location	W28, W31
... employment context (urban, rural, special center)	W04, W30
... training courses	W05, W9, W15, W18, W20, W35, S14
... specialty or career	W08, W10, W19, W21, W36
... educational level of teachers	W18, W19, W20
... educational level of students	W09
... years of teaching experience	W18
... previous experience working with PWD	W19, W20, S8
... contact with PWD	W08, W11, W13, W15, W19, W24, W35
Exploration of the attitude towards inclusion	W13, W14, W21
Exploration of the attitude towards PWD...	
... in general	W22, W27, W36
... physical	W01, S21
... visual	W02, W25, W26
... intellectual	W02, W15, W27, W31, W32, W35, W38, S14, S21
... auditive	S10, S14
... autism spectrum disorder (ASD)	S14, S16
... learning difficulties	S14

Results / Conclusions of the SLR articles (RQ-8)

As seen in Table 4, the attitude of teachers and students is positive for the most part. However, there are still studies that state negative attitudes. Furthermore, there is no consensus to determine that a good attitude depends on a particular variable such as age, sex, or educational level. Nevertheless, a better attitude is attributed when students and teachers have received training on disability and teachers have had previous work experience with PWD.

Table 4. Summary of results and conclusions of the SLR articles

	Positive attitude	Negative attitude	Not significant
Teachers and students	W08, W09, W10, W19, W20, W21, W36, W37, W38, S08	W22, W24, W27, S16	
Gender			W01, W05, W08, W10, W13, W22, W31, W38, S08, S14
Women	W04, W19, W24, W29		
Men	S13		
Edad			W01, W10, W29, W37, W38, S8
Young	W22, W24		
Adults	S13		
Educational level of students			W13, W14, W36
Higher level	W09		
Educational level of teachers			S08
Higher level	W10, W18		
Teaching experience			W10, W14, W37
Increased teaching experience	W21		
Disability training	W05, W18, W19, W20, W35, S14		W37
Specialty (career)			W36, S08
Humanities and Education Career	W24		
Early Childhood Education		W37	
Contact with PWD	W11, W14, W15, W18, W20, W22, W25, W26, W29, W30, W35		W05, W10, W13, W24, W36, W37, W38
Work experience with PWD	W19, W37, W38, S08		S14

4. Conclusions

Twenty-four questionnaires were identified to measure teachers' and students' attitudes towards disability. Most of these questionnaires, based on Likert scales, follow the Triandis model (cognitive, emotional and behavioral). It was determined that the scale of attitudes towards people with disabilities (EAPD) (González Arias et al. 2016) is one of those that best performed the validation process according to Hinkin (1995), in addition (in its various publications) it was determined that it is the most used (unlike the ATDP of Yuker et al. (1970) as concluded by Leal et al.).

Regarding the structure of the questionnaires, most of them address the cognitive dimension. Approximately 4 out of 10 items posed in the questionnaires attempt to inquire about the

participants' thoughts or perceptions towards PWD. In addition, it was found that the questions in the questionnaires are mostly phrased as positive or negative sentences. These are closed polytomous response questionnaires that do not offer the participant the possibility of sharing their perceptions and feelings more freely or openly.

There is more interest in research directed towards students (second and third level) and their attitude towards their peers with disabilities. There are few studies directed towards teachers. This contradicts the results of the study by García-Fernández et al. who, a decade ago, found that more is published on the attitude of the teaching staff than that of the student body. Intervention programs to raise awareness of disability should be aimed especially at teachers, as the key players in educational inclusion that they are. A research opportunity has been found here.

Disability is addressed in general terms in almost all the questionnaires. It is interesting that several research studies intellectual disability, perhaps because it is one of the greatest challenges for teachers (compared to other types of disabilities) since it is directly related to the ability to learn.

According to the classification made to the items of the questionnaires, we were able to detect that the dimension that is most addressed is cognitive (43.1%), then there is Behavioral (23.3%), Affective is in third place (19.1%) and, the last part of the items is related to human rights and inclusion (14.5%). This leads to the reflection that researchers are more interested in knowing what people think before knowing what people feel or how they act towards people with disabilities. This is significant because the Convention on the Rights of Persons with Disabilities calls for greater social awareness of persons with disabilities, and awareness is not only knowledge but also empathetic feelings and good actions. Therefore, the creation of training programs that not only promote knowledge, but also behaviour changes can be important to make known to the scientific community.

