TEACHER EDUCATION & DEVELOPMENT | RESEARCH ARTICLE

The role of experience in teachers’ social representation of students with autism spectrum diagnosis (Asperger)

Ann-Charlotte Linton1,3*, Per Germundsson2, Mikael Heimann1,3 and Berth Danermark1

Abstract: Support from teachers is a key strategy for accommodating students with Asperger syndrome (AS) diagnosis in the mainstream classroom. Teachers’ understanding and expectations of students, i.e. their social representations (SR), have a bearing on how they interact and accommodate, but little is known about why. Therefore, the current study examined the idea that teachers’ SR of these students are influenced by their previous experience with AS. To this end, Swedish mainstream teachers were invited to anonymously answer a web-based questionnaire (N = 153). An association task was used to obtain data on teachers’ SR and the content and structure of the SR were explored. Our results suggest that work-related experience of AS and/or private experience shape teachers’ SR of these students relative to teachers with no experience. Moreover, teachers with previous experience had more SR elements related to environment and learning factors while teachers without previous experience had more elements related to the individual’s behavior. Teachers with private experience produced fewer positive elements compared to those with work-related experience only. These results highlight the role of contextual factors and prior experience in forming SR. We conclude that contact with students with AS, e.g. during teacher training, could facilitate accommodation in mainstream schools.

Subjects: Disability Studies - Sociology; Inclusion and Special Educational Needs; School Psychology; Social Psychology; Teaching & Learning

Keywords: autism spectrum disorder; Asperger diagnosis; teacher experience; social representations; inclusion; social representation theory

ABOUT THE AUTHOR

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PUBLIC INTEREST STATEMENT

Preventing students with Autism Spectrum Disorder (ASD) from dropping out of school is a worldwide concern and in particular for teachers in mainstream classrooms. Teachers’ understanding and expectations have bearing on how they interact with and accommodate these students. Therefore, the current study examined whether various kinds of experience influence how teachers in Sweden perceive students with AS. Experiences seem to play a vital role in teachers’ positive view of inclusion of students with ASD. Teachers with private experience were less positive than teachers with work-related experience. Prior contact with students with ASD e.g. during teacher training could facilitate accommodation in mainstream classrooms.
1. Introduction
Preventing students with Asperger Syndrome (AS) from dropping out of mainstream education is a
worldwide concern (Mavropoulou & Avramidis, 2012; Moores-Abdool, 2010; Probst & Leppert, 2008).
Policy underscores an inclusive agenda (Humphrey & Lewis, 2008; Isaksson, Lindqvist, & Bergström,
2007), but schools have yet to live up to this goal given the number of students with AS who drop out
of school (Parsons & Lewis, 2010; Swedish National Agency for Education [SNAE], 2009). One prob-
lem in implementing the policy is that personnel often have little or no specific training since their
basic education lacked this (Hein, Grumm, & Fingerle, 2011; Robertson, Chamberlain, & Kasari, 2003;
Starr & Foy, 2012; Syriopoulou-Delli, Cassimos, Tripsianis, & Polychronopoulou, 2012). Given the pol-
icy of inclusion teachers likely meet students with AS in the general classroom, but we do not know
how they perceive or deal with them.

AS is a pervasive disorder that affects how a person makes sense of the world, processes infor-
mation, and relates to other people and it is one of three entities within the broader Autism
Spectrum Disorder in DSM IV (American Psychiatric Association [APA], 1994). It has not been clear
whether AS qualitatively differs from high-functioning autism; therefore, there is a debate on
whether or not AS is a single condition or on a spectrum (see e.g. Baron-Cohen, 2008 & Kaland,
2011). Although the new DSM V (APA, 2013) does not highlight the sub-entities, AS is still used as
a term and many people have already received the diagnosis and it is still included in the ICD-10
(Tsai & Ghaziuddin, 2014).

