The Needs of Students with Autism Spectrum Disorder in Mainstream Secondary

Schools in the Netherlands

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Abstract

Although inclusive education can be beneficial for students with Autism Spectrum Disorder (ASD), they meet several challenges in the mainstream school environment. Research on their educational experience has mainly focused on children with ASD in primary schools and other stakeholders rather than the perspectives of secondary school students with ASD. Therefore, this study aimed to investigate the academic and social needs of students with ASD to elicit their voice and contribute to improve their experiences of inclusion in mainstream secondary education. Our research consisted of two phases to examine the needs of these students. We used semi-structured interviews in a pilot study and for the main study we used Q methodology, a mixed method with both qualitative and quantitative techniques. On average the students expressed a need for clear instructions from teachers and no need for teachers to spend more time with them during class. Furthermore, four different groups of students with similar needs were identified. The first group indicated a need for extra time for exams, teachers' understanding and less need for peer friendship and collaboration; the second group focused on clear instructions and did not need extra adjustments and assistance; the third group emphasized needs regarding the class environment and the fourth group indicated the need for classmate acceptance and no need for changes in the classroom.

Keywords: ASD, inclusive education, mainstream secondary school

Samenvatting

Alhoewel inclusief onderwijs gunstig kan zijn voor studenten met een Autisme Spectrum Stoornis (ASS), komen ze in de reguliere schoolomgeving verschillende uitdagingen tegen. Onderzoek naar hun onderwijservaring heeft zich voornamelijk gericht op kinderen met ASS op basisscholen en andere belanghebbenden, en niet op de perspectieven van middelbare scholieren met ASS. Daarom was dit onderzoek gericht op het onderzoeken van de academische en sociale behoeften van leerlingen met ASS om hun stem te laten horen en bij te dragen aan het verbeteren van hun ervaringen met inclusie in het regulier voortgezet onderwijs. Ons onderzoek bestond uit twee fasen om de behoeften van deze studenten te onderzoeken. We gebruikten semigestructureerde interviews in een pilotstudie en voor het hoofdonderzoek gebruikten we Q-methodologie, een gemengde methode met zowel kwalitatieve als kwantitatieve technieken. Gemiddeld gaven de leerlingen aan behoefte te hebben aan duidelijke instructies van leraren en geen behoefte om meer tijd met leraren door te brengen tijdens de les. Verder werden vier verschillende groepen leerlingen met vergelijkbare behoeften geïdentificeerd. De eerste groep gaf aan behoefte te hebben aan extra tijd voor toetsen, begrip van leraren en minder behoefte aan vriendschap en samenwerking met leeftijdsgenoten; de tweede groep richtte zich op duidelijke instructies en had geen behoefte aan extra aanpassingen en hulp; de derde groep benadrukte behoeften met betrekking tot de klasomgeving en de vierde groep gaf aan behoefte te hebben aan acceptatie van klasgenoten en geen behoefte aan veranderingen in de klas.

Sleutelwoorden: ASS, inclusief onderwijs, reguliere middelbare school

Introduction

Because of the global trend of inclusive education, the number of students with special education needs (SEN) in mainstream schools has increased (De Leeuw et al., 2018). This trend has started with international declarations that recognize the right of all students to be included and to be treated equally. For instance, the Salamanca Statement for action on special needs education (UNESCO, 1994) introduced a policy switch to provide education to all students, specifically those with SEN, within mainstream education. Educational policies are, therefore, now focused on inclusive education, which means that schools should be able to provide education for all students (UNESCO, 1994). This is supported by the UN Convention on the Rights of Persons with Disabilities (CRPD, 2006) which defends the rights of students with disabilities to inclusive education by considering them as full participants in society. As mentioned in the Incheon Declaration, Goal 4: "[Parties should] Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UNESCO, 2016, p. 20). Booth et al. (2006) mention that inclusion in education is about recognizing the rights of all children to a good educational standard, taking cultural diversity into account. This will contribute to the participation and learning of all young students by valuing them equally. In practice, it comes down to a mainstream education setting where all students -also those with disabilities or other needs that require a specialized approach- are able to attend the same school instead of being segregated to a special education school.

Among these are students with Autism Spectrum Disorder (ASD), a neurodevelopmental disorder characterized by deficiencies in social communication and social interaction and the existence of restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association, 2013). ASD has an early onset, lifelong persistence and associated and comorbidity is common, such as attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder and psychiatric disorders like anxiety (Simonoff et al., 2008). The World Health Organization (WHO) claims that the prevalence of ASD is about 1 in 100 children around the world (WHO, 2022). With an increasing interest and knowledge about ASD and the number of children in mainstream schools that is increasing, it is important to draw attention to schools and whether they meet the needs of students with ASD properly (Tobias, 2009).

For students with ASD, inclusion is important for their social development and to realize their full potential (Leach & Dufy, 2009; Lindsay et al., 2013). Mainstream inclusion can be stimulating and provide benefits, such as interacting with typically developing peers (Reiter

& Vitani, 2007) and achieving higher academic goals compared to students in segregated schools (Lindsay et al., 2013).

Yet, the inclusion of students with ASD in mainstream schools comes with several challenges. Research shows that students have different experiences regarding mainstream education and that there is a gap between practice and the students' actual needs (Humphrey & Lewis, 2008; 2008b). Because of their difficulties in social communication and behavior, students with ASD regularly face issues like bullying, anxiety, and social isolation (e.g. Humphrey & Lewis, 2008a, 2008b; Humphrey & Symes, 2011; Poon et al., 2014; Sreckovic et al., 2014). Research also suggests that students with ASD have fewer friends in the inclusive environment compared to typically developing peers (Able et al., 2015). Moreover, they find it difficult to handle mainstream school environments because they are easily overwhelmed by social and sensory stimuli (Goodall, 2019; Humphrey & Lewis, 2008) and the amount of workload and homework (Goodall, 2019; Saggers, 2015). Even though they are academically capable, students with ASD seem to underperform (Ashburner et al., 2009) and are in general more likely to be excluded from school than their peers (Humphrey & Lewis, 2008). For example, the National Autistic Society reports that students with ASD in England are twice as likely to be excluded from school – either for a fixed period or permanently - compared with students without SEN (NAS, 2021).

