

# The pillars of inclusive education for students with ASD

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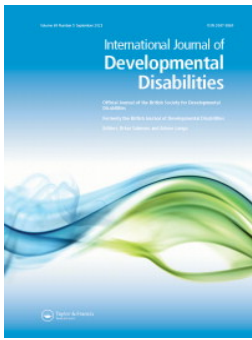
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# The pillars of inclusive education for students with ASD: a scoping review based on the case of Spain

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The inclusion of students with Autism Spectrum Disorder (ASD) has been a complicated, controversial and widely discussed issue amongst the countries of the Western world. The aim of this scoping review is to explore the topic of inclusion of students ASD in Spain as this is illustrated in the international literature. Empirical studies conducted in Spain in the past two decades, which are published in international peer-reviewed journals, were reviewed. Four databases (i.e. Scopus, Wos, PsycInfo and ERIC) were searched for the period 2000–2021 following a set of inclusion criteria and yielded a total of 11 articles to be reviewed. Themes emerging from the review include different types of inclusion, interventions and teaching strategies, teacher training, family-school collaboration, participation of people with ASD in research and gender differences. The discussion focuses on similarities but also differences with relevant publications from both Spain and internationally. The paper closes with implications for practice and ideas for future research.

**Keywords:** Autism Spectrum Disorder (ASD); inclusion; scoping review; Spain

## Introduction

There has been a long debate around the education of people with Special Educational Needs (SEN) and the decision around the most appropriate context for their education. Since the United Nations (1948, Article 13) which defends the right to education for all, more students with SEN have been attending mainstream schools. Inclusive education has become a global movement since the Salamanca Statement, which declared that the best way to educate all students is within the same education system respecting and attending to their differences (UNESCO 1994). Echeita and Sandoval (2002) defined inclusion as the process of identifying and minimising barriers to students' learning and participation, as well as maximising resources for this purpose. Inclusion is not only a right but it is also likely to lead to better quality of life (Schalock and Verdugo 2007). However, despite efforts to adapt to the needs, characteristics and possibilities of students with SEN (Rosenberg et al. 2008), inclusion is not the case in many schools as a number of changes at organisational, didactic and training level should be put in place (Boer et al. 2011).

For inclusion to happen schools need to restructure existing processes and implement innovations which promote the presence, participation and learning of all (Echeita 2008). Changes in the design and development of the curriculum are also needed (Peirats and Cortés 2016). It goes without saying that this path calls for the transformation of the educational system, but also for a change in the wider society (Tárraga-Mínguez and Tarín-Ibáñez 2013). Catering for a heterogeneous student body is a major challenge for inclusion; to this end, educationalists should provide adequate strategies and resources offering an adapted pedagogy and an optimal level of individualised intervention (Barnard et al. 2000).

International literature shows that there is a great deal of knowledge available on the schooling of students with autism spectrum disorder (ASD) in order to make the right to inclusive education effective, but little materialisation in successful practices. A number of reviews have been published on the matter, which overall show the difficulties of not having sufficient resources and poorly trained teachers to implement an inclusive pedagogy that allows the values of inclusion to be embodied in classroom practices (Peters and Forlin 2011), the dilemmas that families are exposed to in terms of the schooling of these students (Marshall and Goodall 2015) and little or no work on the

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promotion of social skills (Falkmer et al. 2015). Anderson et al. (2017) reported that inclusion research is limited and geographically restricted (mainly to the US and UK) and these reviews, even if they are conducted by Spanish authors (e.g. González de Rivera et al. 2022), do not include studies from Spain.

As far as the educational legislative framework in Spain is concerned, it can be argued that inclusive education has progressively developed. The Law of Primary Education of 1945 (Boletín Oficial del Estado 1945) introduced the creation of special schools under state responsibility, and in 1970 (Law 14/1970 – LGE) (Boletín Oficial del Estado 1970) special education was placed within general education but as a parallel educational system. The educational reform of 1990 (Organic Law 1/1990 – LOGSE) (Boletín Oficial del Estado 1990) identified the need for support resources so that students with SEN could have their needs met and achieve their best within a single educational system.

The Organic Law 2/2006 (LOE) (Boletín Oficial del Estado 2006) created the concept of Specific Educational Support Needs (SESN), a term which is still used in Spain today. The main objective of this law is for all students to achieve their maximum development through personalised comprehensive care and the principles of normalisation and inclusion. In 2015, the Spanish Government, together with three state organisations which cater for individuals with ASD approved the Spanish Strategy on Autism Spectrum Disorders (Ministerio de Sanidad, Servicios Sociales e Igualdad (MSSSI) 2015). This is the reference framework in the definition of state and autonomous community (a first-level political and administrative division of the Spanish regions that grants them limited autonomy) policies on people with ASD. The Spanish Strategy on Autism promoted independent living, autonomy, full participation and inclusion, equality, accessibility and non-discrimination. Finally, the Organic Law of 3/2020 (LOMLOE) (Boletín Oficial del Estado 2020) stipulated the quality and inclusive capacity of the education system in order to improve school results and success. There has not yet been time to develop any legislation on inclusion or attention to diversity that LOMLOE specifies. Hence, the different autonomous communities follow their most updated legislation which can differ substantially for each community. In the Valencian Community, for example, there is Order 20/2019 which regulates the organisation of the educational response for the inclusion of SESN students in Valencian schools (Diari Oficial de la Generalitat Valenciana 2019).

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterised by difficulties in communication and social interaction as well as repetitive and restrictive patterns of behaviours, interests and activities (American Psychiatric Association 2013). In this paper the term ASD, as opposed to autism, will be

used as this is closer to the term TEA (Trastorno del Espectro del Autismo) which is the most widely used and accepted term for autism in Spain. The prevalence of ASD in Europe (Autism Europe 2020) and in Spain more specifically (Morales-Hidalgo et al. 2018) is around 1%, which means that approximately 470,000 people in Spain have ASD. According to data from the 2020 Report on the State of the Education System of the Ministry of Education and Vocational Training (Roca et al. 2020), a total of 175,308 students with SESN were enrolled in mainstream schools throughout Spain during the 2018–2019 school year, 41,264 of whom have ASD. This figure makes ASD the third most common SESN in Spain after Intellectual Disabilities (48,331 students) and Severe Behavioural or Personality Disorders (49,648 students).

