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The Relationship between Sense of Belonging at school and Staff-Pupil Interaction for Pupils with Autism Spectrum Disorder

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The Relationship between Sense of Belonging at school and Staff-Pupil Interaction for Pupils with Autism Spectrum Disorder

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Abstract

Sense of belonging at school is an important factor in the school context. Especially for pupils with Autism Spectrum Disorder (ASD) a sense of belonging is important in order to have positive experiences at school. The most important contributor to a sense of belonging at school is the staff-pupil interaction. The purpose of the current research is to investigate the relationship between a sense of belonging at school and staff-pupil interaction for pupils with ASD. The relationship will be investigated for boys and girls at primary school and secondary school. Participants are parents of 200 children with ASD between the age of three and seventeen years old. The parents filled in questionnaires about the well-being of their children in the school context. The current research showed that there is a strong positive relationship between sense of belonging at school and staff-pupil interaction for pupils with ASD. No differences were found in the levels of sense of belonging at school and staff-pupil interaction between boys and girls and between primary and secondary school.

Keywords: ASD, sense of belonging, staff-pupil interaction, boys, girls, primary school, secondary school

Pupils spend at least one quarter of their lives at school (Hamre & Pianta, 2010), which makes school an important environment for the development of children (Eccles & Roeser, 2012; Meece & Eccles, 2010). Primary school children report that they feel like school is a place with a lot of rules and that they are not allowed to play as much as they would like (Kocyigit, 2014). High schoolers often report that school is boring and that they are tired and stressed because of school (Moeller et al., 2020). But school does not only have negative consequences, school can also be a positive social environment. School provides structure and it is an environment in which children form personal and social identities, develop relationships, and learn important life skills (Noack et al., 2010; van Dijk & Orobio de Castro, 2016). An important factor for school to be a positive environment is having a sense of belonging. Sense of belonging at school refers to "the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment'' (Goodenow & Grady, 1993, p. 61). Sense of belonging at school is a protective factor in the well-being of pupils in various domains (Pendergast, et al., 2018). For some children, such as children with Autism Spectrum Disorder (ASD), a sense of belonging at school is even more important in order to have positive experiences in the school social environment (Miles et al., 2019).

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder associated with social-communication deficits and restricted and repetitive behaviors (American Psychiatric Association [APA], 2013). Symptoms of ASD include a lack of social interest or unusual social interactions, odd playing patterns, and unusual communication patterns (APA, 2013). Research shows that children with ASD show less behavior aimed at creating and maintaining social exchange and that they have more difficulties in understanding communication and social cues than typically developing children (Vivanti & Nuske, 2017). ASD affects approximately 1% of the population (APA, 2013).

The problems with social interaction have multiple consequences for young people with ASD, especially in the school context. School is a place where children learn how to deal with others and how to interact and communicate with other people (van Dijk & Orobio de Castro, 2016). For children with ASD this could be a challenge. Children with ASD report a desire for more social peer interaction and they experience poor social support and more loneliness in comparison with typically developing peers (Bauminger & Kasari, 2000; Lasgaard et al., 2010). Children with ASD are less likely to be accepted by peers and have fewer reciprocal friendships than their peers without ASD (Rotheram-Fuller et al., 2010).

One important factor in the development of children at school is a sense of belonging. Sense of belonging at school has a positive effect on health and educational outcomes and leads to better social well-being (Pendergast, et al., 2018). Pupils with a higher sense of belonging at school achieve higher academic performances and hold more positive attitudes towards school (Sari, 2012). Furthermore, research shows that a higher sense of belonging at school leads to fewer psychological health and social problems in adolescence, such as lower depression levels, reduced social rejection from peers, and a reduced chance of out of school (Anderman, 2002).

It is clear that a sense of belonging at school has a positive influence on various school factors. There are several individual, social, and environmental factors that contribute to the sense of belonging. Research shows that individual factors, such as motivation, academic self-regulation, and self-esteem are related to a sense of belonging at school (Allen et al., 2016). Social factors also influence the sense of belonging of pupils, therefore relationships with peers contribute to the sense of belonging. Specifically, the quality of those relationships is defining; caring relationships and feelings of peer support are more important for a sense of belonging at school than the presence of peers only (Allen et al., 2016).