Consequently, students with ASD should be properly supported to improve their mainstream school experience and educational opportunities. Especially teachers are essential to enhance inclusive education (Danker et al., 2019; Van der Steen et al., 2020) and particularly the teacher-student interaction is important (Van der Steen et al., 2020) for the development and learning trajectories of students (Steenbeek et al., 2012; Van der Steen et al., 2019). Teachers who are more concerned about individual learning needs of their students appear to contribute to a more welcome inclusive environment (Dillon et al., 2016). Moreover, the perspectives of teachers as educators influence pedagogical approaches and attitudes and expectations to students with ASD (Goodall, 2015). As studies on the educational experiences of students with ASD show, students with ASD can often feel unsupported and misunderstood by teachers (Goodall, 2019; Goodall & Mackenzie, 2018). For example, as mentioned in Goodall and Mackenzie (2018): "No one really made any attempt to ask about how I was doing. They [teachers] didn't really notice" (p. 509). Moreover, as students with ASD experience the school environment differently compared to neurotypical students, they can easily feel stressed and anxious in a classroom that is not optimally adjusted to their needs. Therefore, teachers require an adapted way of teaching to

reduce such stress (Ravet, 2017). However, the group of students with ASD is heterogeneous, that is, there are differences in the severity of the symptoms, the presence of comorbidity, and intellectual level (Aubineau & Blicharska, 2020). Because of this heterogeneity, it is challenging for educational professionals to meet the different needs of students with ASD.

A great number of studies are aimed at the inclusion of young students with ASD in primary schools and often the educational experiences of students with ASD in secondary schools are left out in research (Saggers, 2015). In addition, most studies about how to optimize inclusive education and the educational experiences of young people with ASD focus on teachers' experiences with regard to their interaction with students with ASD and what they *believe* the students need or they address the views of the students' parents (Goodall & Mackenzie, 2018; Goodall, 2019). Yet, it is equally important to take the views of students with ASD into account to improve their experience of inclusion in mainstream schools. Teachers need to understand the difficulties for students with ASD, in order to anticipate and fulfill students' academic and social needs in the school environment. Especially since secondary school students with ASD meet multiple teachers in a less structured environment compared to the primary school setting (Able et al., 2015). It is therefore important to stimulate the empowerment of students with ASD and to enable them to share their perspectives since they are experts when it pertains to their own experiences and needs. By involving secondary school students with ASD in the process of making policies, their needs can be taken into account and this could enhance a more inclusive society (Aubineau & Blicharska, 2020).

In sum, little is known about the needs of students with ASD at mainstream secondary schools. Most research involves the perspective of teachers about their students and focuses on primary education. Yet, students' experiences are equally important to properly meet their needs and enhance a feeling of inclusion in secondary school settings. The aim of this study is, therefore, to describe the academic and social needs of students with ASD from their own perspective by identifying and differentiating students with different needs. This may contribute to the educational experiences of students with ASD and may help secondary schools, in particular teachers, to better understand how they can approach these students with (more) success.

The main research question of this study is:
What are the perspectives of youth with Autism Spectrum Disorder (16-25 years old) on their

academic and social needs in secondary school? In this study, youth with ASD between 16 and 25 years old is asked to reflect on their current or former school experiences in mainstream secondary schools.

In order to answer the research question, the research is designed in two phases:

Phase 1:

In a pilot study 37 statements about the school environment, teaching methods and tools, teachers, classmates and feeling at school will be given to three students with ASD. The statements cover several possible topics that students with ASD might need in secondary education. The students will answer open-ended questions in an interview about the statements: are the statements clear, understandable, and are any possible needs missing? If necessary, the 37 statements will be adjusted in line with their feedback.

Sub-question 1:

- Do students and former students with ASD between 16 and 25 years old think the statements about school environment, teaching methods and tools, teachers, classmates and feeling at school are valid?

Sub-question 2:

- Are there any needs missing according to the students with ASD, if so, which academic and/or social needs should be added to the statements?

Phase 2:

In the main study, the final set of statements about academic and social needs will be sorted by 42 students with ASD between 16 and 25 years old. They can rank the statements based on which needs are most important and unimportant to them. After sorting the statements, they are asked to explain why they ranked specific needs as being the most important and less important. Based on the participants' sorting of the statements, we will distinguish groups of students with similar needs, and see what differentiates these groups.

Sub-question 3:

- What academic and/or social needs are the most important and the most unimportant to students with ASD in mainstream secondary schools?

Sub-question 4:

- Is it possible to identify groups of students with similar needs and what factors differentiate these groups (age, gender, school grade level, academic level, type of ASD)?

Method

Design

This study was part of a larger research project on the needs of students classified with ASD in mainstream secondary schools from PhD student Fernanda Esqueda Villegas. The research received ethical approval from the host university. The current study is both qualitative (phase 1; phase 2) and quantitative (phase 2). For the pilot study (phase 1), semi-structured interviews were used and transcribed. For the main study (phase 2), Q methodology was used.

Participants

Three students with ASD participated in the pilot study (2 female, 1 male). One female student (16 years old) was currently following the fourth grade at vwo and previously followed havo. The other female student (22 years old) was not currently in mainstream secondary education and first had followed havo and later vmbo. The male student (20 years old) also had followed vmbo when he previously attended secondary school. They all had a DSM-V diagnosis of ASD.

Forty-two Dutch students (38 female, 3 male, 1 otherwise) participated in the main study. The mean age was 22.56 years, ranging from 16 to 25 years (three participants did not provide their age). One of the students followed third grade, three students followed fourth grade, five students fifth grade and five students sixth grade. A total of 24 students were not currently following mainstream education. The school grade level of four students was unknown. As for the academic level, thirteen students followed vmbo, fifteen students followed havo and twelve students followed vwo. Only two students did not fill in their secondary academic level. Most students (n = 28) had a DSM-V diagnosis of ASD. The others had a diagnosis according to the DSM-IV, among them were eight students who answered PDD-NOS and six other students selected Asperger's Syndrome.