According to the current Spanish legislation summarised above, school placements of all students with SESN, should be as inclusive as possible and fully segregated settings should only be selected when the students' needs cannot be adequately met in a mainstream school (Boletín Oficial del Estado 2020). There are a number of alternatives to full attendance in mainstream school, such as (a) autism specific special education centres or generic special education centres, (b) special classrooms, and (c) combined types of schooling (Lozano and Alcaraz 2012). The latter two are not considered fully segregated as they contain some elements of inclusion.

This literature review presents and discusses home-grown research evidence related to the inclusion of students with ASD in Spain as displayed in the international literature (i.e. studies published in peer reviewed journals in English). And although it might not be very common for Spanish researchers to publish in English and as a result several relevant studies are likely to have been excluded from this review, it is the aim of this paper to look into the content of publications about Spain which made it to international journals.

## Methodology

A scoping review (Munn et al. 2018) of the literature was undertaken to identify and clarify key concepts.

### Search and selection process

The databases Scopus, WoS, PsycInfo and ERIC were searched in December 2021. For this search, terms 'Autism' OR 'ASD' OR 'Pervasive Developmental Disorder' OR 'Asperger' AND 'Inclus\*' AND 'Educat\*' AND 'Spain' were used.

### Eligibility criteria

The inclusion criteria for studies to be eligible for this review were the following: (a) to have been published between 2000 and 2021 in a peer-reviewed journal, (b) to be written in English, (c) to be an empirical study (i.e. researchers have collected evidence from participants), (d) have been conducted, at least partially, in

Spain (i.e. any region), (e) inclusion to be a key concept of the paper (i.e. appear on the title, abstract or keywords) and (f) to involve/refer to at least one participant with ASD. In the case of papers which also included data for students with other SEN, only information relating to students with ASD was included in this review. Although Asperger's Syndrome (AS) is not anymore a separate diagnostic label (American Psychiatric Association 2013), the term AS is used in this review for papers which refer to their participants using this diagnosis.

### Study selection

This literature review followed the guidelines of PRISMA (Moher et al. 2009). The selection process was carried out in four phases. The first phase consisted of identifying relevant papers. The second phase involved the screening to remove papers that did not meet the inclusion criteria. At this phase papers' titles and abstracts were considered. The first two phases were conducted exclusively by the first author. At the third phase, the two authors reviewed the papers in their entirety to ensure that these meet the inclusion criteria listed above. The fourth phase consisted of reviewing the reference lists of each of the included papers to locate additional papers that fit the inclusion criteria. The total number of the reviewed papers was 11. PRISMA flowchart in Figure 1 summarizes the number of articles identified, screened and included in the final review.

### Results

A thematic analysis approach was used to review the papers as is one of the most common forms of analysis within qualitative research and focuses on examining themes or patterns of meaning within data. More precisely, the papers were analysed inductively using an adaptation of the six-step process described by Braun and Clarke (2006). The steps taken are as follows. The first author: (1) got familiar with the papers by multiple reads, (2) identified initial ideas and codes and (3) started putting together the codes into broader themes, and then the two researchers: (4) reviewed the themes, (5) further refined and defined the themes and (6) produced the final analysis. This section presents in detail the main themes emerging from the 11 reviewed papers. Also, these themes are discussed and placed within the national and international context. The themes are presented in order of the frequency they appeared in the reviewed papers, and they are: different types of inclusion, interventions and teaching strategies for ASD, teacher training, family-school collaboration, participation of people with ASD in research and gender differences.

The following table (Table 1) shows the links between themes and the reviewed studies

### Different types of inclusion

A prominent theme that emerged in 8 out of the 11 reviewed papers is that of types of inclusive schooling existing in Spain. Research participants in the reviewed papers attended different types of schooling. Two studies took place in mainstream classrooms, which are considered the most inclusive modality (Darretxe and Sepúlveda 2011, Rodríguez et al. 2016), while one study included students who attend special settings such as specialist classrooms within mainstream schools (Vela et al. 2020).

Studies that were exclusively conducted in Special Education centres did not meet the inclusion criteria for this review and hence were excluded from the analysis. However, comparative studies between inclusive settings and special settings were included in the review. The paper by Vela et al. (2020) focused on special classrooms for students with communication and language impairment (Specialised Open Classroom in the Community of Madrid) and reported that all of these classrooms had highly structured environments, and that they provided greater inclusion than Special Education centres thanks to the contact that both students and teachers had with peers and colleagues from the mainstream schools. Vela et al. (2020) also claimed that classrooms for students with communication and language difficulties provided more personalised support for the students as teachers there had more specialised training than their colleagues in the mainstream schools.

Four out of the reviewed papers analysed and/or compared pupils from various school types/modalities. Morán et al. (2019) and Gómez et al. (2020), reporting on the same study, found that the majority of their participants were students from special schools (65.2%), followed first by students from mainstream schools (22.2%) and then by students from special classrooms (12.6%). In the former study, the authors concluded that educational inclusion depends, apart from the students' severity of difficulties, on the type of school a student attends and the educational opportunities offered there (Morán et al. 2019). Gómez et al. (2020) came to the conclusion that participating in social activities outside any educational setting, interacting with people beyond their support group and participating in cultural and leisure activities in community settings, contributes greatly to the social inclusion and also to the quality of life of students with ASD. Moreno et al. (2008) explored the views of parents of students attending the three types of schools described above (i.e. mainstream, special classroom and special education centre) and found that parents' satisfaction was high in all types of schooling. However, families of children who attended exclusively special education centres were slightly more satisfied. The reason for this was the fact that professionals there have received more training, children have access to more resources and some