Multiple studies suggest that the interaction between pupils and staff is the most important contributor to a sense of belonging at school (Allen et al., 2016; Chiu et al., 2016; Pendergast et al., 2018). During school, pupils spend most of their time in class, where the staff controls the environment and activities (McNeely et al., 2002). Pupils who experience positive interactions with the school staff and feel that the staff is caring, empathic, and helpful are more likely to have a greater sense of belonging than pupils with negative interactions with the school staff (Allen et al., 2016). Based on teacher and child reports, research has shown that girls have a more positive staff-pupil interaction that boys. Teachers perceive their relationship with boys as more distant and conflicted than their relationship with girls (Koepke & Harkins, 2008).

Although it is clear that sense of belonging at school is an important protective factor in the development of children, not much research has been done into the sense of belonging at school of pupils with ASD yet. As mentioned above, pupils with ASD have problems in their social functioning, at school as well (Vivanti & Nuske, 2017). One research that investigated the sense of belonging of pupils with ASD shows that pupils with ASD report significantly lower levels of sense of belonging at school in comparison to their peers without ASD (Hebron, 2018). Because of the positive effect that sense of belonging has on various life outcomes and the fact that people with ASD face more challenges with regard to social inclusion and mental health, it is important that more research on the sense of belonging of pupils with ASD is conducted. It is also necessary to understand which factors contribute to a sense of belonging at school for pupils with ASD.

Besides having social difficulties, children with ASD also have difficulties with transitions (APA, 2013). A large transition in almost every child's life is the transition between primary and secondary school (Zeedyk et al., 2003). Secondary schools are often larger, more noisy and more chaotic than primary schools, which can be overwhelming for

children with ASD (Makin et al., 2017). Another major difference between primary and secondary school is the way of teaching. In primary school most of the teaching takes place within a familiar and stable group of peers with one or maybe two teachers. In secondary school, pupils are taught by different teachers for every class and sometimes the peers in the class change as well (Mandy et al., 2016). Secondary school could be a big challenge for pupils with ASD. A sense of belonging at school and positive staff-pupil interaction could be crucial for pupils with ASD to better cope with these challenges. Research has shown that there are differences in the levels of school belonging and staff-pupil interaction between primary and secondary school. Parents of secondary school children report a significant lower school fit than parents of primary school children (Bahena et al., 2016). School fit refers to how well the school's characteristics match a pupil's socio-emotional, motivational, and academic needs (Bahena et al., 2016) and is seen as an attribute of school belonging (Hagerty et al., 1992). Research, based on teacher and child reports, conclude that there is a decrease in the quality of staff-pupil interaction between primary and secondary school, because pupils experience less staff support in secondary school (Barber & Olsen, 2004; Koepke & Harkins, 2008). No research was found about the difference in the relationship between sense of belonging and staff-pupil interaction for primary and secondary school. It is important that more research is done into the sense of belonging at school and sense staff-pupil interaction and how it differs between primary and secondary school, in order to provide help to pupils with ASD in their school journey.

Recently, more studies have focused on the differences between boys and girls with ASD. Research suggests that girls are more likely to camouflage their autism traits than boys (Dean et al., 2017; Lai et al., 2017; Wood-Downie, et al., 2020). Camouflaging refers to strategies used to hide behaviors associated with ASD, using techniques to appear socially competent, and to prevent others from seeing their social difficulties (Hull et al., 2017). Girls

with ASD tend to hide the behavior that might be viewed as socially unacceptable. They are more likely to make eye contact during conversation, mimic other's social behavior, imitate facial expressions or gestures, and follow social scripts than boys with ASD are (Lai & Baron-Cohen, 2015). Children with ASD report that they camouflage in order to fit in and hide less desirable aspects of themselves (Hull et al., 2017). According to children with ASD, camouflaging results in becoming a functioning member of society, being able to socialize, and form relationships (Lai et al., 2016; Hull et al., 2017).