Convenience sampling was used for the recruitment of participants, meaning that recruitment was performed by using the personal and professional contacts of one of the researchers. The researcher also approached institutions, schools and organizations by email and advertisement. The aim and procedure of the study was explained and team members and staff who found the study useful sent a message with the advertisement to potential participants. In addition, online advertisement was posted on social media (e.g. Facebook) to increase the response rate. The advertisement contained a link that guided participants to the

study in Qualtrics. The following criteria had to be met for the participants to be included:

- Participants were between 16 and 25 years old and lived in the Netherlands
- Participants had followed, or were currently following mainstream secondary education in the Netherlands
- Participants had a DSM-V diagnosis of ASD or had been earlier diagnosed with a subtype of ASD according to the DSM-IV

For both the pilot and the main study, we targeted individuals with ASD who were between 16 and 25 years old. Within this age range, participants were able to give (online) consent independently. Moreover, participants were at an age where they could reflect on their experiences and expertise what they needed during their school period in mainstream secondary school (Aubineau & Blicharska, 2020).

Procedure

After approaching the participants for the pilot study, a face-to-face appointment for a semi-structured interview was made. The interview lasted about 20 to 30 minutes. The study was explained by means of an information form during the appointment. Furthermore, the participants signed an informed consent form and answered questions about their age, gender, school grade level, academic level and type of ASD. A few sheets of paper with 37 statements were then presented to the participants. The 37 statements were divided into five categories (school environment, teaching methods and tools, teachers, classmates and feeling at school). This distribution was used to ask questions per category, this made the interview manageable for the participants. Notes were taken during the interviews and later transcribed. Questions of the interview focused on the statements conducted for the Q sort (see Figure 1). We were interested whether the students recognized the needs in the statements. In addition, we wondered if the statements were clear enough, relevant, and if any needs were missing from the set.

For the main study, 42 participants were informed about the purpose and procedure of the study and were asked to give their consent in Qualtrics. Participation in the main study lasted approximately between 15 and 20 minutes. Participants were made aware that participation was voluntary and anonymous and that they could stop with the study at any time without explanation. The contact details of the principal investigator were given in case the participants had any questions, also during or after the study. First, the participants filled in questions about their age, gender, school grade level (if they were not currently following

mainstream secondary education, they could fill in an X), academic level (the current level or the last level they followed in secondary school), whether they had an autism diagnosis and type of ASD. The school grade level and the academic level provided data on the education system in the Netherlands. The school level ranged from class 1 to class 6 and the different levels included 'vmbo', 'havo' and 'vwo'. Some questions could be answered openly and some questions contained options that could be selected. Examples of options about type of ASD: Autism Spectrum Disorder (ASD), PDD-NOS, Asperger's Syndrome, McDD, Rett syndrome, Heller's syndrome (CDD) and otherwise. The participants were then asked to sort the statements with a Q methodological method (i.e., Q sort). Q methodology is a research technique that makes it possible to study what participants with a subjective relevant point of view have to say about a topic (Mckeown & Thomas, 2011; Watts & Stenner, 2014). The Q sort consisted of a grid with a quasi-normal distribution. The participants could sort the statements in the grid by evaluating the importance of these statements for them (see Figure 1). An online version of the Q-sort in Qualtrics was used where the participants could see the statements on the screen and had to rank it. The Q sort distribution included ranking values, ranging from most important (+4) to most unimportant (-4). This distribution was pre-arranged and also called a 'force-choice' distribution (Watts & Stenner, 2012). Hence, participants had to make choices based on their own experience and needs, so there were no right or wrong answers. The participants ranked the statements into categories that reflected whether they considered the statements important, neutral, or unimportant. In the end they were able to provide an explanation for why they selected the two most important (+4) and two most unimportant (-4) needs.

Measurements – statements

   A number of 37 statements were constructed based on a literature review study of Esqueda Villegas et al. (submitted). The statements covered the categories school environment, teaching methods and tools, teachers, classmates and feeling at school. After the pilot study, the statements were adjusted based on the feedback of students with ASD. This resulted in the final set of 36 statements. For the main study, the participants were given the 36 refined statements with possible needs, that might be more or less relevant to the participants in mainstream secondary education. The statements for the Q sort were focused on the five categories mentioned above. Examples of statements: "[I need] a small class" (school environment); "[I need] a quiet space to go to when there is too much noise in class" (teaching methods and tools) and "[I need] For my teachers to be understanding of my

autism" (teachers). The statements were designed in Dutch for the study and translated in English for this thesis (see Table 2 for the final statements).

Figure 1

Q Sort Grid, with a Quasi-Normal Distribution

Least important			Neutral			Most important		
-4	**-3**	**-2**	**-1**	**0**	**+1**	**+2**	**+3**	**+4**
(2)	(3)	(4)	(6)	(6)	(6)	(4)	(3)	(2)

Note. For the main study, participants sorted the 36 statements (see Table 2) in an online version of the Q-sort Qualtrics.

Data analysis

To identify which statements and needs were relevant or missing according to students with ASD, the answers from the pilot study were discussed among the researchers. Unclear statements were adjusted and missing needs suggested by the participants were added to the final list of statements (research sub-question 1 and 2). The feedback of the students and the adjustments are described in the results section. Numbers like (#15) indicate statement number 15.

For the main study, the Q sorts were entered in the PQ Method Software (Schmolck, 2002). We performed a central factor analysis within the program, which is considered a data reduction technique that allows us to identify similar patterns in the Q sorts (Watts & Stenner, 2014). That is to say, the software extracted factors (groups of participants), based on the way the participants arranged their Q-sorts. We used the Varimax rotation procedure, which is commonly used in Q studies, to position the factors and determine the most important viewpoints within the participants' groups (Watts & Stenner, 2014). All the individual Q sorts that linked with a given factor were converted to a weighted average per factor (also known as factor arrays). This provides insight into how the participants ranked the statements on average (see Table 2). We performed a significant factor loading to associate our

participants with a particular factor at $p < .01$ using Brown's (1980) formula: $2.58 \times (1 \div \sqrt{N})$, where N indicates the number of statements. The number of statements in our study was 36, and therefore, our equation was the following: $2.58 \times (1 \div \sqrt{36})$. The result was: .43 and therefore, we distinguished participants who linked with a factor at $p \geq .43$. and manually flagged the Q sorts (participants) with an X if they were significantly associated with one particular factor. The rotated factor loadings (see Table 1) indicate how close a specific Q sort approaches a factor's viewpoint. We explored several factor solutions and chose a four-factor solution based on the % of explained variance, the eigenvalues, and interpretation value (see results section). A total study variance in the range of 35-40% or higher is considered a good solution and the eigenvalues should be at least 1.00 (less than 1.00 is seen as a cut-off point) (Watts & Stenner, 2014). Furthermore, the statements that significantly differed ($p < .05$) compared to the other factors ('distinguishing statements') were pointed out by the program. These statements formed the basis for the qualitative interpretation of the four groups and their similar needs within them. Moreover, one of the researchers investigated the factors (age, gender, school grade level, academic level, type of ASD) that differentiated these groups. These interpretations are described in the results section and answer research sub-questions 3 and 4.