It was detected that the items are written providing them with different connotations: positive or supportive towards PWD (47.0%), negative or unsupportive (45.9%), in favour of differentiated treatment (5.0%) and in favour of equal treatment (2.1%). Finally, regarding the characteristics of each dimension, we found that the topics with which the items are most related are perceptions about personality and well-being of PWD, and the topic that is least inquired is about conditions for inclusive education.

In general, teachers' and students' attitudes towards PWD are positive, but, as Freer (2021) concluded, educational interventions are still required to change and improve the attitudes of teachers and students who still show disregard and disbelief of the capabilities of this group of people. Above all, as the results show, the more education on disability, the better the attitude towards PWD.

The demographic data did not include marital status or whether the person had suffered an accident that temporarily disabled him or her. Therefore, it could be investigated whether these variables modify attitudes toward disability.

It would be interesting to know if contact with PWD can be emulated by employing technology. In future work, we intend to measure whether there is any difference in attitudes between teachers

who have direct contact with PWD and teachers who have come to know PWD through films or television.

The limitation of our study was the lack of access to several articles to analyse their questionnaires. Hence the importance of publishing in Open Access.

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Disclosure statement

The authors reported no potential conflict of interest.

WORKS CITED

- Abellán, J., R. Ferriz, N. Sáez-Gallego, and R. Reina. 2020. "Attitudes toward Students with Disabilities in Physical Education: Validation of the Eaadef-Ep to the Stage of Primary Education." *Cultura, Ciencia y Deporte* 15 (44): 235–43. doi:10.12800/ccd.v15i44.1465.
- Abellán, J., N. Sáez-Gallego, and R. Reina. 2018. "Exploring the Effect of Contact and Inclusive Sport on Physical Education in the Attitudes toward Intellectual Disability of High School Students." *RICYDE: Revista Internacional de Ciencias Del Deporte* 14 (53): 233–42. doi:10.5232/ricyde2018.05304.
- Alorani, O., A. Ibrahim, and N. Al-Labadi. 2020. "Effect of Field Training on the Attitude of Students towards Persons with Disabilities in Special Education Centers." *International Journal of Education and Practice* 8 (2): 337–46. doi:10.18488/journal.61.2020.82.337.346.
- Álvarez Castillo, J. L., and M. Buenestado Fernández. 2015. "Predictors of Attitudes toward Inclusion of Students with Special Educational Needs in Future Education Professionals." *Revista Complutense de Educación* 26 (3): 627–45. doi:10.5209/rev_rced.2015.v26.n3.44551.
- Alzyoudi, M., M. Peprah Opoku, and A. Moustafa. 2021. "Inclusive Higher Education in United Arab Emirates: Will Perceived Knowledge of Inclusion Impact Positively on University Students' Attitudes Towards Learning With Peers With Disabilities?" *Frontiers in Education* 6 (December): 1–10. doi:10.3389/educ.2021.793086.
- Angenscheidt Bidegain, L., and I. Navarrete Antola. 2017. "Teachers' Attitudes towards Inclusive Education." *Ciencias Psicológicas* 11 (2): 233–43. doi:10.22235/cp.v11i2.1500.
- Araya Cortés, A., M. González Arias, and C. Cerpa Reyes. 2014. "Actitud de Universitarios hacia las Personas con Discapacidad." *Educación y Educadores* 17 (2): 289–305. doi:10.5294/edu.2014.17.2.5.
- Arias-Sanchez, S., P. Diez-Toscano, and R. Cubero Pérez. 2020. "Students with Special Educational Needs in the Classroom, What Could Future Teachers Expect?" *IJERI: International Journal of Educational Research and Innovation* 14 (July): 180–96. doi:10.46661/ijeri.4390.
- Atoche-Silva, Luz., V. Horna-Calderón, O. Vela -Miranda, and M. Sánchez-Chero. 2021. "Attitudes towards People with Disabilities in University Students." *Revista de La Universidad Del Zulia* 12 (35): 209–26. doi:10.46925/rdluz.3512.
- Aykora, E., and S. Uğraş. 2020. "Investigating the attitudes of Special Educated Physical Education Prospective Teachers towards Disabled People." *Physical Education of Students* 24 (1): 11–18. doi:10.15561/20755279.2020.0102.
- Benomir, A., N. Roderick., and N. Beail. 2016. "Attitudes towards People with Intellectual Disability in the UK and Libya: A Cross-Cultural Comparison." *Research in Developmental Disabilities* 51–52. Chicago: University of Illinois: 1–9. doi:10.1016/j.ridd.2015.12.009.