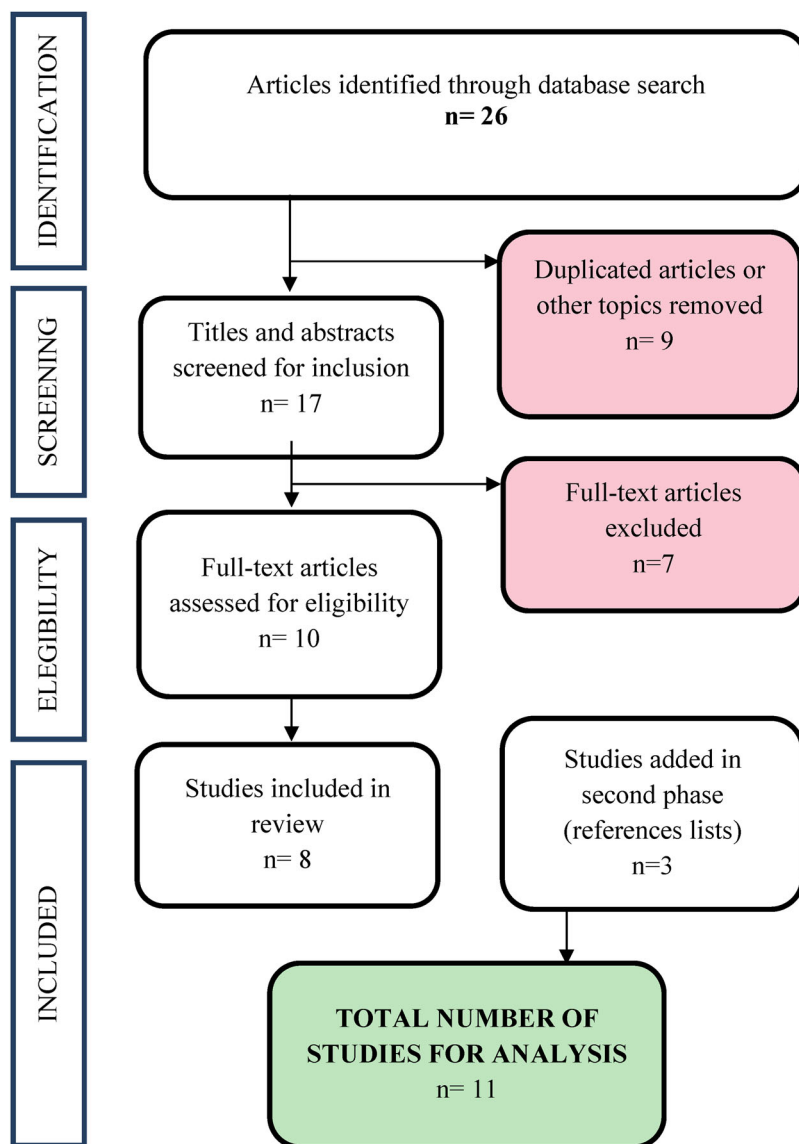


Figure 1. Process of literature search and paper selection: PRISMA flowchart.

Table 1. Links between themes and reviewed papers.

Authors	Different types of inclusion	Interventions and teaching strategies for ASD	Use of technology	Teacher training	Family-school collaboration	Involvement of individuals with ASD in research	Gender differences
Arias et al. (2018)	X	X					X
Begara et al. (2019)	X		X			X	
Chiva-Bartoll et al. (2021)		X		X			
Darretxe and Sepúlveda (2011)	X	X		X	X		
Gómez et al. (2020)	X				X	X	
Hervás et al. (2019)			X			X	
Malinverni et al. (2017)			X				
Morán et al. (2019)	X	X			X		X
Moreno et al. (2008)	X	X		X			
Rodríguez et al. (2016)	X	X		X			
Vela et al. (2020)	X	X		X	X		



of the parents shared that they prefer that their children did not have to interact with pupils without difficulties. Along the same lines is the research by Arias et al. (2018), whose participants came mostly from Special Education centres (71.4%), followed first by 21.4% from mainstream classrooms and then by 7.2% from special classrooms. Finally, Begara et al. (2019) explored the extent of cyberbullying in the above three types of schooling and found that this was far more prominent amongst students with ASD from mainstream schools (77.3% of the respondents had been involved in incidences of bullying as victims), followed first by students from special education centres (20.4%) and then by students from special classrooms (2.3%).

## Discussion

The above reviewed studies concluded that special classrooms in mainstream schools (regardless of whether these are exclusively for students with ASD or other SEN) offer a number of advantages such as structured environments with individualised support, more trained teachers and contact with neurotypical students due to their proximity to mainstream classrooms. On the other hand, families of students who attend special education centres tended to be more satisfied as their children were exposed to less bullying there compared to other educational environments. In terms of the inclusion argument in Spain, Cortés et al. (2018), who researched the different types of schooling for students with ASD in the Spanish education system, concluded that priority should always be given to mainstream settings in their different modalities (i.e. mainstream full-time setting, mainstream setting with support and special classroom in a mainstream setting) to ensure the highest degree of inclusion. This idea is also shared by Tomás-Viodel and Grau-Rubio (2016). However, there is no consensus in the Spanish literature on the most suitable type of schooling for students with ASD. Ariles et al. (2018) argue that there are many Special Education classrooms in mainstream schools whose organisation and teaching practices require change to reduce their segregating nature.

### *Interventions and teaching strategies for ASD*

Eight out of the reviewed papers explored specialised interventions and teaching strategies as inclusion facilitators for students with ASD. Two more papers covered specifically technological interventions which will be analysed separately as a subtheme. The interventions and strategies in these eight papers, targeted primarily behavioural difficulties as well as social and communication skills. Vela et al. (2020) wrote about the use of routines, visual supports and TEACCH (Treatment and Education of Autistic and related Communications Handicapped Children) (i.e. structuring of the classroom and work in clearly designated corners) as well as workshops that promote group work,

social skills and independence. These views are seconded by Moreno et al. (2008), who highlighted the importance of classroom structuring. Darretxe and Sepúlveda (2011) are of the same opinion and also highlighted the necessity to create a peaceful environment, provide individualised instructions for students with ASD, sequence learning objectives as well as use timetables and visual cues together with independent work stations. Arias et al. (2018) argue in favour of the importance of adapting spaces, materials and resources (e.g. pictograms, calendars, visual cues) to create more predictable environments which meet the perception and processing needs of students with ASD. Morán et al. (2019) highlighted the need to implement individualised support from both teachers and peers. Finally, Rodríguez et al. (2016) designed and implemented a peer intervention programme based on direct instruction, social reinforcement and modelling by socially competent peers at break times. The focus of the study was on one student with ASD and the results showed that he reduced behaviours of concern such as pushing away and kicking his peers and increased his functional initiations and responses. Also, the changes in his behaviour made him more accepted at school. Finally, the paper by Chiva-Bartoll et al. (2021) demonstrates the effectiveness of a physical education programme aimed at promoting active lifestyles in children with ASD, not only in their motor skills but also in their social inclusion, by including siblings and/or friends in the sessions.