The position of the statements have been incorporated in the interpretation of the results section. Numbers like (#20/4) mean that statement number 20 was on average given a +4 value in this particular factor, and thus that the statement was most important for this group. Quotations of the participants about their two most important and least important needs are used as an example for in-depth information. The heading about demographic differences expands on the factors that differentiated the groups in terms of age, gender, school grade level, academic level and type of ASD.

Results

Validity of the statements from the perspective of students with ASD

To answer research sub-question 1, three students with ASD were asked during a semi-structured interview whether they considered 37 statements, divided into five categories (school environment, teaching methods and tools, teachers, classmates and feeling at school) relevant, understandable and clear. We made adjustments based on their feedback.

All students indicated that they found the statements belonging to the categories overall clear and understandable. However, there were a few exceptions. For example,

students marked a statement about knowing everyone at school as irrelevant and it got deleted. In addition, a few students found the terms 'technology' and 'visual aids' unclear and vague regarding teaching methods and tools. Therefore, these statements were changed and specified with examples, namely laptop, tablet (#15), pictures and videos (#16). Regarding the category teachers, the students found that the statement about teachers having a good sense of humor, made no sense and this statement was also removed. Students found a statement about learning how to start a conversation or chat with classmates offensive, so it got deleted. Moreover, some students had difficulty with an expression 'teachers got my back' and therefore the statement was deleted from the category feeling at school.

Missing needs according to the students with ASD

In order to answer sub-question 2, the three students with ASD were also asked during the interview if there were any possible needs missing and if they had suggestions.

The students reported a few missing needs. For instance, two students mentioned the need for more places during school breaks and one student indicated the need for fixed seats regarding teaching methods and tools. Therefore, we added a statement that addresses different times for class breaks (#7) and a statement about fixed seats in the classroom (#18). Two students mentioned the suggestion to add more examples of emotions (such as sadness and stress) to the statements, which focused only on anger. In line with this, we added being stressed or sad to statement 36. Two students reported experiences of bullying at school and therefore a statement was added about school taking action against bullying (#33). See Table 2 for the final list of statements.

The most important and the most unimportant needs of students with ASD

To answer sub-question 3 about the most and least important needs, we looked at how the students rated the statements, ranging from most important (+4) to most unimportant (-4). Table 2 shows how the statements were ranked in each factor on average (factor arrays).

There was no agreement on the statements between the factors regarding importance and unimportance, meaning that the groups evaluated the statements differently. Yet, all factors marked the need of teachers giving clear and detailed instructions on what students have to do as important (#20). The students mentioned that they did not always understood the instructions of teachers and they needed to know what to do to start working and to finish their tasks. Participant 13 commented "no clear instruction = no work" and participant 21 explained: "Teachers vaguely indicate what we should do. Others get it, I don't. Teachers

don't adjust their instructions, so I'll just say yes. But often I don't know what to do."
Participant 22 added: "If I know exactly what to do, I can start easier." In addition, students reported experiences of stress in the case of unclear instructions. For example, one of the students (pp 28) clarified: "In reports, for example, I often get stuck because the instructions are too vague. This ultimately results in a mental breakdown." Participant 35 mentioned: "If I don't have clear instructions, I panic and don't finish the task or with a lot of effort". Participant 38 indicated: "I really need clarity and structure. If teachers don't give clear instructions and I don't know what to do because of that, I get very stressed and the homework doesn't work either. So clarity is very important."

Furthermore, all factors pointed out that the need for teachers to spend more time with them during class was unimportant (#22). They wanted to be left alone and they did not want their differences to be emphasized, which could provoke bullying. For instance, students indicated that "it makes me uncomfortable" (pp 5), "I just want to be left alone" (pp 19) and "I prefer to work alone" (pp 41). Participant 26 described: "As a student with autism, I do not want special 'extra' attention from teachers, because this always produces a skewed image among classmates, which in turn can give reasons for bullying behavior." Participant 34 commented "be like everyone else".

Groups of students with similar needs

To answer sub-question 4, four groups of students with similar needs were identified. We chose a four-factor solution based on the distinguishing statements, eigenvalues and the percentage of the explained variance. This solution explained 37% of the total variance and all eigenvalues were higher than 1. In total 31 of the participants were significantly linked with a factor (group) and the other eleven participants did not associate with one specific factor. Table 1 indicates the factor loadings of the participants. The correlation between the factor scores extended from 0.292 to 0.5161, thus appeared to be low to average. This implies that the viewpoints of the four factors – thus between the groups of participants - were different. The distinguishing statements (marked in bold) of Table 2 point out the statements that considerably differed between the factors. Below, a qualitative interpretation of the four factors can be found, based on the distinguishing statements. This is followed by a section about demographic differences, which looks at a few variables (age, gender, school grade level, academic level, type of ASD) that differentiate the groups.

Factor 1: "Extra time and understanding from teachers" (n = 12)

The twelve students of the first factor mainly expressed their need for extra time, understanding from and confidence in their teachers. More specifically, they were eager for more time to finish their exams (#14/3). Participant 8 indicated that "it gave a lot more peace of mind to make the tests". That said, they were rather neutral on getting more time to finish other school activities (#13/1). This group also valued that teachers understand when they want to be left alone (#6/2). One of the students (pp 13) mentioned: "Sometimes you just have to go away. Otherwise you'll just make it all worse". They also wanted to be able to confide in teachers (#26/2), but they were more neutral about individual help from their teachers (#12/1). Other distinguishing statements were less relevant for the theme. They involved fixed seats in the classroom (#18/1), a small class (#3/0) and the help of a teaching assistant (#11/0).