One factor that may determine how successful teachers are in providing an inclusive environment
for students with AS is their experiences and beliefs (Armstrong, 2013; Avramidis & Norwich, 2002;
Emam & Farrell, 2009). Indeed, experiences generated from a traditional medical approach that
focuses on “deficits” might result in low expectations and more exclusion. On the other hand, a
social model of disability where the environment plays an increasing role in defining educational
barriers might lead to a different environment and more inclusion (Thomas & Loxley, 2007). Although
teacher training programs have developed robust models for understanding student diversity, the
unique experiences students with AS bring to the school arena pose new sets of challenges
Given the situation today, most teachers rely on their own previous experiences in order to be effec-
tive inclusion educators (Hattie, 2012; Mavropoulou & Avramidis, 2012; Sharma, Forlin, & Loreman,
2008). Hence, a positive expectation towards including students with AS may be a prerequisite for
success (Emam & Farrell, 2009; Jordan, 2008) and this in turn is dependent on the teacher’s personal
experience (Jovchelovitch, 2007). Such experiences are normally incorporated in and expressed via
one’s belief system.

The beliefs that teachers bring to the classroom are a reflection of so-called social representa-
described social representation as an array of values, ideas, and practices that forms a coherent
order among phenomena and shared with a group. The representation supplies people with codes
for explicitly naming and classifying objects and phenomena in order for people to communicate
with each other. Therefore, SR acts as a guide for teachers’ actions by integrating teachers’ collec-
tive memories with their individual practical experiences and thus determines their practices and
behavior (Howarth, 2004; Ratinaud & Lac, 2011; Walmsley, 2004). These representations are
expressed in behavior (Harma et al., 2013; Howarth, 2004; Moscovici, 2000). Hence, in the educa-
tional arena, SR can be seen as signposts for how teachers will act in the classroom to provide
students with AS an inclusive environment. For example, the SR of teachers concerning students
with AS, encompasses a focus on the disabling aspects and special needs of the individual suggest-
 ing that inclusion could well be compromised (Linton, Germundsson, Heimann, & Danermark,
2013). In order to develop better programs, there is a clear need to understand better how experi-
ence affects the development of SR and in turn how these might be related to actual practice
(Linton et al., 2013).
2. Social representation theory

The theory of social representations (SRT) is relevant in that it helps to understand the underlying collective meaning of things like inclusion (Moscovici, 2000; Walmsley, 2004). Two processes, anchoring and objectifying, are involved in generating SR. Firstly, in order to give the new object a familiar face, we anchor it in a thought process based on experience and memory. Hence, our experience is fundamental in these processes where we anchor the “new” in something already known to us through memories of past experiences (Jovchelovitch, 2007; Moscovici, 2000). Secondly, objectifying is the mechanism by which we transfer this meaning to something already existing in our life (Moscovici, 2000). Consequently, the basic ideas and understanding are reflected in our SR and may be analyzed by way of SRT. In other words, by studying teachers’ SR, we shed light on teachers’ common sense knowledge of students with AS and their accommodation for them in the school setting, since SR guide their behavior and practice (Harma et al., 2013; Howarth, 2004; Walmsley, 2004).

3. The role of experience

Previous experience such as direct face-to-face contact might play a crucial role in the development of SR and conceptions of individuals with AS. Specifically, unfamiliar concepts, such as AS, are assessed in terms of discrepancy from the norm which unconsciously help us in the interpretation of phenomenon (Moscovici, 2000). According to SRT, our understanding of the present is based on past experience and ideas at hand, by integrating it into prior experiences and memory (Jovchelovitch, 2007).

Several studies suggest that experience is vital in how teachers perceive and include students with AS. For example, prior experience with students with disability has been shown to be more important in forming teachers’ perceptions than an in-service training course (Sharma et al., 2008). Moreover, work-related experience of students with AS plays an important role in teachers’ perception of them (Syriopoulou-Delli et al., 2012) and influences how open they are to inclusion (Glashan, Mackay, & Grieve, 2004). This may help explain why teachers with experience of disabilities also demonstrate more confidence in including students into the mainstream classroom (Arthur-Kelly, Sutherland, Lyons, Macfarlane, & Foreman, 2013; McGregor & Campbell, 2001). Thus, an important aspect of the inclusion of students with AS may be the teachers’ previous contact with AS (Humphrey & Lewis, 2008; Huws & Jones, 2010), and the impact of this experience may be accessible via SR.