Camouflaging does not only have positive outcomes; research shows that camouflaging also has negative consequences. Camouflaging is associated with more mental health problems, such as higher levels of stress, depression, and anxiety (Cage & Troxell-Whitman, 2019). Camouflaging is also related to lower levels of well-being, lower self-esteem, and more emotional problems (Lai et al., 2017; Hull et al., 2017). Furthermore, camouflaging can lead to the needs of people with ASD being misunderstood or overlooked entirely (Bargiela et al., 2016). One research concluded that camouflaging results in a lower sense of belonging (Cassidy et al., 2020). Therefore, it is important to understand which factors are related to a sense of belonging at school for pupils with ASD and whether this differs for boys and girls.

The purpose of the current study is to investigate the relationship between sense of belonging at school and staff-pupil interaction for pupils with ASD. The difference between boys and girls will be investigated and whether this relationship differs for pupils in primary school and secondary school.

Based on research on children without ASD, it is expected that girls with ASD have a more positive staff-pupil interaction than boys with ASD (Koepke & Harkins, 2008). As mentioned above, girls are more likely to camouflage their autistic traits than boys (Wood-Downie, et al., 2020). Recent research suggests that camouflaging results in a lower sense of

belonging (Cassidy et al., 2020). Based on these studies, it is expected that girls with ASD have a lower sense of belonging than boys with ASD.

Furthermore, it is expected that pupils with ASD in primary school have more positive staff-pupil interactions compared to children with ASD in secondary schools (Barber & Olsen, 2004; Koepke & Harkins, 2008). It is also expected that pupils with ASD in primary schools have higher levels of sense of belonging than pupils with ASD in secondary school (Bahena et al., 2016).

Lastly, it is expected that there is a positive relationship between sense of belonging at school and staff-pupil interaction for all children with ASD (Chiu et al., 2016; Crouch et al., 2014; Uslu & Gizir, 2017). Because of the lack of research into the sense of belonging and staff-pupil interaction of pupils with ASD, it is important that more research is conducted on this subject**.**

Methods

Design

A cross-sectional design was adopted for the current research. Data was collected in the spring of 2020.

This research is part of a larger longitudinal research project. The central aim of the larger research project is to create an inclusive school setting with and for pupils with ASD. In this ongoing research, factors that are important for social inclusion will be identified. The aim is to create an intervention to improve the social inclusion of pupils with ASD that focuses on the child's environment.

Participants and procedure

Two hundred parents of children with a diagnosis of Autism Spectrum Disorder participated in this research. The children were aged between 3.78 and 16.10 years old ($M = 12.23$, $SD = 2.93$). 21% of the participating children were girls, 79% were boys. Of all the

children, 90.5% was following some type of education. The other 9.5% was not following any type of education due to various reasons, ranging from the child not being of school age to the appropriate type of education not being available for the child. Table 1 shows the demographic features of the participants. In total, the parents of four boys and one girl did not answer the questions about sense of belonging and staff-pupil interaction. These participants are excluded from further statistical analyses. The participating boys and girls did not differ in age (t (73.46) = 0.20, p = .66).

All children were registered in the Dutch Autism Register (NAR). The NAR is a Dutch database with information about autism. The purpose of the register is to follow the life course of people with ASD for a longer period of time, which is done through online questionnaires. This is used to collect large-scale data about the living conditions and the development of people with ASD in the Netherlands (Nederlands Autisme Register [NAR], 2015). Every year, the parents of the children are asked to fill in an online questionnaire about the living situation and well-being of their children.

The questionnaire started with some questions about the profile of the child and the parents. Second, questions were asked about the diagnosis of the child, physical problems and treatment. Third, the parent answered questions about health care, the living environment of their child and activities in leisure time. Last, questions were asked about the school situation, social contacts, and well-being of the child. For the current research questions about the profile of the child and the school situation of the child were used. Two new questionnaires about the social inclusion and social participation at school were included in NAR in the year of 2020. Detailed information about these two questionnaires is given below.