## Discussion

The reviewed papers on this theme focused mainly on the use of sequencing, classroom structuring, predictability and peer support as facilitators for inclusion and reported similar results. More precisely, four of the eight reviewed papers talked about the need for structure and predictability which is essential at organisational level to avoid chaotic moments and situations at school (Arellano-Hernández 2021) as well as the use of augmentative and alternative communication (AAC) systems such as PECS (Picture Exchange Communication System) and time-outs when necessary (Fortuny and Sanahuja 2020). Five of the reviewed papers discussed the impact of these interventions and strategies on social communication skills and repetitive behaviours. People with ASD tend to have difficulties in all these skills (American Psychiatric Association 2013) and as pointed out by Larraceleta (2020) they are especially important so that students with ASD can achieve meaningful relationships with peers. Reviewed peer intervention studies seemed to have significant benefits in favour of the inclusion of students with ASD. This is in line with relevant literature which suggests that peer interventions (McFadden et al. 2014) and cooperative and collaborative work (García-Cuevas and Hernández 2017) are strong pedagogical tools that, together with a methodology based on dialogue, are likely to improve the performance

of the whole class and establish positive relationships between students (Guerrero 2012).

Two out of the reviewed papers explored the impact of the use of technology on social interaction and inclusion of students with ASD. Malinverni et al. (2017) aimed to promote social interaction in students with ASD via virtual simulations and collective play. Virtual simulations of social situations such as going to the supermarket or getting a seat on the bus provided a controlled and safe environment in which the user could practice how to behave in certain social situations and have their anxiety levels considerably reduced. Begara et al. (2019) explored how young people with AS use ICT and social media compared to their neurotypical peers, with special emphasis on comparing the frequency of cyberbullying in the different groups. The rationale behind this study was that according to the authors people with AS are likely to be more vulnerable to bullying because of their reduced ability to interpret social situations and understand the consequences of their actions as well as an increased use of the Internet as a medium of socialisation when compared to their neurotypical peers. The results showed that the use of ICT and social media was quite similar between the two groups. However young people with AS made more limited use of social networks with no significant differences between the groups in terms of the frequency of cyberbullying.

## Discussion

The above reviewed papers showed that technology, either through virtual simulations and play applications or social networks, is likely to facilitate interpersonal relationships for people with ASD. This is in line with the broader literature in the field. Numerous technology-mediated interventions have been used with individuals with ASD, at national and international level, and they have been found to improve social interaction amongst people with ASD. A Spanish study by Coreo et al. (2021) reported decreases in non-social behaviours such as stereotypes and blank stares and increases in social behaviours such as joint attention and eye contact, when using technological devices with children with ASD. Similarly, another Spanish study by Vidal et al. (2018) reported positive results after having used an intervention with a Tablet and the TinyTap App with one non-verbal child with ASD. At international level, among many other researchers who worked on the topic of technology, So et al. (2018) employed robots to improve communication skills and reduce stereotypy in children with ASD, and Banerjee et al. (2021) used mobile applications to improve emotion recognition in children and adults with ASD.

## Teacher training

Another theme that stood out in 5 out of 11 reviewed papers is that of teacher training. Some authors considered teacher training to be one of the key elements in promoting the educational inclusion of all students. Vela et al. (2020) highlighted that special classrooms for students with ASD are likely to offer many benefits primarily because of the teachers' specific training. Vela et al. (2020) also argued that teachers in special settings are likely to have received more specialised training than their colleagues in mainstream schools. More precisely, most of the participating teachers (97%) rated the training about ASD they had received at the university as insufficient; whereas 51% of the participants affirmed that they had not received any ASD specific training. Research by Moreno et al. (2008), comparing parents' preferences regarding their children's schooling arrangements, reported that teacher training is one of the aspects that differentiates special from mainstream schools. Parents commented positively on the specialised training of teachers in most special settings (i.e. special education centres and special classrooms). Furthermore, the paper by Rodríguez et al. (2016) highlighted that teacher training is one of the fundamental elements to determine parents' positive school perception. The paper by Chiva-Bartoll et al. (2021) explores the views of prospective Physical Education Teachers and families. After implementing inclusive physical education training specifically adapted to children with ASD for future teachers, both groups of teachers and families interviewees agree that the quality of teacher training is key to bringing theory and practice together, and helps teachers to better understand the needs of students with ASD and SEN more broadly. Finally, Darretxe and Sepúlveda (2011) listed a number of crucial needs of professionals in mainstream schools in order to accommodate students with ASD including adequate training and ways to stay up to date with developments.

## Discussion

These findings are in accordance with existing literature in the field. In the inclusive educational process, it is obvious that teachers who work with students with ASD play a crucial role, and sufficient and specific training in both ASD and organisational, methodological and didactic strategies is required for the successful educational inclusion of these students (Sánchez-Blanchart et al. 2019). Furthermore, it has to be stated here that educational professionals in Spain who started their career after 2015 received better training than those who have been in the profession since prior to 2015, possibly as a result of the improvement in university teacher training courses (Sánchez-Blanchart et al. 2019). This is a fairly new development and its impact is likely not to have



been captured in the research yet. Low et al. (2018) paper also concludes that the lack of teacher training is one of the main reasons for the delay in the effective implementation of inclusive education for students with ASD.