While experience appears central, it would be premature to conclude that all experience of AS is uniformly positive. For example, in their study of pre-service teachers Forlin and Chambers (2011) found that the more prior interaction with students with disability the less favorable support of inclusion. As AS is often difficult to detect, teachers who do not know how to identify and act upon these learning, may experience students with AS as a challenge that reduces their ability to provide appropriate support (Probst & Leppert, 2008; Starr & Foy, 2012). This in turn might induce stress among students and teachers. For the student, it could lead to increased anxiety and absenteeism (Batten, 2005) and for teachers, desolation and difficulty in providing an inclusive classroom (Sciutto, Richwine, Mentrikoski, & Niedzwiecki, 2012). Consequently, there is a need to bring to light the impact previous experience of AS might have on teachers and teaching practice (Avramidis & Norwich, 2002; Linton et al., 2013; Sciutto et al., 2012).

While experience from the school is central for teachers, another important source of experience is from one’s (private) personal life (McGregor & Campbell, 2001). Here again, private experiences, such as with a family member with a disability, does not necessarily generate positive views on inclusion (Bradshaw & Mundia, 2005). Hence, the experience teachers bring to the classroom from their private lives are important to bring into light since their consequences on inclusive education are not obvious to school administrators (Cooper, 2011; Soles, Bloom, Heath, & Karagiannakis, 2008). To our knowledge, no study to date has examined teachers’ SR of students with AS where both school and private experience has been included.
In summary, there are several reasons why it is important to shed light on the role of teachers’ experience on their SR of students with AS. As noted above, life experiences involving students with AS might influence values, beliefs (SR) which are the base for attitudes (Moscovici, 2000) and also provide “craft” knowledge (Parsons et al., 2011). Attitudes to inclusion are multifaceted but shaped by factors such as personal experience and confidence in providing appropriate educational opportunities (Arthur-Kelly et al., 2013). However, studies examining why teachers relate the way they do with students with disabilities in general and with AS in particular are scarce (Parsons et al., 2011; Sciutto et al., 2012). In Sweden, for example, projects specifically targeting individuals within the autism spectrum 2001–2010 received only 1% of all funded disability research (Rönnerg, Classon, Danemark, & Karlsson, 2012). None of these projects looked at the educational provision for learners with AS. The knowledge gained by studying teachers’ SR, which is anchored in their prior experiences sets the stage for identifying whether experience of students with AS, shapes their SR. This knowledge could translate into inclusive classroom practices since SR guides behavior. By exploring SR held by teachers with and without experience, it is possible to develop new knowledge and practicum for pre-service and in-service teacher education in order to improve inclusion.

4. Aim and research questions

The overriding research aim is to explore the relationship between experience and teachers’ SR of students with AS. Specifically, we address three major questions: (1) To what extent does experience make a difference in teachers’ SR of students with AS?; (2) Does work-related experiences of AS impact on teachers’ SR of students with AS?; and (3) Do private experiences of AS influence teachers’ SR of students with AS?

5. Methods

Overview. Participants were invited by school administrators to complete an anonymous questionnaire via a link to a website where they could complete the questionnaire. When teachers linked into the website, they were asked some demographic questions such as sex, education, level, and years of teaching. In order to capture teachers’ SR, participants were asked to spontaneously respond with the five first words that came to mind when presented with a stimulus phrase concerning AS (“students with Asperger diagnosis”). The questionnaires were administered and delivered anonymously via an electronic link. We surveyed teachers as to their previous experience with AS. Comparisons were made between (1) phrases produced by teachers with and without experience and (2) phrases produced by teachers with private experience only and work-related experience only. The data were summarized by using descriptive statistics, relative risk increase (RRI), and matrix trees.

5.1. Participants

A total of 170 mainstream teachers from six municipalities in central Sweden took part in this research project. Table 1 summarizes their demographics. The present study draws on 153 of these teachers as 17 did not specify their experiences and therefore they were omitted from the analyses. A total of 76.8% of the teachers included in the current analysis were women and the average age was 46, 9 (SD = 10.3). The ethical principles set up by Helsinki Declaration have been followed in the gathering of data.