- Bermúdez, M., and I. Navarrete. 2020. "Teachers' Attitudes towards the Inclusion of Students with Disabilities." *Ciencias Psicológicas* 14 (1): 2107. doi:10.22235/cp.v14i1.2107.
- Blázquez Sánchez, N. 2017. "Validated Questionnaires: Solid Tools for Research." *Actas Dermo-Sifiliográficas* 108 (10): 892–93. doi:10.1016/j.ad.2017.09.005.
- Bravo, L., and M. Cardona Moltó. 2013. "Percepciones y Opiniones hacia la Educación Inclusiva del Profesorado y de las/os Equipos Directivos de los Centros Educativos de la Dirección Regional de Enseñanza de Cartago en Costa Rica." Universidad de Alicante. https://rua.ua.es/dspace/bitstream/10045/31675/1/tesis_lauraines_bravo.pdf.
- Brown, T. 2015. *Confirmatory Factor Analysis for Applied Research*. Guilford publications.
- Cabezas Gómez, D., M. Gerolin Pelucchi, A. Canto Combarro, and I. Vidorreta Gutiérrez. 2022. "Psychometric Properties of the Goratu Questionnaire 'Perceptions of People with Intellectual Disabilities' of Students of Secondary Education and High School." *Revista Complutense de Educacion* 33 (2): 311–24. doi:10.5209/rced.74294.
- Castro, L., J. Casas, S. Sánchez, V. Vallejos, and D. Zúñiga. 2016. "Perception of the Quality of Life of People with Disabilities and Its Relationship with Education." *Estudios Pedagógicos* 42 (2): 39–49. doi:10.4067/S0718-07052016000200003.
- Cheatham, L., N. Abell, and H. Kim. 2015. "Development and Validation of the Social Workers Attitudes toward Disability Scale." *Journal of Social Work Education* 51 (2): 379–97. doi:10.1080/10437797.2015.1012939.
- Clark, L., and D. Watson. 1995. "Constructing Validity: Basic Issues in Objective Scale Development." *Psychological Assessment* 7 (3): 309–19. doi:10.1037/1040-3590.7.3.309.
- Cordente-Mesas, D., S. González-Villora, M. Block, and O. Contreras-Jordán. 2016. "Structure, Validity and Reliability of the Children's Attitudes towards Integrated Physical Education-Spanish Version (CAIPE-SP)." *European Journal of Adapted Physical Activity* 9 (2). *European Journal of Adapted Physical Activity*: 3–12. doi:10.5507/euj.2016.005.
- Cronbach, L. 1951. "Coefficient Alpha and the Internal Structure of Tests." *Psychometrika* 16 (3): 297–334. doi:10.1007/BF02310555.
- Davidovitch, N., A. Ponomaryova, H. Guterman, and Y. Shapira. 2019. "The Test of Accessibility of Higher Education in Israel: Instructors' Attitudes toward High-Functioning Autistic Spectrum Students." *International Journal of Higher Education* 8 (2): 49–67. doi:10.5430/ijhe.v8n2p49.
- Felipe-Rello, C., C. Tejero-González, and I. Garoz Puerta. 2020. "The Catch Scale: Validation of a Reduced Version Translated into Spanish for the Measurement of Attitudes towards Disability." *Bordon. Revista de Pedagogia* 72 (2): 83–97. doi:10.13042/Bordon.2020.72825.
- Findler, L., N. Vilchinsky, and S. Werner. 2007. "The Multidimensional Attitudes Scale toward Persons with Disabilities (MAS): Construction and Validation." *Rehabilitation Counseling Bulletin* 50 (3): 166–76. doi:10.1177/00343552070500030401.
- Forlin, C., C. Earle, T. Loreman, and U. Sharma. 2011. "The Sentiments, Attitudes, and Concerns about Inclusive Education Revised (SACIE-R) Scale for Measuring Pre-Service Teachers' Perceptions about Inclusion." *Exceptionality Education International* 21 (3): 50–65. doi:10.5206/eei.v21i3.7682.
- Fowler, F. 1995. *Improving Survey Questions: Design and Evaluation*. Sage.
- Freer, J. 2018. "The Educators' Attitudes toward Disability Scale (EADS): A Pilot Study." *International Journal of Disability, Development and Education* 65 (6). Routledge: 581–98. doi:10.1080/1034912X.2018.1426098.
- Freer, J. 2021. "Students' Attitudes toward Disability: A Systematic Literature Review (2012–2019)." *International Journal of Inclusive Education* 0 (0). Taylor & Francis: 1–19. doi:10.1080/13603116.2020.1866688.
- Freer, J., and T. Kaefer. 2021. "Experiences Matter: Educators' Attitudes toward Disability in Higher Education." *Canadian Journal of Higher Education* 51 (4): 54–66. doi:10.47678/CJHE.V51I4.189093.
- Galván Ruiz, J., and I. García Cedillo. 2017. "Attitudes of the Peers towards Children in Condition of Disability." *Actualidades Investigativas en Educación* 17 (2): 1–25. doi:10.15517/aie.v17i2.28673.
- García-Fernández, J., C. Inglés, M. Vicent Juan, C. González Macià, and C. Mañas Viejo. 2017. "Attitudes towards Disability in Education through the SSCI (2000–2011): A Topical and Bibliometric Analysis Abstract." *Electronic Journal of Research in Education Psychology* 11 (29): 139–66. doi:10.25115/ejrep.v11i29.1561.