### ***Family-school collaboration***

Another theme that emerged in 4 out of the 11 reviewed papers is that of collaboration between family and school as an inclusion promoter. Morán et al. (2019) pointed out that educational inclusion depends on multiple factors outside the students themselves and their disability, and one of them is family. Similarly, Vela et al. (2020) argued that collaboration between school and family is essential for educational inclusion. Gómez et al. (2020) highlighted that collaboration between the family and the school should be a priority as it is essential to take into account the perspectives of parents when designing and planning support and interventions for their children with ASD. To this end, families should be offered the option to participate in as many as possible school activities. Darretxe and Sepúlveda (2011) recommended collaboration with all possible support channels, including family.

### **Discussion**

To sum up, the reviewed papers agree that collaboration between family and school is fundamental. There is a great body of Spanish literature in support of this argument. For example, Torres-Montalvo et al. (2021) reported that 40% of the teachers they interviewed stated that one of the main barriers to inclusion of students with ASD is the lack of collaboration between school and families. Along the same lines, a study by Lozano and Merino (2015) highlighted that in order for learning to be generalised, it is necessary that part of the teaching and learning processes are developed in collaboration with the family. The importance of collaboration between teachers and parents of children with ASD has been identified as a key issue in other countries as well (Kossyvaki 2021). Rey (2018) further supports this statement and also adds that involving the family in the students' learning contributes to them valuing the process and becoming more aware of their children's achievements.

### ***Involvement of individuals with ASD in research***

The need to involve people with autism in research appeared in three out of the reviewed papers. The paper by Hervás et al. (2019), which focuses on the development of two Apps to help improve reading comprehension for people with ASD, highlights the importance of involving end-users as experts in the development process in order to obtain a more effective and accessible design. Malinverni et al. (2017), who aimed to develop a game

for children with ASD, involved four pupils with ASD in the development of the game as experts. This strategy was beneficial for the participants as they felt motivated by being given responsibilities as well as working on empathy and perspective taking. In a similar vein, Begara et al. (2019) employed young people with AS in order to obtain data on cyberbullying. The substantial contribution of this specific study is that it directly involved young people with AS rather than the usual practice of obtaining information through their parents.

### **Discussion**

Overall, the papers which covered this theme highlighted the need to utilise the knowledge and experience of students with ASD in both the design and implementation of research. It is broadly argued that the involvement of children with ASD in research is an important aspect of the process of designing interventions (Guldberg 2017, Huijnen et al. 2017, Millen et al. 2011). However, their participation as experts or let alone co-researchers has not had a clear presence until recently and this has been primarily the case in North European countries where autism awareness and acceptance is much more well established than in south Europe (Kossyvaki 2021). In this part of the world, the 'rhetoric of compassion' (Rogers and Marsden 2013, p.48) is usually the norm when designing interventions and technologies for people with special needs. In other words, attempts to help people with SEN are conducted from a third-person perspective proposing solutions based on the researchers' understanding rather than on the real needs and views of the end-users.

### ***Gender differences***

Two out of the reviewed studies addressed the issue of gender differences in terms of social inclusion. It should be noted here that social inclusion was not one of the search terms, but it appeared as a result of the literature search on educational inclusion. Arias et al. (2018) explored the impact of gender on the quality of life of 681 people with ASD and intellectual disabilities (ID), and found that females obtained significantly lower scores on the domain of social inclusion. They argued that females' lower scores on social inclusion were due to often delayed diagnosis because of their ability to mask their difficulties and the different social expectations from the two genders. Similarly, Morán et al. (2019) researched the role of gender differences in the social inclusion of 420 people with ASD and ID and also reported that females in their sample scored significantly lower on most social inclusion items regardless of their level of ID, age or support needs (American Psychiatric Association 2013).

## Discussion

In sum, both papers included in this review showed that women with ASD and ID in Spain tend to obtain lower scores on social inclusion, regardless of their age, level of ID or support needs. This finding is in disagreement with existing international literature reporting that females with ASD show more and better social skills when compared to males of similar age and characteristics (Baron-Cohen et al. 2011, Beggiato et al. 2017, Ruggieri and Arberas 2016). However, in autism research, there is often selection bias against participants with autism and additional ID (Russell et al. 2019) and this might explain the disagreement presented above.

## Conclusion

This literature review aimed to present the main issues related to inclusion of students with ASD in Spain as illustrated in the international literature. Based on the above findings, a number of implications for practice and recommendations for future research can be drawn. To start with, it has become very apparent that the above themes should be included in both pre-service and in-service teacher training. The themes identified in this review give some good ideas on specific and hands-on topics such a training should cover and go beyond the superficial positive attitudes towards inclusion which are imposed from a philanthropists point of view. For example, this review showed that educational practitioners should be encouraged to use strategies such as classroom structuring, predictability and sequencing as these seem to support the inclusion of students with ASD by helping to avoid chaotic moments and situations in the classroom. Encouraging the use of AAC systems such as PECS and time-outs is also advisable. In addition, peer support and technology can be very effective tools towards the inclusion of students with ASD, especially as they contribute to their social inclusion.

In terms of further research, the review highlighted the need to prioritise more active participation of people with ASD in research which matters for them. Also, it showed that there seems to be no consensus regarding the best type of schooling in Spain. Although there is a lot of literature in favour of the most inclusive settings, there is a considerable body of research which shows that despite the good will to make inclusion work, there are still many issues to be addressed so that inclusion is successful. Additionally, gender differences on social but also educational inclusion in Spain is worth further exploration.

Although the focus of this review was on educational inclusion, the concept of social inclusion emerged in several of the reviewed papers. This is to remind all stakeholders working on inclusion that the ultimate goal should always be that people with SEN 'have the right to be equal members of society, to be socially included as equal citizens, to belong, to be part of the society'

(Imray and Colley 2017, p.3). Social inclusion should, therefore, be the first and foremost priority in any inclusion debate.

As all studies, this one has several limitations that we will explore briefly. Time and resource limitations did not permit more than one researcher to participate in the initial search and analysis of the papers. However, this is a scoping and not a systematic literature review so the authors do not expect that this has had a great impact on the findings. Additionally, one might perceive as a limitation the fact that the review included only papers written in English as it excluded a number of relevant studies that have been published in Spanish. A similar review of papers published in Spanish and a comparison between the two would be of interest. Finally, another limitation which can be considered here is the difficulty in generalising the results of this review to the whole Spain given the differences among different regions in how inclusion is applied. However, the authors believe that the results of this review can be of interest to people across the country given that papers from several communities (i.e. the ones which met the inclusion criteria) were reviewed.