5.2. Word association method

The free word association method, which is based on participants providing free associations to a stimulus phrase, has been developed for singling out components of the SR (Abric, 2003; Parales Quenza, 2005). The response phrases to the stimulus cue are the cognitive elements of the SR (Bodet, Meurgy, & Lacassagne, 2009; Ferreira, Corso, Pluvezam, & Alves, 2006; Moloney, 2010; Parales Quenza, 2005). By using the frequencies and rank order of the phrases produced, the organization and structure of a social representation is determined (Abric, 2001; Ferreira et al., 2006; Joffe, 2002). Thus, this method employs a combination of the elements in a hierarchical structure in exploring a social representation and not simply a sum of the elements (Abric, 2001; Molinari & Emiliani, 1996; Parales Quenza, 2005). In accordance with this theory, the social
representation has central elements that are stable and reveal the meaning of the representation; they serve a normative function. The peripheral elements are less stable and might change in different contexts and between individuals. In order to present this combination of elements and reveal their organization, Flament (1981) developed the matrix tree which graphically displays the hierarchy and the links among pairs of elements. Such a matrix tree consists of nodes, or circles, and lines, drawn between the nodes to indicate a connection between them (Solé, Corominas-Murtra, Valverde, & Steels, 2010; Wiles et al., 2010). Since the size of the nodes is based on frequency, the matrix tree illustrates the most central categories. Furthermore, the size of the lines between the nodes reflects the frequency of teachers reporting both categories so the link between the elements is graphically depicted. Consequently, by constructing a matrix tree the most important elements and links of the social representation are graphically displayed (Bales & Johnson, 2006). This method involved the following three steps.

Step 1. Free association
Using the expression “student with Asperger diagnosis” as our cue, we asked teachers to write down the first five words that came to mind when this expression was presented to them. It is the spontaneous character of the utterance that facilitates access to the person’s associations and hence to the semantic field covered by the stimulus phrase.

Step 2. Ranking
After spontaneously producing five phrases, the respondent was asked to reflect upon the phrases and classify them from the most important to that which he/she considered least important of the student with AS.

Step 3. Valence
The respondents were asked to give the valence, that is, whether the meaning of each phrase they had produced had a positive, neutral, or negative tone.

Thus, we had a corpus of items that provided us with the content of the representation. Two quantitative indicators are associated with them: (1) the frequency of the appearance of the categories (shown by the size of the node) and (2) the co-occurrence of categories shown by the size

<table>
<thead>
<tr>
<th>Participants</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>35</td>
</tr>
<tr>
<td>Female</td>
<td>130</td>
</tr>
<tr>
<td>Unknown</td>
<td>5</td>
</tr>
<tr>
<td>Level of teaching</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Kindergarten-3</td>
<td>100%</td>
</tr>
<tr>
<td>4-6</td>
<td>90%</td>
</tr>
<tr>
<td>7-9</td>
<td>66%</td>
</tr>
<tr>
<td>High school</td>
<td>61%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Years of teaching</td>
<td></td>
</tr>
<tr>
<td>≤6 (17%)</td>
<td>29</td>
</tr>
<tr>
<td>≥7 (78%)</td>
<td>132</td>
</tr>
<tr>
<td>Unknown (5%)</td>
<td>9</td>
</tr>
<tr>
<td>Qualified</td>
<td></td>
</tr>
<tr>
<td>91.2%</td>
<td>156</td>
</tr>
<tr>
<td>Not qualified</td>
<td></td>
</tr>
<tr>
<td>8.2%</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 1. Participants’ sex, grades, and years of teaching experience and whether they are qualified/not qualified teachers (N = 170)
of the lines presented in matrix trees. The frequency of occurrence was calculated in Excel, and a χ² test was performed. In order to compare the groups which all had different baselines, we studied their relative relationship. RRI is used for computing event rates of groups with different baselines (Lachin, 2011). In presenting our empirical findings, we used the RRI to describe and compare which categories were most frequent. Here, the base group (P1) was the group of teachers with experience, while the reference group (P2) was the group of teachers without experience. The relative risk ratio, which can be described in terms of increase, is the difference between P1 and P2 (P1 − P2) divided by P2, and expressed as a percentage.