Apparently, the students in this group did not point out any social needs regarding making friends and collaboration with their classmates and favored working independently. More specifically, they indicated no need for building friendships at school (#32/-2) and they felt neutral about needing a friend to trust (#28/0). Moreover, they did not need for their classmates to accept them (#30/-1) and to work in small groups (#9/-2), as participant 39 mentioned: "I don't like to work in groups because I find social contact very difficult." They would clearly prefer no particular activities in class that help them learn (#8/-4), one student (pp 23) mentioned: "I like to work independently and best at my own pace." They also disliked collaboration with their classmates during class (#29/-4), for example stated by participant 13 that "working together is annoying." Participant 32 explained: "I find it difficult to carry out an assignment with others, so I prefer to do everything alone, because then no one can ruin it for me."

Factor 2: "Clear instructions in a small class" (n = 6)

The six students that were linked with the second factor indicated a need for clarity, more specifically, clear instructions from teachers (#20/4) in a small class (#3/3) where they felt that they are a part of the school (#34/2). Participant 22 said: "If I know exactly what to do, I can start easier." Participant 10 mentioned "so there is less stimuli" with regard to preferring a small class. This differed from factor 1, where the need for a small class was neutral. The students in this factor were quite neutral about collaboration with classmates during class (#29/1).

These students expressed less need for extra adjustments, like assistance, technology and routine. For example, they indicated that they were neutral about individual help from

teachers (#12/0), similar to factor 1. Moreover, they did not need a teaching assistant to help with their tasks in class (#11/-2). For instance, participant 33 commented that "one teacher is enough". They also did not indicate the need for a structured routine at school (#2/-3) and fixed seats in the classroom (#18/-4). One of the students (pp 22) commented on both needs: "I don't like structure". Participant 10 described about fixed seats: "Every time with the same people, and if they are annoying, you can't be seated somewhere else next time". Furthermore, they expressed clearly that they did not want to be able to work on a laptop or tablet in class (#15/-4). Participant 7 explained: "I personally find it easier to write. You also often have workbooks, so you can follow better during class with the handbook." Participant 10 added that it "distracts too much". Finally, they indicated that they did not need to learn how to handle emotions (such as being stressed, sad or angry) at school (#36/-2) and to know how to adapt to unfamiliar situations (#4/-2).

Factor 3: "A small fixed classroom with an overview" (n = 5)

The five students associated with this factor pointed out that they preferred needs regarding the class environment. Just like factor 2, they needed a small class (#3/4), but this group also indicated fixed seats in the classroom (#18/4) as important. Participant 9 explained about a small class that "you have a better overview of what is happening around you" and participant 40 added "then you get to know people well and the choice of who you hang out with is more limited". One of the students (pp 25) said "if I have my own place (preferably in the back) I always know where I sit" about fixed seats in the classroom. They labeled the need to feel that they are part of the school (#34/1) and to build friendships at school (#32/1), in other words, a sense of belonging, as rather neutral. They also did this for the need to feel safe at school (#35/0).

These students did not express a clear unimportant theme. They did not need for teachers to show they care about them (#23/-3) and more time to finish their exams (#14/-2). Participant 1 claimed "then you will become special while you are the same as the rest" about statement 23. Another student (pp 9) said about exams: "I have had no trouble with time pressure while taking tests."

Factor 4: "That my classmates accept me as I am" (n = 8)

The eight students that were part of the fourth factor found it most important that their classmates would accept them as they are (#30/4). Participant 4 mentioned: "I may be a little different in a way and I'd like everyone to accept that." Participant 26 described: "A safe and

fun classroom ensures good performance, but also makes you feel like going to school. It only gets harder when your classmates don't accept you." They were rather neutral about the need that their classmates take their autism into consideration (#31/1). In contrast to factor 2, the students in this factor wanted to learn how to handle their emotions at school (such as being stressed, sad or angry) (#36/2). As participant 19 indicated: "Sometimes I'm angry but I can't get over it." They were neutral about a structured routine at school (#2/1).

In contrast with the third factor, the students of this group expressed no need for classroom change with regard to fixed seating (#18/-1) and a small class (#3/-2). They also had less need for working in small groups (#9/-1) and did not indicate more time to finish their school activities (#13/-3). Furthermore, they were neutral about teachers' understanding when they want to be left alone (#6/0).

Demographic differences

Table 3 shows the distribution of the factors regarding age, gender, school grade level, academic level and type of ASD of the students. There did not seem to be a substantial difference between the factors for the variables. Some differences that stood out are described below.

The study mainly consisted of females (38), 3 males and 1 otherwise. Factor 1 and 2 contained only females. The participants in factor 3 were all female, except for one who indicated 'other'. Factor 4 stood out regarding the male participants, since the two out of three males that participated in this study were in factor 4.

The mean age did not differ significantly between the groups. Factor 4, on the other hand, stood out, and consisted of the youngest students (mean age 18.71) and contained proportionately (62.5%) the most participants who were currently following mainstream secondary school. This group contained the most participants who followed vwo as academic level. The school grade level and academic level of the other groups was rather scattered (varying between vmbo, havo and vwo) and the most of the students were not currently following secondary education. Regarding type of ASD diagnosis, the most participants chose a DSM-V diagnosis of ASD overall in the study and this was also represented in the four groups. Asperger's Syndrome was only indicated in the first (3 out of 12) and the fourth group (2 out of 8), thus contained proportionally the same amount. The diagnosis PDD-NOS was presented in low numbers in group two and group three and was more common in the first group.