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## References

- All references marked with a <sup>\*</sup> are the papers that are reviewed in this manuscript
- American Psychiatric Association, 2013. *Diagnostic and statistical manual of mental disorders*. 5th ed. Washington: Author.
- Anderson, A. H., Stephenson, J. and Carter, M. 2017. A systematic literature review of the experiences and supports of students with autism spectrum disorder in post-secondary education. *Research in Autism Spectrum Disorders*, 39, 33–53.
- Arellano-Hernández, E. Y. 2021. Estrategias para la atención educativa de alumnos con TEA [Strategies for the educational care of students with ASD]. *Revista Universidad Abierta*, 4, 1–12. <https://go.uv.es/eBN0eqG>
- \*Arias, V. B., Gómez, L. E., Morán, M. L., Alcedo, M. Á., Monsalve, A. and Fontanil, Y. 2018. Does quality of life differ for children with autism spectrum disorder and intellectual disability compared to peers without autism? *Journal of Autism and Developmental Disorders*, 48, 123–136.
- Artiles, J., Rodríguez, J. and Bolaños, G. 2018. El aula de educación especial como modalidad de atención educativa en centros ordinarios [The special education classroom as a modality of educational attention in regular schools]. *Revista de Educación*, 16,

- 651–664. <https://mendive.upr.edu.cu/index.php/MendiveUPR/article/view/1424>
- Autism Europe, 2020. *Prevalence rate of autism*. Brussels: Autism Europe.
- Banerjee, A., Washington, P., Mutlu, C., Kline, A. and Wall, D. P. 2021. Training and profiling a pediatric emotion recognition classifier on mobile devices. *Wearable and Ubiquitous Technologies*, 2, 127–142.
- Barnard, J., Prior, A. and Potter, D. 2000. *Inclusion and autism: Is it working?*. London: NAS.
- Baron-Cohen, S., Lombardo, M. V., Auyeung, B., Ashwin, E., Chakrabarti, B. and Knickmeyer, R. 2011. Why are autism spectrum conditions more prevalent in males? *PLoS Biology*, 9, e1001081.
- \*Begara, O., Gómez, L. E. and Alcedo, M. A. 2019. Do young people with Asperger syndrome or intellectual disability use new technologies and social networks as their peers with neurotypical development. *Psicothema*, 31, 30–37.
- Beggiato, A., Peyre, H., Maruani, A., Scheid, I., Rastam, M., Amsellem, F., Gillberg, C. I., Leboyer, M., Bourgeron, T., Gillberg, C. and Delorme, R. 2017. Gender differences in autism spectrum disorders: Divergence among specific core symptoms. *Autism Research*, 10, 680–689.
- Boer, A., Pijl, S. J. and Minnaert, A. 2011. Regular primary school teacher' attitudes towards inclusive education: A review of the literature. *International Journal of Inclusive Education*, 15, 331–353.
- Boletín Oficial del Estado, 1945. Ley de 17 de julio de 1945 sobre Educación Primaria [Law of July 17, 1945 on Primary Education]. *Boletín Oficial del Estado*, n° 199, de 18 de julio de 1945, pp.385–416.
- Boletín Oficial del Estado, 1970. Ley 14/1970, de 4 de agosto, General de Educación y Financiamiento de la Reforma educativa (LGE) [Law 14/1970, of August 4, 1970, General Law on Education and Financing of the Educational Reform]. *Boletín Oficial del Estado*, n° 187, de 6 de agosto de 1970, pp.12525–12546.
- Boletín Oficial del Estado, 1990. Ley Orgánica 1/1990, de 3 de octubre de 1990 de Ordenación General del Sistema Educativo (LOGSE) [Organic Law 1/1990 of October 3, 1990 on the General Organization of the Educational System]. *Boletín Oficial del Estado*, n° 238, de 4 de octubre de 1990, pp.28927–28942.
- Boletín Oficial del Estado, 2006. Ley Orgánica 2/2006, de 3 de mayo de 2006 de Educación (LOE) [Organic Law 2/2006, of May 3, 2006, on Education]. *Boletín Oficial del Estado*, n° 106, de 4 de mayo de 2006, pp.17158–17207.
- Boletín Oficial del Estado, 2020. Ley Orgánica 3/2020, de 29 de diciembre por la que se modifica la Ley Orgánica 2/2006, de 3 de mayo, de Educación (LOMLOE) [Organic Law 3/2020, of December 29, amending Organic Law 2/2006, of May 3, 2006, on Education]. *Boletín Oficial del Estado*, n° 340, de 30 de diciembre de 2020, pp.122686–122953.
- Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101.
- \*Chiva-Bartoll, O., Maravé-Vivas, M., Salvador-García, C. and Valverde-Esteve, T. 2021. Impact of a Physical Education Service-Learning programme on ASD children: A mixed-methods approach. *Children and Youth Services Review*, 126, 106008.
- Cored, S., Vázquez, S., Liesa, M. and Baldassarri, S. 2021. La potencialidad de la tecnología en la medición del desarrollo de habilidades sociales en niños con TEA: un análisis desde parámetros fisiológicos [The potential of technology in measuring the development of social skills in children with ASD: An analysis from physiological parameters]. *Revista de Investigación Educativa*, 39, 445–462.
- Cortés, J., Sotomayor, E. M. and Pastor, E. 2018. Reflexiones sobre la atención de los menores con trastorno de espectro autista en los centros educativos [Reflexions on the care of children with autism spectrum disorder in educational centers]. *Revista Electrónica De Investigación y Docencia (REID)*, 3, 31–44.