In the second step of the data analyses, the co-occurrence ties between the categories were measured and presented in a matrix showing the links among pairs of categories. By applying the software Iramutec (Ratinaud, 2009), which is an r-based interface designed to identify structure and hierarchy of the SR, an in-depth analysis was carried out (Abric, 2001; Alves-Mazzotti, 2011). By defining the categories as circles and the co-occurrence relationships as lines, word networks for analyzing structure properties of social representation were revealed (Solé et al., 2010; Wiles et al., 2010) The thickness of the lines was in proportion to the number of co-occurrences and the size of the circles was in proportion to the number of mentions but only to a certain degree, the largest circle was 10 times bigger than the smallest one which supplied the proportional borders for the rest of the circles. By considering the frequency of appearance in relation to the co-occurrence of categories displayed in matrix trees, we gained insight into the most prominent elements of the social representation. These protruding elements were supposedly managing the representation as they had more links to other categories than did the other elements (Bales & Johnson, 2006; Coronges et al., 2007).

6. Data collection

6.1. Categorization

Before analyzing the data, and to simplify it, we grouped the different phrases in the sample into 27 semantic categories, on the basis of the similarity among their meanings (Linton et al., 2013). The categorizing was done by two members of the research team ACL and PG and two teachers. Synonymous phrases were grouped together even when they differed grammatically, for example, need/needs. Phrases with equivalent semantic meaning such as “isolate themselves,” “loner,” “a lone wolf,” “sits at home,” and “shy” were put in one and the same category named “social isolation.”

The valence of the produced phrase was important in the categorization process and sometimes produced a dichotomy. For example, when the word “clarity” had a negative charge it created a new category “need for clarity.” A more detailed description of the categorization is available elsewhere (Linton et al., 2013).

The participants were screened according to prior experience of students with AS. Firstly, a division into two subgroups of teachers with experience or no experience of students with AS was performed. Secondly, teachers with experience of AS formed three different groups; one group of teachers with combined private and work-related experience, one group of teachers with work-related experience only, and one group with private experience from outside the workplace only. A two by two table was created (Table 2). The current sample is based on 707 phrases produced by 153 teachers. There were 111 teachers with experience and 42 teachers without any experience with AS. The teachers with experience produced 509 phrases (M = 4.59) while teachers without experience produced 198 phrases (M = 4.71).

7. Results

Overview. In order to evaluate the role of experience, we first examined possible differences in the valence of the phrases provided in the free association. Then, we compared the frequency of categories of (a) teachers with versus without experience and (b) teachers with work-related versus private experience of students with AS by calculating RRI. Thereafter, we performed similarities
analysis of categories, displayed in the matrix trees, in order to explore whether there was a difference in the structure and organization of the SR in relation to the four different groups of teachers. The size of the line visually illustrates the co-occurrence of categories in matrix trees.

7.1. Valence

Overall, teachers demonstrated relatively positive valences to the words provided, but there were some notable small differences between the groups. For example, the most frequent positive mentions were found among teachers with work-related experience only, (42%), while the least positive charge was found among teachers with private experience only, (34%). While the negative charge was most frequent among the teachers with private experience (36%), the least negative valence was found among teachers who had work-related experience only (27%). Taking the differences in the positive and the negative phrases together, teachers with private experience relative to teachers with work-related experience responded with 17% less positive phrases.

7.2. The occurrence of categories

First, we compared the occurrence of categories of teachers with and teachers without experience of AS. In addition, a comparison of the co-occurrence of the categories was graphically illustrated in matrix trees. Since our results indicated (Table 2) that there was a difference in valence between teachers with private and work-related experience only, we proceeded to compare these groups for differences in the frequency and co-occurrence of the categories. Once again, while we expected our groups to have many similarities because they have similar culturally and educational backgrounds, we focused on the differences related to having different forms of experience with AS.