Table 1

Demographic data of the participants

	Boys	Girls

	n = 158	*n* = 42
Mean Age (*SD*)	12.18 (3.03)	12.39 (2.51)
Included in education (%)	143 (89.9%)	39 (92.9%)
Attending primary school (%)	70 (44.3%)	22 (52.4%)
Attending secondary school (%)	67 (42.4%)	14 (33.3%)

Measures

Sense of belonging at school

To measure the sense of belonging at school six questions based on the seven-item School Fit Scale were used (Bahena et al., 2016). These questions asked about two aspects of sense of belonging; valued involvement and the fit of the individual in the social context (Hagerty et al., 1992).

Example questions included 'How well do the activities offered at your child's school match his or her interests?' and 'How much of a sense of belonging does your child feel at his or her school?'. Answers were given on a 5-point Likert scale, with choices ranging from not at all (1) to extremely well (5). The internal consistency was measured with Cronbach's alpha (Cronbach, 1951). The internal consistency of the items of sense of belonging is excellent, α = .91 (Nunnally & Bernstein, 1994).

Staff-pupil interaction

Four questions based on the seven-item School Climate Scale (Schueler et al., 2014) were used to assess the staff-pupil interaction. These four questions relate to the interaction between pupils and staff and thus included in the analyses of the staff-pupil interaction. An example question is 'Overall, how much respect do you think the teachers at your child's school have for the children?'. Answers were given on a 5-point Likert scale (1 = none, 2 = a little, 3 = some, 4 = quite a lot, 5 = very much). The internal consistency of the questions was

measured with Cronbach's Alpha (Cronbach, 1951). The internal consistency of the questions of staff-pupil relationship is good, $\alpha = 81$ (Nunnally & Bernstein, 1994).

Statistical analyses

The data-analysis was done with IBM SPSS Statistics (Version 25, 2017).

To investigate the differences in the levels of sense of belonging at school and staff-pupil interaction between boys and girls and between primary and secondary school, Welch's *t*-tests were used. Welch's *t*-tests perform better than Student's *t*-tests when the sample sizes are unequal and they deliver the same results as Student's *t*-tests when the sample sizes are equal.

To investigate the relationship between sense of belonging at school and staff-pupil interaction correlation analyses were used. The correlations were calculated for boys and girls and for pupils at primary school and secondary school respectively. Then, the correlation coefficients were compared using the Fisher's *r*-to-*z* transformation (Fisher, 1915). The correlation coefficients were compared to investigate whether the relations differed between boys and girls and between pupils of primary school and secondary school. Furthermore, because of the unequal distribution of boys and girls in primary and secondary school, the correlation coefficients for boys and girls at primary school and for boys and girls at secondary school were compared using the Fisher's *r*-to-*z* transformation.

<center>**Results**</center>

Table 2 shows the mean scores on sense of belonging and staff-pupil interaction for boys and girls. According to a Welch's *t*-test, no significant difference was found between boys and girls for sense of belonging ($t(56.86) = 1.76$, $p = .19$) and no significant difference was found in staff-pupil interaction between boys and girls ($t(56.35) = 0.71$, $p = .40$). Table 3 shows the mean scores on sense of belonging and staff-pupil interaction for students at primary school and students at secondary school. There was no significant difference in sense

of belonging between students of primary and secondary school (t(18.99) = 0.23, p = .79).

Moreover, no significant difference was found in staff-pupil interaction between students at

primary school and secondary school (t(18.89) = 0.73, p = .50).

Furthermore, Welch's t-tests show that there is no significant difference between boys

and girls at primary school in sense of belonging (t(31.71) = 3.93, p = .06). Additionally, no

significant difference was found between boys and girls at primary school in staff-pupil

interaction (t(29.69) = 1.78, p = .19). At secondary school, there is no significant difference

between boys and girls in sense of belonging (t(20.58) = 0.15, p = 70) and in staff-pupil

interaction (t(21.65) = .02, p = .88).