Table 1

Factor Loadings

Q sort	Factor 1 (n = 12)	Factor 2 (n = 6)	Factor 3 (n = 5)	Factor 4 (n = 8)
pp1	0.3377	-0.0913	**0.5294X**	0.3064
pp2	-0.0473	**0.5144X**	0.0932	-0.1262
pp3	**0.4687X**	0.1404	0.3808	-0.3663
pp4	-0.0455	0.2517	0.3816	**0.5209X**
pp5	0.2087	-0.2766	0.1303	**0.5221X**
pp6	**0.6238X**	0.1728	-0.0942	0.2016
pp7	0.1108	**0.5031X**	0.1823	0.3927
pp8	**0.5116X**	-0.0203	-0.2113	0.3304
pp9	0.0115	0.1847	**0.4627X**	0.0997
pp10	0.1984	**0.6573X**	0.1807	0.0703
pp11	0.3799	0.2657	0.0984	0.3211
pp12	0.1013	0.2931	0.4054	**0.5699X**
pp13	**0.6600X**	0.0934	0.0871	0.1242
pp14	0.2534	0.2481	0.1258	**0.6019X**
pp151	-0.0088	0.0297	-0.0033	0.2972
pp16	0.0724	-0.0013	**0.6081X**	0.1391
pp17	0.0413	0.2647	0.3319	-0.1756
pp18	**0.6443X**	-0.1626	0.1638	-0.0324
pp19	0.2468	0.0846	0.1827	**0.4528X**
pp20	0.4376	-0.0859	0.5464	0.1464
pp21	0.0677	-0.0984	-0.0678	0.2130
pp22	-0.2367	**0.5394X**	-0.1045	0.0728
pp23	**0.6906X**	0.2556	0.0757	-0.1300
pp24	**0.5634X**	0.1197	0.3707	0.1258
pp25	0.2567	0.0588	**0.5911X**	0.1908
pp26	0.2109	0.1229	0.2590	**0.5867X**
pp27	0.0168	0.4854	0.2717	0.5092
pp28	0.3956	0.4182	-0.2331	0.2686
pp29	0.3257	-0.0277	0.0725	0.4015
pp30	0.2288	**0.5556X**	0.3387	0.3643
pp31	**0.4440X**	0.0005	0.1858	0.3335
pp32	**0.5784X**	-0.0185	0.4003	-0.2404
pp33	0.3107	**0.4689X**	0.0718	0.3777
pp34	0.1431	0.0953	0.3292	**0.4333X**
pp35	**0.4742X**	0.1698	0.1552	0.2928
pp36	0.0355	0.3811	-0.0025	0.0716
pp37	**0.6441X**	-0.1439	0.1012	0.2790
pp38	0.6044	0.0766	0.5691	0.0117
pp39	**0.6109X**	-0.0660	0.3026	0.2891
pp40	-0.3420	0.2155	**0.4259X**	0.3661
pp41	0.1695	0.0649	0.1843	0.2492
pp42	-0.1057	0.2517	-0.0505	**0.6482X**

Note. Significant participants are bold and marked with an X.

Table 2

Statements with Factor Arrays and Weighted Average Q Sorts of the Factors

Statements	Factor arrays			
In mainstream secondary school, I need/needed…	Factor 1	Factor 2	Factor 3	Factor 4
School environment				
1. A classroom free of noise	4	4	2	1
2. A structured routine at school	3	**-3**	3	1
3. A small class	**0**	**3**	**4**	**-2**
4. To know how to adapt to unfamiliar situations	0	**-2**	2	3
5. To be treated as every other student of my class	-1	1	-1	2
6. That teachers understand when I want to be left alone	**2**	-1	-2	0
7. For my school to have different times for class breaks	-3	0	0	-3
Teaching methods and tools				
8. Activities in class that help me learn	**-4**	-2	-1	-1
9. To work in small groups	**-2**	2	2	**-1**
10. A quiet space to go to when there is too much noise in class	2	0	2	1
11. A teaching assistant to help me with my tasks in class	**0**	**-2**	-4	-4
12. Individual help from my teachers	1	0	-3	-2
13. More time to finish my school activities	**1**	0	-1	**-3**
14. More time to finish my exams	**3**	1	**-2**	0
15. To be able to work on my laptop or tablet in class	-3	**-4**	-1	-2
16. Having school materials presented in different ways, such as pictures and videos	-2	-1	0	-1
17. For my teachers to understand the way I learn	1	0	0	1
18. To have fixed seats in the classroom	**1**	**-4**	**4**	**-1**
Teachers				
19. That teachers are approachable	1	1	1	1
20. That my teachers give me clear and detailed instructions on what I have to do	4	**4**	3	3
21. That my teachers help me when I do not understand difficult activities	1	0	1	0
22. For my teachers to spend more time with me during class	-3	-3	-3	-4
23. For my teachers to show they care about me	-2	-1	-3	-1
24. For my teachers to be understanding of my autism	2	1	1	2
25. That my parents communicate my needs to my teachers	-1	-1	-2	-3
26. To be able to confide in teachers	**2**	-1	0	0
Classmates				
27. To learn tools to communicate with my classmates at school	-1	-3	-4	0
28. To have a friend I can trust	**0**	3	3	4
29. To collaborate with my classmates during class	**-4**	**1**	-2	-2
30. For my classmates to accept me as I am	**-1**	2	1	**4**
31. For my classmates to take my autism into consideration	-1	-1	-1	**1**
32. To build friendships at school	**-2**	3	**1**	2
33. For my school to take action against bullying	0	1	-1	0
Feeling at school				
34. To feel that I am part of this school	-1	2	1	-1
35. To feel safe at school	3	2	**0**	3
36. To learn how to handle my emotions (such as being stressed, sad or angry) at school	0	-2	0	**2**

Note. Distinguishing statements are bold.