7.2.1. Differences and similarities in the frequency of categories

In Figure 1, the percent mentions for each category is presented in descending order. Teachers with experience of students with AS had the most mentions in the category “special interest,” but the largest difference relative to teachers without experience was for the category “environmental adaptation at school” (6%; p < 0.05) in comparison to teachers without experience of AS. On the other hand, teachers without experience had most mentions in the category “intellectual profile,” but they more often mentioned the category “different perception” (3.4%; p < 0.05) than did teachers with experience. Thus, teachers with experience of AS showed partly different results from teachers without experience.

In order to compare the percent mentions of the two different groups, the RRI was calculated. Table 3 shows the categories in descending order according to the difference between the teachers with experience versus teachers without experience expressed in RRI. The categories which were more frequent among teachers with experience in relation to the teachers without experience are presented in descending order. For example, the category “environmental adaptation at school” has an RRI of 100(0.09 - 0.03)/0.03 = 200, i.e. 200%, among teachers with experience of AS. This means that the

<table>
<thead>
<tr>
<th>Work</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Valence</td>
<td>Valence</td>
<td>Valence</td>
</tr>
<tr>
<td></td>
<td>n (No. of phrases)</td>
<td>(+)</td>
<td>(-)</td>
</tr>
<tr>
<td>Yes</td>
<td>46 (207)</td>
<td>42%</td>
<td>31%</td>
</tr>
<tr>
<td>No</td>
<td>26 (120)</td>
<td>34%</td>
<td>29%</td>
</tr>
<tr>
<td>Total</td>
<td>72 (327)</td>
<td>39%</td>
<td>30%</td>
</tr>
</tbody>
</table>

*Note the valence of the words is given as the percent of all mentions of the group.
likelihood that the category “environmental adaptation at school” will be mentioned is increased by
200% for teachers with experience relative to teachers without experience. Other frequently mentioned
categories are “need for time” (RRI = 160%), “lack of executive functions” (150%), “need for predictabil-
ity” (130%), and “literal understanding” (76%). As is shown below (Table 3), a few of the RRIs are smaller
than 20% (our cut-off level for major differences between the groups) such as “deficiencies in social
interaction” (15%), “need for quietness” (10%), and “expression of emotions” (5%).

The categories which were more frequent among teachers without experience are shown in
descending order in Table 4. The most outstanding categories were “different perception”
(RRI = 200%) and “different thinking” (RRI = 133%). Categories which only had a smaller difference
(less than 20%) in RRI between the groups are found at the end of Table 4: “generally negative” and
“educational challenges.”

Teachers with experience of AS showed partly different results from teachers without experience.
Their most frequent categories are connected to educational activities such as “need for time,” “lack
of executive functions,” and “need for predictability.” While important differences are shown above
there was nevertheless considerable consensus between the two groups of teachers concerning
some of the elements of the representations. There is a slight propensity among teachers without
experience to think more about educational challenges and negative aspects.

7.3. Similarities analysis: matrix trees
In Figures 2 and 3, the co-occurrence of categories is presented. The graph pertaining to teachers
with experience (Figure 2) shows “special interest” and “deficiencies in social interaction” as the
dominating elements of their SR. “Special interest” was the prime element of the representation
among teachers with experience of AS. This is in accordance to occurrence of frequency (see
Figure 1) and demonstrated in two different ways; firstly, the most frequent and therefore most bold lines were connected to “special interest” and secondly, this category had the most categories connected to it with 45% of the total 197 links of the tree.

Another smaller hub which contained 25% of the total 197 links could be identified around “deficiencies in social interaction” where elements related to needs and behavioral aspects were in focus such as “intellectual profile,” “need for quietness,” and “need for support.” In addition, there was a center of elements concerned with the structural level, organized around “environmental adaptation at school,” “educational challenges,” and “structure and routines.” It corresponds well with Table 3 where the focus is on environmental adaptation.