- García-Holgado, A., F. García Peñalvo, and M. José Rodríguez Conde. 2015. "Definition of a Technological Ecosystem for Scientific Knowledge Management in a PhD Programme." In *Proceedings of the Third International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'15)* (Porto, Portugal, October 7-9, 2015), 695–700.
- García-Peñalvo, F. 2013. "Education in Knowledge Society: A New PhD Programme Approach." In *Proceedings of the First International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'13)* (Salamanca, Spain, November 14-15, 2013), 575–577.
- García-Peñalvo, F. 2014. "Education in Knowledge Society, an Interdisciplinary PhD Program." *Education in the Knowledge Society (EKS)* 15 (1): 4–9.
- González Arias, V., B. Arias Martínez, M. Verdugo Alonso, M. Rubia Avi, and C. Jenaro Río. 2016. "Assessment of Staff Attitudes towards People with Disability." *Siglo Cero. Revista Española Sobre Discapacidad Intelectual* 47 (258): 7–41.
- González Cortés, E., and S. Roses Campos. 2016. "Invisible Barriers? College Student's Attitudes towards Peers with Disabilities." *Revista Complutense de Educacion* 27 (1): 219–35. doi:10.5209/rev_RCED.2016.v27.n1.45702.
- González Hernández, J., and L.M. Baños Audije. 2012. "Study on Changing Attitudes towards Disability in Physical Activity Classes." *Cuadernos de Psicología Del Deporte* 12 (2): 101–7.
- Goulden, A. 2020. "Disability Competency in Social Work Education: Tools for Practice Teaching." *Journal of Practice Teaching and Learning* 17 (2): 61–77. doi:10.1921/JPTS.V17I2.1175.
- Hamad Alnahdi, G. 2021. "The Interaction between Knowledge and Quality of Contact to Predict Saudi University Students' Attitudes toward People with Intellectual Disability." *International Journal of Developmental Disabilities* 67 (3). Taylor & Francis: 202–8. doi:10.1080/20473869.2019.1638582.
- Hampton, N, and F. Xiao. 2008. "Psychometric Properties of the Mental Retardation Attitude Inventory-Revised in Chinese College Students." *Journal of Intellectual Disability Research* 52 (4): 299–308. doi:10.1111/j.1365-2788.2007.01020.x.
- Haynes, S., D. Richard, and E. Kubany. 1995. "Content Validity in Psychological Assessment: A Functional Approach to Concepts and Methods." *Psychol Assess* 7 (3). doi:10.1037/1040-3590.7.3.238.
- Hinkin, T. 1995. "A Review of Scale Development Practices in the Study of Organizations." *Journal of Management* 21 (5): 967–88.
- Kunz, A., R. Luder, and W. Kassis. 2021. "Beliefs and Attitudes toward Inclusion of Student Teachers and their Contact With People with Disabilities." *Frontiers in Education* 6 (March): 1–13. doi:10.3389/educ.2021.650236.
- Kwon, K., S. Young Hong, and H. Joo Jeon. 2017. "Classroom Readiness for Successful Inclusion: Teacher Factors and Preschool Children's Experience With and Attitudes Toward Peers with Disabilities." *Journal of Research in Childhood Education* 31 (3): 360–78. doi:10.1080/02568543.2017.1309480.
- Leal, N., C. Eusébio, and M. João. 2020. "Attitudes Towards People with Disabilities: A Systematic Literature Review." 577–98.
- Loreman, T., U. Sharma, and C. Forlin. 2013. "Do Pre-Service Teachers Feel Ready to Teach in Inclusive Classrooms? A Four Country Study of Teaching Self-Efficacy." *Australian Journal of Teacher Education* 38 (1): 27–44. doi:10.14221/ajte.2013v38n1.10.
- MacCallum, R., K. Widaman, S. Zhang, and S. Hong. 1999. "Sample Size in Factor Analysis." *Psychological Methods* 4 (1): 84–99. doi:10.1037/1082-989X.4.1.84.
- Macías Gómez, M., J. L. Aguilera García, M. Rodríguez Sánchez, and S. Gil Hernández. 2019. "A Cross-Sectional Study on the Attitudes of Undergraduate and Master Students in Educational Sciences towards People with Disabilities." *Revista Electronica Interuniversitaria de Formacion del Profesorado* 22 (1): 225–40. doi:10.6018/reifop.22.1.353031.
- McCoach, D., R. Gable, and J. Madura. 2013. *Instrument Development in the Affective Domain*. Vol. 10. New York: Springer.
- Moreno, F., I. Rodríguez, D. Saldaña, and A. Aguilera. 2006. "Actitudes ante la Discapacidad en el Alumnado Universitario Matriculado en Materias Afines." *Revista Iberoamericana de Educación* 40: 5–25. <http://riberdis.cedd.net/handle/11181/4373>.
- Morgado, F., J. Meireles, C. Neves, A. Amaral, and M. Ferreira. 2018. "Scale Development: Ten Main Limitations and Recommendations to Improve Future Research Practices." *Psicologia: Reflexão e Crítica* 3. doi:10.1186/s41155-016-0057-1.