Table 2

Means (SD) of Sense of Belonging and Staff-Pupil Interaction for boys and girls

	Boys $n = 154$ M (*SD*)	Girls $n = 41$ M (*SD*)
Sense of Belonging	3.51 (1.08)	3.25 (1.16)
Staff-Pupil Interaction	4.06 (0.80)	3.93 (0.94)

Table 3

Means (SD) of Sense of Belonging and Staff-Pupil Interaction for primary school and

secondary school

	Primary school $n = 91$ M (*SD*)	Secondary school $n = 80$ M (*SD*)
Sense of Belonging	3.53 (1.02)	3.57 (0.98)
Staff-Pupil Interaction	4.13 (0.71)	3.99 (0.84)

To investigate whether there is a linear relationship between sense of belonging and

staff-pupil interaction, a bivariate Pearson's correlation coefficient (r) was first calculated for

all participants. There is a strong positive relationship between sense of belonging ($M = 3.46$, $SD = 1.10$) and staff-pupil interaction ($M = 4.03$, $SD = 0.83$) for all participants, $r(193) = .72$, $p < .001$.

The relation was next checked for all boys and girls, for all pupils at primary and secondary school separately, and for boys and girls in primary school and boys and girls in secondary school separately. There was a strong positive relationship between sense of belonging and staff-pupil interaction for boys, $r(152) = .70$, $p < .001$, and for girls, $r(39) = .79$, $p < .001$. To test for potential differences between the correlation coefficients of boys and girls, the correlation coefficients were transformed into z-scores using Fisher's r-to-z transformation (Fisher, 1915). This resulted in z-scores of $z = 0.87$ for boys and $z = 1.06$ for girls. Using a two-tailed test of significance, the correlation between sense of belonging and staff-pupil interaction was found to not differ significantly between boys and girls ($z = 1.041$, $p = .298$).

A bivariate Pearson's correlation showed a strong positive relationship between sense of belonging and staff-pupil interaction for students at primary school, $r(89) = .69$, $p < .001$, and for students at secondary school, $r(78) = .75$, $p < .001$. To investigate the difference between the correlation coefficients of students at primary school and secondary school, the correlation coefficients were transformed into z-scores (Fisher, 1915). This resulted in z-scores of $z = 0.84$ for students at primary school and $z = 0.96$ for students at secondary school. Using a two-tailed test of significance, the correlation between sense of belonging and staff-pupil interaction was not significantly different between students of primary and secondary school ($z = 0.779$, $p = .435$).

A Pearson's correlation showed a strong positive relationship between sense of belonging and staff-pupil interaction for boys at primary school ($r(68) = .66$, $p < .001$) and for girls at primary school ($r(19) = .72$, $p < .001$). To test for potential differences between the

correlation coefficients of boys and girls at primary school, the correlation coefficients were transformed into *z*-scores. This resulted in *z*-scores of $z = 0.80$ for boys at primary school and $z = 0.91$ for girls at primary school. Using a two-tailed test of significance, the correlation between sense of belonging and staff-pupil interaction was not significantly different between boys and girls at primary school ($z = 0.428$, $p = .669$).

There was a strong positive relationship between sense of belonging and staff-pupil interaction for boys at secondary school ($r(64) = .74$, $p < .001$) and for girls at secondary school ($r(12) = .82$, $p < .001$). To investigate the difference between the correlation coefficients of boys and girls at secondary school, the correlation coefficients were transformed into *z*-scores. This resulted in *z*-scores of $z = 0.94$ for boys at secondary school and $z = 1.15$ for girls at secondary school. Using a two-tailed test of significance, the correlation between sense of belonging and staff-pupil interaction was not significantly different between boys and girls at secondary school ($z = 0.631$, $p = .528$).

Discussion

School is an important context in the development of children (Eccles & Roeser, 2012; Meece & Eccles, 2010). School provides an environment in which children learn important life skills, develop relationships, and form personal and social identities (Noack et al., 2010; van Dijk & Orobio de Castro, 2016). An important factor for positive experiences at school is a sense of belonging (Pendergast et al., 2018). For children with ASD, sense of belonging at school is even more important to be able to have positive experiences in the school environment (Miles et al., 2019). An important contributor to a sense of belonging at school is the staff-pupil interaction (Allen et al., 2016; Pendergast et al., 2018). The current research has investigated the relationship between sense of belonging at school and staff-pupil interaction for boys and girls with ASD in primary school and secondary school.