Table 3

The Group Division Regarding Age, Gender, School Grade Level, Academic Level, Type of ASD

Factor	Male: female: other	Mean age (range)	Grade level	Academic level	Type of ASD
1 n = 12	0: 12: 0	20.42 (16-25)	not currently following (6) sixth grade (3) third grade (1) unknown (2)	vmbo (4) havo (4) vwo (3) unknown (1)	ASD DSM-IV (5) PDD-NOS (4) Asperger's Syndrome (3)
2 n = 6	0: 6: 0	19.83 (17-22)	not currently following (4) fifth grade (1) unknown (1)	vmbo (1) havo (3) vwo (2)	ASD DSM-IV (5) PDD-NOS (1)
3 n = 5	0: 4: 1	20.80 (18-24)	not currently following (3) fifth grade (1) unknown (1)	vmbo (2) havo (2) unknown (1)	ASD DSM-IV (4) PDD-NOS (1)
4 n = 8	2: 6: 0	18.71 (16-25) unknown (1)	not currently following (3) fourth grade (2) fifth grade (1) sixth grade (2)	vmbo (1) havo (3) vwo (4)	ASD DSM-IV (6) Asperger's Syndrome (2)

Discussion

This study aimed to describe the needs of students with ASD in mainstream secondary schools by identifying and differentiating students with different needs. Although students with ASD are increasingly enrolled in mainstream schools, they meet several challenges that make it hard to be fully included and they are at more risk of dropping out from school (Humphrey & Lewis, 2008a). This study contributed therefore to the importance of giving students with ASD a voice to understand and meet their needs in mainstream secondary education (Aubineau & Blicharska, 2020; Saggers, 2015; Tobias, 2009). The main research question of this study was: "What are the perspectives of youth with Autism Spectrum Disorder (16-25 years old) on their academic and social needs in secondary school?" To answer the question, both qualitative and quantitative techniques were used and the study was divided into two phases.

The first phase of our study involved a pilot study with semi-structured interviews. With regard to the first research sub-question, we examined if students with ASD between 16 and 25 years old who were currently or former following mainstream secondary education, did

find the statements about several themes valid, clear and relevant.

For the second research sub-question, we asked the students if they thought any academic and/or social needs were missing and what needs should be added.

We adjusted the set statements based on their feedback and this concluded in a final set of 36 statements. A few statements were changed, deleted or added regarding the five categories (school environment, teaching methods and tools, teachers, classmates and feeling at school). For example, we erased a statement about knowing everyone at school because it was found irrelevant. Another example is that statements about technology and visual aids have been changed and clarified. Some statements have been added regarding missing needs, for example about different times for class breaks, fixed seating and bullying at school.

The second phase was the main study. To answer the third research sub-question, we investigated what needs were the most important and the most unimportant to students with ASD, using an online Q-sort in Qualtrics, based on their experiences in mainstream secondary school.

All factors (groups) indicated teachers giving clear and detailed instructions on what they have to do as an important need. Participants indicated that clear instructions were important to start and finish their tasks and that they experienced stress in the absence of clear instructions. Students with ASD can experience anxiety in unstructured social situations and working in a predictive manner calms them down (Hebron & Humphrey, 2014). In addition, all factors indicated that they had no need for teachers to spend more time with them during class. Students reported that they did not want to stand out as different with an increased risk of bullying. The issue of bullying of students with ASD matches with the results of similar studies (e.g. Hebron & Humphrey, 2014; Humphrey & Lewis, 2008a; Humphrey & Symes, 2010; Goodall, 2019).

For the fourth research sub-question, we identified four groups of students by a four-factor solution who had similar needs and analyzed the demographics that differentiated these groups regarding age, gender, school grade level, academic level and type of ASD.

The need for extra time and teachers' understanding when students wanted to be left alone and less need for peer friendship and collaboration was characteristic of the first factor associated with 12 participants. It was notable that students of this factor emphasized that they did not like to work together in groups and interact socially and had difficulty collaborating and preferred to work independently. During adolescence, social life gets more complex and students with ASD find it difficult to interact with peers, have a lower social network and social support and spent less time cooperatively interacting with peers

(Humphrey & Symes, 2010; Humphrey & Symes, 2011). This difficulties may be related to the social and communication deficiency's that characterizes ASD and that young people with ASD find it difficult to understand the perspectives of others and social interaction can be unpredictable for them (Wood & Gadow, 2010). So they might just did not like working together and preferred independency, but it could also be (socially) easier for the students in this group to work alone in their own way.

The second factor with six participants was mainly characterized by clarity in the form of clear instructions from teachers in a small class with less stimuli. They did not need additional assistance from teachers (mainly teaching assistants) and could miss school routine and technological tools, as they expressed that they did not consider technological means necessary and worked better writing on paper instead on a laptop or tablet. It seemed remarkable that the students of this factor needed clarity in a calm environment. This is imaginable, since mainstream secondary schools can be very noisy (Humphrey & Lewis, 2008), stressful and destressing (Humphrey & Lewis, 2008b; Saggers, 2015). The sensitivity of the senses and stimuli, such as sound and light, can be a source of stress especially for young people with ASD (Wood & Gadow, 2010). This also ties in with studies in which students in mainstream secondary school were asked for their experience and appreciated teachers that taught clear and concisely (Dillon, 2016) and provided a calm classroom (Saggers, 2016).

The five students of factor 3 mostly focused on needs regarding the class environment, like a small class with fixed seats, and this group had no clear unimportant needs. A few students mentioned advantages of a small class and seating, such as a better overview and the opportunity getting to know people. The preference for a smaller school/class size is found within similar studies about secondary educational experiences of students with ASD (Dillon et al. 2016; Goodall, 2019). In the secondary school environment, students have to shift daily frequently between different classrooms with other teachers and classmates and there is chaos and little predictability (Humphrey & Lewis, 2008a; Tobias, 2009). The students in this group therefore may have liked to keep an overview and predictability in the (social) classroom setting. In addition, small classes contribute to a more intimate environment and also provides teachers with more time for individual students (Goodall, 2019), which makes it easier for these students to get to know people around them.

Finally, the main theme of the eight students linked to the fourth factor was the need for acceptance, particularly from their classmates. In addition, the students of the fourth factor clearly differed from the third factor, because they did not need changes regarding the

class environment, such as a small class size, and more time. It was remarkable that students of this group mentioned that they were different and wanted to be accepted by others. Like Humphrey and Lewis (2008a) and Hebron & Humphrey (2014), our findings suggest that students with ASD have a feeling of being different and at the same time a want for not be treated differently from others. Students with social-emotional and behavioral problems (common in students with ASD) are more likely to have poor social participation compared to their peers and are often socially excluded (De Leeuw et al., 2017, 2018b). While inclusive education should lead to more relationships, social interaction with their typically developing peers and peer acceptance (Koster et al., 2009). Studies focused on the own educational experiences of students with ASD in mainstream (secondary) schools also found feelings of exclusion, related to interaction with peers (Goodall & Mackenzie; Goodall, 2019), which unfortunately fall short of the CPRD (2016) Convention's objectives aimed at successful (social) inclusion. Furthermore, students with ASD experience more rejection and less acceptance than their peers (Symes & Humphrey, 2010) and they exhibit behaviors that may be perceived as 'odd' by their peers, making them vulnerable to bullies (Humphrey & Lewis, 2008a). It seemed that social inclusion could be tricky in practice, according to students from this factor, although it was probable but not certain that these group of students experienced feelings of exclusion.