- Negri-Cortés, M., and J. Leiva-Olivencia. 2021. "Socio-Educational Attitudes and Conceptions about the Youngs with Intellectual Functional Disability in the Andalusian School Context." *Revista Electrónica Educare* 25 (3): 1–19. doi:10.15359/ree.25-3.23.
- Ocete, C., J. Pérez-Tejero, E. Franco, and J. Coterón. 2017. "Validación de la Versión Española del Cuestionario 'Actitudes de los Alumnos hacia la Integración en Educación Física (CAIPE-R)'. " *Psychology, Society and Education* 9 (3): 447–57. doi:10.25115/psye.v9i3.1025.
- Ochoa-Martínez, P. 2021. "Teaching Experience in Physical Education to Improve Attitudes towards Hearing Impairment in Pre-Service Future Professionals of Physical Activity and Sport." *Retos* 2041 (40): 174–79. doi:10.47197/retos.v1i40.81296.
- Page, M., D. Moher, P. Bossuyt, I. Boutron, T. Hoffmann, C. Mulrow, L. Shamseer, et al. 2021. "PRISMA 2020 Explanation and Elaboration: Updated Guidance and Exemplars for Reporting Systematic Reviews." *The BMJ* 372. doi:10.1136/bmj.n160.
- Polo Sánchez, T., and M. Aparicio Puerta. 2018. "First Steps towards Inclusion: Attitudes towards Disability in Early Childhood Education Teachers." *Revista de Investigación Educativa* 36 (2): 365–79. doi:10.6018/rie.36.2.279281.
- Raykov, T., and G. Marcoulides. 2011. *Introduction to Psychometric Theory*. New York: Routledge.
- Reina, R., Y. Hutzler, M. Iniguez-Santiago, and J. Moreno-Murcia. 2016. "Attitudes towards Inclusion of Students with Disabilities in Physical Education Questionnaire (Aisdpe) : A Two-Component Scale in Spanish." *European Journal of Human Movement* 36: 75–87.
- Reina, R., M. Iniguez-Santiago, R. Ferriz-Morell, C. Martínez-Galindo, M. Cebrián-Sánchez, and A. Roldan. 2020. "The Effects of Modifying Contact, Duration, and Teaching Strategies in Awareness Interventions on Attitudes towards Inclusion in Physical Education." *European Journal of Special Needs Education* 37 (1). Routledge: 1–17. doi:10.1080/08856257.2020.1842973.
- Rodríguez-Servián, M., R. Alcázar-Jiménez, and R. Cabeza-Ruiz. 2022. "Students' Attitude towards Inclusive Physical Education According to the Type of Disability: Validation of Two Questionnaires." *RICYDE: Revista Internacional de Ciencias Del Deporte* 18 (68): 127–40. doi:10.5232/ricyde2022.06805.
- Rojo-Ramos, J., A. Vega-Muñoz, N. Contreras-Barraza, and S. Barrios-Fernandez. 2022. "Female and Rural School Students Show more Positive Attitudes toward Disability during Physical Education Lessons." *International Journal of Environmental Research and Public Health* 19 (10). doi:10.3390/ijerph19105881.