The current research has shown that there is a strong positive relationship between sense of belonging at school and staff-pupil interaction for pupils with ASD. These results are consistent with past studies that have reported a significant relationship between sense of belonging and staff-pupil interaction (Chiu et al., 2016; Crouch et al., 2014). This relationship was found in all participants, as well as for boys and girls separately and for pupils from primary and secondary school separately.

Contrary to the hypotheses, the research has shown that there is no significant difference in the level of sense of belonging at school between boys and girls with ASD. Camouflaging is associated with lower levels of sense of belonging and it is known that girls with ASD camouflage more than boys with ASD (Cassidy et al., 2020; Wood-Downie, et al., 2020). Thus, expected was that girls have a lower level of sense of belonging than boys. Camouflaging is defined as 'the discrepancy between the person's external behavioral presentation in social-interpersonal contexts and the person's internal status' (Lai et al., 2017, p. 693). Camouflaging is partly seen as an internal status, which means only the child with ASD can report on this. It was hypothesized that camouflaging results in a lower sense of belonging, but when parents report the sense of belonging of their child with ASD camouflaging is not taken into account. Thus, parental reports are not reliable when reporting their child's sense of belonging. Furthermore, research suggests that people with ASD experience and define constructs as quality of life, which sense of belonging is a part of (Jones, 2009), differently to the population (McConachie et al., 2018). This can affect measurement properties of questionnaires designed for the general population but used in research about people with ASD (Cassidy et al., 2018; Wigham & McConachie, 2014).

Furthermore, no difference was found in the level of staff-pupil interaction between boys and girls with ASD. Because of the lack of research in staff-pupil interaction with pupils with ASD, this hypothesis was based on studies with pupils without ASD. An important

aspect of the staff-pupil interaction is the level of conflict between the pupil and the staff (Robertson et al., 2003; Spilt et al., 2016). Looking at pupils without ASD, boys have more conflicted interactions with their teachers than girls (Koepke & Harkins, 2008). However, when looking at pupils with ASD, girls show as many behavioral problems as boys, which results in an equal amount of conflict between the two sexes (Horiuchi et al., 2014). Higher levels of conflict lead to worse staff-pupil interactions (Robertson et al., 2003; Spilt et al., 2016). As a result of the conflict in interactions between the staff at school and pupils with ASD, no difference was found in the level of staff-pupil interaction between boys and girls.

No difference was found in the levels of sense of belonging at school and staff-pupil interaction between pupils with ASD in primary and secondary school, which is not consistent with findings from previous research (Bahena et al., 2016). In the current research, more than half of the pupils with ASD was included in special education (NAR, 2020). Of the pupils in primary education, 68.8% was included in some type of special education. In secondary education, 56.3% was included in special education. Special education schools have the same learning goals as mainstream education schools, but pupils have more time to achieve those goals. Classes in special education are smaller and the teachers are more experienced with the difficulties of their pupils than teachers in mainstream education (Rijksoverheid, 2021). Teachers in special education have more positive attitudes towards pupils with ASD than teacher of mainstream education, which has a positive effect on staff-pupil interactions for pupils with ASD (Hernandez et al., 2016; Wilkerson, 2012). Teachers in special education have more knowledge about the needs of pupils with ASD, which results in more positive experiences of pupils with ASD in special education. These positive experiences lead to higher levels of belonging at school (Nepi et al, 2013). There is no difference in the attitudes of teachers in special primary education and special secondary education (Ross-Hill, 2009),

which results in no difference in the levels of sense of belonging and staff-pupil interaction between primary and secondary school.