- \*Daretxe, L. and Sepúlveda, L. 2011. Educational strategies to address the educational needs of students with Asperger syndrome in the mainstream classroom. *Electronic Journal of Research in Educational Psychology*, 9, 869–892.
- Diari Oficial de la Generalitat Valenciana, 2019. Orden 20/2019, de 30 de abril, de la Conselleria de Educación, Investigación, Cultura y Deporte [Order 20/2019, of April 30, 2009, of the Regional Ministry of Education, Research, Culture and Sports]. *DOGVI*, n° 8540, de 3 de mayo de 2019, pp.20853–20897.
- Echeita, G. 2008. Inclusión y exclusión educativa: "voz y quebranto" [Inclusion and exclusion in education: "Voice and disruption"]. *REICE. Revista electrónica iberoamericana sobre calidad, eficacia y cambio en educación*, 6, 9–18. <https://www.redalyc.org/pdf/551/55160202.pdf>
- Echeita, G. and Sandoval, M. 2002. Educación inclusiva o educación sin exclusiones [Inclusive education or education without exclusion]. *Revista de Educación*, 327, 31–48. <https://go.uv.es/xLoLLu0>
- Falkmer, M., Anderson, K., Joosten, A. and Falkmer, T. 2015. Parents' perspectives on inclusive schools for children with autism spectrum conditions. *International Journal of Disability, Development and Education*, 62, 1–23.
- Fortuny, R. and Sanahuja, J. M. 2020. Comparativa de las estrategias metodológicas utilizadas en dos escuelas inclusivas con alumnado con Trastorno del Espectro Autista (TEA) [Comparison of the methodological strategies used in two inclusive schools with students with Autism Spectrum Disorder (ASD)]. *Revista de Educación*, 44, 62–92.
- García-Cuevas, A. and Hernández, E. 2017. El aprendizaje cooperativo como estrategia para la inclusión del alumnado con tea/as en el aula ordinaria [Cooperative learning as a strategy for the inclusion of students with disabilities in the regular classroom]. *Revista de educación inclusiva*, 9, 18–34. <https://revistaeducacioninclusiva.es/index.php/REI/article/view/289>
- \*Gómez, L. E., Morán, M. L., Alcedo, M. A., Arias, V. B. and Verdugo, M. A. 2020. Addressing quality of life of children with autism spectrum disorder and intellectual disability. *Intellectual and Developmental Disabilities*, 58, 393–408.
- González de Rivera, T., Fernández-Blázquez, M., Simón, C. and Echeita, G. 2022. Educación inclusiva en el alumnado con TEA: Una revisión sistemática de la investigación [Inclusive Education of Students with ASD: a Systematic Review of the Research]. *Siglo Cero. Revista Española sobre Discapacidad Intelectual*, 53, 115–135.
- Guerrero, M. J. 2012. El Liderazgo para y en la Escuela Inclusiva [Leadership for and in the inclusive school]. *Educatio Siglo XXI*, 30, 133–160. <https://revistas.um.es/educatio/article/view/149181>
- Guldberg, K. 2017. Evidence-based practice in autism educational research: Can we bridge the research and practice gap? *Oxford Review of Education*, 43, 149–161.
- \*Hervás, R., Francisco, V., Méndez, G. and Bautista, S. 2019. A user-centred methodology for the development of computer-based assistive technologies for individuals with autism. In *IFIP Conference on Human-Computer Interaction*, Luxembourg: Springer, pp.85–106.
- Huijnen, C. A., Lexis, M. A., Jansens, R. and Witte, L. P. 2017. How to implement robots in interventions for children with autism? A co-creation study involving people with autism, parents and professionals. *Journal of Autism and Developmental Disorders*, 47, 3079–3096.
- Imray, P. and Colley, A. 2017. *Inclusion is dead: Long live inclusion*. Routledge.
- Kossyvaki, L. 2021. Autism education in Greece at the beginning of the 21st century: Reviewing the literature. *Support for Learning*, 36, 183–203.
- Larraceleta, A. 2020. Intervenciones focalizadas basadas en la evidencia dirigidas al alumnado con Trastorno del Espectro Autista [Targeted evidence-based interventions for students with Autism Spectrum Disorder]. *Siglo Cero*, 49, 73–87.
- Low, H. M., Lee, L. W. and Che, A. 2018. Pre-service teachers' attitude towards inclusive education for students with Autism Spectrum Disorder in Malaysia. *International Journal of Inclusive Education*, 22, 235–251.
- Lozano, J. and Alcaraz, S. 2012. *Respuesta educativa a las personas con trastorno del espectro autista [Educational response to persons with autism spectrum disorder]*. Madrid: Editorial La Muralla.
- Lozano, J. and Merino, S. 2015. Utilización de las TIC para desarrollar las habilidades emocionales en alumnado con TEA desde la colaboración escuela-familia-universidad: una experiencia en un aula abierta específicas [Use of ICT to develop emotional skills in students with ASD from the school-family-university collaboration: An experience in a specific open classroom]. *Revista Didáctica, Innovación y Multimedia*, 31, 1–16. <https://go.uv.es/UJCG33w>
- \*Malinverni, L., Mora-Guiard, J., Padillo, V., Valero, L., Hervás, A. and Pares, N. 2017. An inclusive design approach for developing video games for children with autism spectrum disorder. *Computers in Human Behavior*, 71, 535–549.