- Rosenbaum, P., R. Armstrong, and S. King. 1986. "Children's Attitudes toward Disabled Peers: A Self-Report Measure." *Journal of Pediatric Psychology* 11 (4): 517–30. doi:10.1093/jpepsy/11.4.517.
- Sharma, A., R. Malik, and H. Nagy. 2022. "Exploring the Teachers' Perception Towards Educational Inclusion: A Study of Teachers' in Pune, India." *Journal on Efficiency and Responsibility in Education and Science* 15 (1): 23–32. doi:10.7160/eriesj.2022.150103.
- Sharma, U., T. Loreman, and C. Forlin. 2012. "Measuring Teacher Efficacy to Implement Inclusive Practices." *Journal of Research in Special Educational Needs* 12 (1): 12–21. doi:10.1111/j.1471-3802.2011.01200.x.
- Stamatović, J., J. Maksimović, and L. Zlatić. 2019. "Future Teachers' Social Competences for Inclusion." *Croatian Journal of Education* 21 (3): 965–88. doi:10.15516/cje.v21i3.2984.
- Suriá Martínez, R., T. Ordóñez Rubio, and D. Martínez Maciá. 2015. "Validación de la Escala Actitudinal hacia la Discapacidad entre los Estudiantes Universitarios." In *XIII Jornadas de Redes de Investigación en Docencia Universitaria: Nuevas Estrategias Organizativas y Metodológicas en la Formación Universitaria para Responder a la Necesidad de Adaptación y Cambio*, 2612–21. <https://dialnet.unirioja.es/servlet/articulo?codigo=5903035&orden=1&info=link%0A>.
- Thurstone, L. 1947. "Multiple-Factor Analysis; a Development and Expansion of the Vectors of Mind."
- Tomczyszyn, D., A. Pańczuk, and A. Szepełuk. 2022. "Attitudes of Students of Social Sciences and Humanities towards People with Physical Disabilities (MAS-PL)." *International Journal of Environmental Research and Public Health* 19 (3): 1–14. doi:10.3390/ijerph19031544.
- Arellano Torres, A., M. Gaeta González, F. Peralta López, and J. Cavazos Arroyo. 2019. "Attitudes toward Disability in a Mexican University." *Revista Brasileira de Educação* 24: 1–20. doi:10.1590/S1413-24782019240023.
- Triandis, H. 1971. *Attitude and Attitude Change*. New York, USA: Wiley Foundations of Social Psychology.
- WHO, and World Bank. 2011. *Informe Mundial Sobre La Discapacidad*. doi:10.18356/a0b1b1d1-en.
- Wiggins, C. 2012. "High School Teachers' Perceptions of Inclusion." *Liberty University*.
- Yuker, H., J. Block, and J. Young. 1970. "The Measurement of Attitudes toward Physically Disabled Persons." *Physical Appearance, Stigma, and Social Behavior*, 245–88. doi:10.4324/9781003308928-10.