Another explanation for not finding results consistent with the hypotheses is that the current research is based on data from parent reports, past studies have used teacher and child reports. Results from previous research show that there is a significant difference between the outcomes of parent reports and the outcomes of children reports in the school context (Ramsey et al., 2016). Research into the different perceptions of parents, teachers and students about the school context has shown that parents report a significantly higher level of school connectedness than their children (Ramsey et al., 2016). Furthermore, staff-pupil interaction is an attribute that forms mostly inside the school (Spilt et al., 2016). Personal beliefs and behaviors are formed by individual perceptions of situations and environments (Bandura, 2001). Pupils experience school as the recipient of services, they need to follow the rules of the school. Parents experience school through meetings with the teacher and indirectly through their children. These different perceptions can result in different reports about the same aspect (Ramsey et al., 2016). A recommendation for future research is to use self-reports and teacher reports, because they have different perceptions of the experiences in the school context than parents (Ramsey et al., 2016).

There are some limitations in the current research. The levels of sense of belonging at school and staff-pupil interaction have been investigated with questionnaires based on school fit and school climate. School fit is seen as an attribute of sense of belonging (Hagerty et al., 1992) and school climate is seen as an attribute of staff-pupil interaction (Schueler et al., 2014), but they are not substitutes for the entire concept of sense of belonging and staff-pupil interaction. It is recommended to use questionnaires completely about the sense of belonging and staff-pupil interaction in future research to investigate this relationship.

Furthermore, the research has been based on cross-sectional data instead of longitudinal data. When cross-sectional data is used, nothing can be concluded about causality (Reynolds & Livingston, 2012). It is not known whether a higher level of sense of belonging leads to a higher level of staff-pupil interaction or whether a higher level of staff-pupil interaction results in a higher level of sense of belonging. With cross-sectional data, it can only be concluded that there is a relationship between the two constructs. In order to improve the experiences of pupils with ASD at school, it is important to know how sense of belonging and staff-pupil interactions are influenced by other constructs. A recommendation for future research is to investigate the sense of belonging at school and staff-pupil interaction for a longer period of time. When this relationship is investigated over a longer period of time, the causality of the relationship can be investigated.

Another limitation of the current research is the unequal distribution of boys and girls. The statistical analyses have been corrected for unequal groups and still no significant difference was found in sense of belonging and staff-pupil interaction for boys and girls. The inequality in the sample did not influence the results, but the sample is not the right representation of the whole population (Centraal Bureau voor Statistiek, 2021).

Another recommendation for future research is to compare pupils with ASD with pupils without ASD. So far, not much research has compared pupils with ASD with pupils without ASD. When those groups are compared in research, potential differences between the groups would become clear and this could result in more knowledge about the needs of pupils with ASD.

This research has shown that there is a positive relationship between sense of belonging at school and staff-pupil interaction for pupils with ASD. Pupils with ASD have less positive experiences at school than pupils without ASD (Miles et al., 2019). Therefore, it is important to improve their school experiences. Research has shown that a lack of training

and knowledge about pupils with ASD leads to teachers having less positive attitudes towards inclusion (Rodrìguez et al., 2012). Especially teachers in mainstream education lack the training to support pupils with ASD and feel that they are unable to meet the needs of the pupils (Rodrìguez et al., 2012; Toran et al, 2016). Training teachers on how to interact with pupils with ASD could result in more knowledge and expertise in how to work with those pupils. Learning new skills about how to deal with pupils with ASD could make a positive difference in the pupils' school experience (Boyle et al., 2013). This could lead to better staff-pupil interactions, a better environment for pupils with ASD and higher levels of sense of belonging at school for pupils with ASD.

Conclusion

The current research has investigated the relationship between sense of belonging at school and staff-pupil interaction for pupils with ASD. Results show that there is a strong positive relationship between those constructs for all pupils with ASD. No differences were found in the levels of sense of belonging at school and staff-pupil interaction between boys and girls and between primary and secondary school. Future research is needed to investigate a causal relationship between the constructs. Moreover, future research is needed to investigate the difference in this relationship between pupils with and without ASD in order to understand the needs of pupils with ASD. It is necessary to invest in a training for teachers about pupils with ASD, because it specializes the teachers and could thus aid in providing more positive experiences at school for pupils with ASD.

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