In sum, the groups had several needs that they considered important and unimportant with underlying reasons, some notable aspects possibly explainable and consistent with existing findings in research and comparable studies regarding students with ASD.

It was particularly striking in the demographics that the study consisted almost entirely of female participants. This differs from other research, since females are largely missing in research about young students with ASD, partly due to their underdiagnosis, possibly explained by less stereotypical and repetitive behaviors in comparison with their male counterparts (Goodall & Mackenzie, 2018). Female students with ASD also tend to mask or camouflage their autistic symptoms to decrease social challenges (Tomlinson et al., 2019), due to the perceived pressure to fit in socially (Ratto et al., 2018), making them easily overlooked within the educational environment. No further remarkable characteristics and substantial differences were found in the demographics and across the factors; all factors contained small differences.

Strengths and limitations

Q methodology (Watts & Stenner, 2014) made it possible to identify groups of students (factors) with similar academic and social needs and to investigate which needs were most important and least important regarding relevant themes for the mainstream secondary school environment. Students had the opportunity to elaborate specifically on their most and least important needs, this allowed them to share their opinion and this provided more clarifying information. In addition, we were able to examine demographic differences between the groups.

It is suggested that a number between 40 and 60 participants is suitable for multiple-participant Q methodology studies (Watts & Stenner, 2014), so our sample size seems sufficient. The secondary students with ASD that participated in our study were between 16 and 25 years old. Although we were aware this presents a limitation in our study, by excluding younger participants that were currently following this particular educational level, it was likely that students at the beginning of secondary education were adjusting and starting to realize that they might have different needs. In contrast, by targeting older participants we addressed the perspective of students who had a clearer idea of their (educational) needs due to the longer period of time spent at this educational level. As a consequence, they can be seen as experts who have gone through the transition from primary education to secondary education, which comprises several major new challenges regarding the changes of adolescence (Aubineau & Blicharska, 2020). Furthermore, although the representation of female students with ASD can be seen as unique and a strength of our study, male students with ASD were outnumbered and underrepresented. On the other hand, this study could be seen as a counterbalance to several other studies about the experiences of students with ASD in mainly or only involving males (e.g. Dillon et al., 2016; Goodall, 2019; Hebron & Humphrey, 2014; Humphrey & Symes, 2010; Saggers, 2015). Moreover, it is always possible that there are different viewpoint of students with ASD about the needs in mainstream secondary school than is reported in this study, since they are personal.

We used an online version of the Q-sort in Qualtrics. Although the digital version was accessible to participants, it cannot be ruled out that some would have found a paper version more practical. With a paper version, participants could have arranged the needs clearly in the Q-sort figure. In the digital version, the participants could rank the statements on the screen step by step per category (important, neutral, not important) and this became more specific with each step. They could drag the positions back digitally, but not put them back into a full paper figure with the complete overview.

Implications and future directions

Qualitative research about the educational experiences of adolescents and young adults with ASD is limited (Fayette & Bond, 2017) and research to date about students with ASD regarding inclusive education had focused mainly on the experiences of children and the perspectives of other stakeholders rather than students' own experiences (Saggers, 2015). This study contributed to the existing research that takes the experiences of secondary school students with ASD into account, about their academic and social needs, specifically in the mainstream school environment. Empowering students to share their thoughts and feelings gave insight in their experiences. Mainstream education does not fully meet the needs of students with ASD from the students' perspectives (Humphrey & Lewis, 2008a). However, the number of students with ASD in mainstream school is increasing (Aubineau & Blicharska, 2020), which makes it vital for schools, to adequately support them.

According to our study, the social and academic needs of mainstream secondary school students with ASD tend to differ. For example, one group may benefit from adjustments in the classroom, while another group may not need structured school routines, and another group may want to be understood by teachers or accepted by classmates. Furthermore, the individual needs of students with ASD of our sample were varied and subjective, despite the formed groups with similar needs. This is also apparent from the results showing that the factor loadings are ranging from 0.43 to 0.69, indicating the variation between the participants that loaded significantly on a factor. It would therefore be interesting to share the study more broadly among the population students with ASD to get an insight in their individual needs. Moreover, additional research could focus on including male participants using the Q methodology and comparing it to this current predominantly female study.

In addition, on average participants valued clear instructions of teachers and did not want that teachers spent more time with them during class to avoid emphasizing their differences. The diverse needs of these students with ASD implies that they require individual support, which may also take into account individual strengths and needs (Fayette & Bond, 2017). Based on the strengths and needs of students, appropriate additional support can be provided, in a way that it is just enough to empower these students (Aubineau & Blicharska, 2020) and does not make them feel uncomfortable and picked out.

Secondary school students interact with various school personnel and the environment is more complex with more daily unstructured time periods (Tobias, 2009). This influences also the needs of teachers, who have to deal with responding to different individual needs of students with ASD in the mainstream setting. It can therefore be of added value to also look

at the needs of teachers of students with ASD (e.g. Van der Steen et al., 2020) and compare these with the needs of students themselves. Subsequently, to look more specifically at the interactions between students and teachers and what is important in this regard, also for implications in the secondary school and classroom setting. Esqueda Villegas et al. (submitted) reviewed studies about teacher-student interactions. The findings showed that perceived needs as reported by teachers often differed from the students' perspectives during their interactions. It could therefore be interesting to combine and analyze the needs of both teachers and students about the same relevant secondary school key themes.

Besides, it seems useful to invest in the knowledge of teachers about students with ASD and how to approach these students, for instance aimed at giving clarity and creating an environment with toleration of diversity and preventing bullying. Educating peers about ASD may also increase understanding towards students with ASD (Saggers, 2015). All of this requires collaboration and regular evaluation between students and school staff, thus involving students in the process of school policy (Aubineau & Blicharska, 2020).

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