### Table 3. The percent of mentions of each category and the difference between the groups expressed in RRI (in descending RRI order)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Experience (%)</th>
<th>No experience (%)</th>
<th>RRI (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental adaptation at school</td>
<td>9.0</td>
<td>3.0</td>
<td>200</td>
</tr>
<tr>
<td>Need for time</td>
<td>1.3</td>
<td>0.5</td>
<td>160</td>
</tr>
<tr>
<td>Lack of executive function</td>
<td>2.5</td>
<td>1.0</td>
<td>150</td>
</tr>
<tr>
<td>Need for predictability</td>
<td>2.3</td>
<td>1.0</td>
<td>130</td>
</tr>
<tr>
<td>Literal understanding</td>
<td>4.4</td>
<td>2.5</td>
<td>76</td>
</tr>
<tr>
<td>Different sensations</td>
<td>2.5</td>
<td>1.5</td>
<td>67</td>
</tr>
<tr>
<td>Lack of empathy</td>
<td>2.3</td>
<td>1.5</td>
<td>53</td>
</tr>
<tr>
<td>Need for support</td>
<td>1.3</td>
<td>1.0</td>
<td>30</td>
</tr>
<tr>
<td>Need for structure/routines</td>
<td>4.4</td>
<td>3.5</td>
<td>26</td>
</tr>
<tr>
<td>Generally positive</td>
<td>2.5</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Structure/routines</td>
<td>5.5</td>
<td>4.5</td>
<td>22</td>
</tr>
<tr>
<td>Special interest</td>
<td>9.2</td>
<td>7.6</td>
<td>21</td>
</tr>
<tr>
<td>Deficiencies in social interaction</td>
<td>7.6</td>
<td>6.6</td>
<td>15</td>
</tr>
<tr>
<td>Need for quietness</td>
<td>1.1</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>Expression of emotions</td>
<td>2.1</td>
<td>2.0</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: The most frequent categories among teachers without experience in comparison to teachers with experience.

### Table 4. The percent of mentions of each category and the difference between the groups expressed in RRI (in descending RRI order)

<table>
<thead>
<tr>
<th>Categories</th>
<th>No experience (%)</th>
<th>Experience (%)</th>
<th>RRI (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different perception</td>
<td>5.1</td>
<td>1.7</td>
<td>200</td>
</tr>
<tr>
<td>Different thinking</td>
<td>3.5</td>
<td>1.5</td>
<td>133</td>
</tr>
<tr>
<td>Clarity</td>
<td>4.0</td>
<td>2.3</td>
<td>74</td>
</tr>
<tr>
<td>Communication difficulties</td>
<td>6.1</td>
<td>4.0</td>
<td>53</td>
</tr>
<tr>
<td>Intellectual profile</td>
<td>9.1</td>
<td>6.3</td>
<td>44</td>
</tr>
<tr>
<td>Disability</td>
<td>5.6</td>
<td>4.0</td>
<td>40</td>
</tr>
<tr>
<td>Need for clarity</td>
<td>1.5</td>
<td>1.1</td>
<td>36</td>
</tr>
<tr>
<td>Different behavior</td>
<td>6.1</td>
<td>4.8</td>
<td>27</td>
</tr>
<tr>
<td>Social isolation</td>
<td>5.1</td>
<td>4.2</td>
<td>21</td>
</tr>
<tr>
<td>Educational challenges</td>
<td>8.1</td>
<td>6.9</td>
<td>17</td>
</tr>
<tr>
<td>Generally negative</td>
<td>5.1</td>
<td>4.6</td>
<td>11</td>
</tr>
</tbody>
</table>

Note: The most frequent categories among teachers without experience in comparison to teachers with experience.
Two centers of categories emerged in the matrix tree for teachers without experience (see Figure 3). The most prominent center was grouped around “intellectual profile” which had 38% of the links and brought together “deficiencies in social interaction,” “different behavior,” “generally negative,” “social isolation,” and “special interest.” A smaller center was found around “educational challenges” which had 18% of the links.

In total, the graph pertaining to teachers with experience had “special interest” as the dominating center and categories attached to it related to the learning processes such as “need for structure/routines,” “literal understanding,” and “lack of executive functions.” While the center around “intellectual profile” for teachers without experience mirrored the behavioral aspects and had a focus on deficits; however, the category “special interest” is a resource in educational provision.