- Marshall, D. and Goodall, C. 2015. The right to appropriate and meaningful education for children with ASD. *Journal of Autism and Developmental Disorders*, 45, 3159–3167.
- McFadden, B., Kamps, D. and Heitzman-Powell, L. 2014. Social communication effects of peer-mediated recess intervention for children with autism. *Research in Autism Spectrum Disorders*, 8, 1699–1712.
- Millen, L., Cobb, S. and Patel, H. 2011. A method for involving children with autism in design. In *Proceedings of the 10th International Conference on Interaction Design and Children*, New York.
- Ministerio de Sanidad, Servicios Sociales e Igualdad (MSSSI), 2015. *Estrategia Española en Trastornos del Espectro del Autismo* [Spanish strategy on Autism Spectrum Disorders]. Gobierno de España. <https://go.uv.es/NFt0zrf> (accessed 28 september 2021).
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G. and Prisma Group. 2009. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, 6, e1000097.
- Morales-Hidalgo, P., Roigé-Castellví, J., Hernández-Martínez, C., Voltas, N. and Canals, J. 2018. Prevalence and characteristics of autism spectrum disorder among Spanish school-age children. *Journal of Autism and Developmental Disorders*, 48, 3176–3190.
- \*Morán, M. L., Gómez, L. E., Alcedo, M. A. and Pedrosa, I. 2019. Gender differences in social inclusion of youth with autism and intellectual disability. *Journal of Autism and Developmental Disorders*, 49, 2980–2989.
- \*Moreno, J., Aguilera, A. and Saldaña, D. 2008. Do Spanish parents prefer special schools for their children with Autism? *Education and Training in Developmental Disabilities*, 43, 162–173. <http://hdl.handle.net/11441/34236>
- Munn, Z., Peters, M. D., Stern, C., Tufanaru, C., McArthur, A. and Aromataris, E. 2018. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology*, 18, 1–7.
- Peirats, J. and Cortés, S. 2016. El proceso de inclusión en un aula de comunicación y lenguaje. Percepciones de la comunidad educativa [The inclusion process in a communication and language classroom. Perceptions of the educational community]. *Revista Electrónica Interuniversitaria de Formación del Profesorado*, 19, 91–102.
- Peters, B. and Forlin, C. 2011. Chinese children with ASD in Hong Kong (SAR): Development of inclusive practice. *Journal of Research in Special Educational Needs*, 11, 87–98.
- Rey, A. 2018. Bullying and Autism Spectrum Disorder (ASD). Guía de actuación para profesorado y familias. *Revista Española de Discapacidad (REDIS)*, 6, 327–329. <https://go.uv.es/QZOQ2On>
- Roca, E., Jiménez, J., Zárate, Y., Frías, A., Barrio, M. Á., Collado, M. A., González-Albo, R., Gutiérrez, J. F. and Jiménez, M. S. 2020. *Informe 2020 sobre el estado del sistema educativo* [2020 Report on the State of the Education System]. Ministerio de Educación y Formación Profesional. Consejo Escolar del Estado. <https://go.uv.es/NNaLhL0> (accessed 12 october 2021).
- \*Rodríguez, J., Martín, L. J., Carbonero, M. A. and Ovejero, A. 2016. Peer-mediated intervention for the development of social interaction skills in high-functioning autism spectrum disorder: A pilot study. *Frontiers in Psychology*, 7, 1986.
- Rogers, Y. and Marsden, G. 2013. Does he take sugar?: Moving beyond the rhetoric of compassion. *Interactions*, 20, 48–57.
- Rosenberg, M., Westling, D. and McLeskey, J. 2008. *Special education for today's teachers*. Upper Saddle River, NJ: Prentice Hall.
- Ruggieri, V.L. and Arberas, C.L. 2016. Autismo en las mujeres: aspectos clínicos, neurobiológicos y genéticos [Autism in women: Clinical, neurobiological and genetic aspects]. *Revista de Neurología*, 62, 21–26.
- Russell, G., Mandy, W., Elliott, D., White, R., Pittwood, T. and Ford, T. 2019. Selection bias on intellectual ability in autism research: A cross-sectional review and meta-analysis. *Molecular Autism*, 10, 1–10.
- Sánchez-Blanchart, J., Sánchez-Oliva, A., Pastor-Vicedo, J.C. and Martínez-Martínez, J. 2019. La formación docente ante el Trastorno del Espectro Autista [Teacher training for Autism Spectrum Disorder]. *Revista Iberoamericana de Ciencias de la Actividad Física y el Deporte (RICCAFD)*, 11, 149–159.
- Schalock, R. L. and Verdugo, M. A. 2007. El concepto de calidad de vida en los servicios y apoyos para personas con discapacidad intelectual [The concept of quality of life in services and supports for people with intellectual disabilities]. *Siglo Cero*, 38, 21–36. <https://sid-inico.usal.es/idos/F8/ART10366/articulos2.pdf>
- So, W. C., Wong, M. K. Y., Lam, W. Y., Cheng, C. H., Yang, J. H., Huang, Y., Ng, P., Wong, W., Ho, C., Yeung, K. and Lee, C. C. 2018. Robot-based intervention may reduce delay in the production of intransitive gestures in Chinese-speaking preschoolers with autism spectrum disorder. *Molecular Autism*, 9, 1–16.
- Tárraga-Mínguez, R. and Tarín-Ibáñez, J. 2013. Escuela inclusiva: controversias en torno a discursos, políticas y actitudes [Inclusive schooling: Controversies surrounding discourses, policies and attitudes]. En: M. J. Chisvert, A. Ros, and V. Horcas, eds. *A propósito de la inclusión educativa: una mirada ampliada de lo escolar*. Barcelona: Ediciones Octaedro, pp.27–53.
- Tomás-Viduel, R. and Grau-Rubio, C. 2016. Modalidades de escolarización para el alumnado con trastornos del espectro del autismo [Modalities of schooling for students with autism spectrum disorders]. *Revista de Educación Inclusiva*, 9, 35–53. <https://go.uv.es/hNWY0ec>
- Torres-Montalvo, M. C., Pinos-Benavides, C. X. and Crespo-Dávila, E. M. 2021. Educación Inclusiva en Estudiantes con Trastorno del Espectro Autista [Inclusive education in students with autism spectrum disorder]. *Revista Científica Hallazgos*, 6, 138–147. <https://go.uv.es/mx4rPXS>
- UNESCO, 1994. *Declaración de Salamanca y marco de acción Para las necesidades educativas especiales* [Salamanca statement and framework for action on special needs education]. Paris: UNESCO.
- United Nations, 1948. *Universal Declaration of Human Rights*. Paris: United Nations.
- \*Vela, E., Martín, L. and Martín, I. 2020. Analysis of ASD classrooms: Specialised open classrooms in the Community of Madrid. *Sustainability*, 12, 1–17.
- Vidal, M. I. López, M. Peirats, J. and Marín, D. 2018. Uso de la App TinyTap para la mejora de las habilidades cognitivas en atención temprana [Use of the TinyTap App for the improvement of cognitive skills in early care]. *Actas XXVI Jornadas universitarias de Tecnología Educativa: La Competencia y Ciudadanía digital para la Transformación Social* (Donosti, JUTE2018), pp. 28–33.