7.3.1. Teachers with work-related versus private experience of AS
The difference between teachers with work-related experience and teachers with private experience is shown in Tables 5 and 6 where the categories are listed in descending order. The difference between the groups is expressed in RRI. Note that the most frequent categories among teachers with work-related experience are shown in Table 5 while the most frequent categories among teachers with private experience are shown in Table 6.

Among teachers with work-related experience, the largest difference relative to no work experience was found in the categories “intellectual profile” (RRI = 95%) and “generally positive” (94%) (see Table 5). They are more frequently associated to “intellectual profile,” “different perception,” “executive functions,” and “communication difficulties.” Also, teachers with work-related experience had more mentions in “generally positive” than did teachers with private experience only did.
The categories that were most prominent among teachers with private experience specifically were: “different thinking” (RRI = 400%), “different sensations” (263%), “literal understanding” (263%), and “need for time” (240%) (see Table 6).

In sum, teachers with work experience more often associated to learning; “intellectual profile,” “different perception,” “executive functions,” and “communication difficulties.” The categories that were most prominent among teachers with private experience specifically accentuated differences and need for time. There seemed to be a consensus regarding “generally negative,” “structure / routines,” “lack of empathy,” and “educational challenges” where the difference in RRI was less than 20% between the two groups (Tables 5 and 6).

7.4. Similarities analysis: matrix trees

The co-occurrence of the elements for teachers with work-related experience is shown in the matrix tree in Figure 4. The most dominating element was “special interest” which had a positive valence. Its importance is mirrored in two ways, the thickness of the links to “deficiencies in social interaction” and to “intellectual profile,” also, the category had 41% of the total 82 links. Moreover, traces of another center are found around “intellectual profile.”

The maximum tree for teachers with private experience had a slightly different structure than the tree for teachers with work-related experience only (see Figure 5). Among teachers with private experience, outside the workplace, the most pronounced category was the negative “deficiencies in social interaction.”
This category had 39% of the 57 links as compared to 19% of the links among teachers with work-related experience.

While the dominant hub for teachers with work-related experience was “special interest,” the corresponding center was “deficiencies in social interaction” for teachers with private experience. This indicates that private experience partly endorses a different structure and organization of the elements of the representations than does work-related experience.

Table 5. The percent of mentions of each category for teachers with work-related experience (w) compared to those with private experience (p) and the difference between the groups expressed in RRI (in descending RRI order)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Work-related experience (%)</th>
<th>Private experience (%)</th>
<th>RRI (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual profile</td>
<td>8.2</td>
<td>4.2</td>
<td>95</td>
</tr>
<tr>
<td>Generally positive</td>
<td>3.3</td>
<td>1.7</td>
<td>94</td>
</tr>
<tr>
<td>Communication difficulties</td>
<td>6</td>
<td>3.3</td>
<td>82</td>
</tr>
<tr>
<td>Lack of executive function</td>
<td>2.7</td>
<td>1.7</td>
<td>59</td>
</tr>
<tr>
<td>Different perception</td>
<td>2.7</td>
<td>1.7</td>
<td>59</td>
</tr>
<tr>
<td>Clarity</td>
<td>2.7</td>
<td>1.7</td>
<td>59</td>
</tr>
<tr>
<td>Need for quietness</td>
<td>1.1</td>
<td>0.8</td>
<td>38</td>
</tr>
<tr>
<td>Need for clarity</td>
<td>1.1</td>
<td>0.8</td>
<td>38</td>
</tr>
<tr>
<td>Social isolation</td>
<td>5.5</td>
<td>4.2</td>
<td>31</td>
</tr>
<tr>
<td>Expression of emotions</td>
<td>2.2</td>
<td>1.7</td>
<td>29</td>
</tr>
<tr>
<td>Disability</td>
<td>3.8</td>
<td>3.3</td>
<td>15</td>
</tr>
<tr>
<td>Environmental adaptation</td>
<td>9.3</td>
<td>8.3</td>
<td>12</td>
</tr>
<tr>
<td>Educational challenges</td>
<td>8.2</td>
<td>7.5</td>
<td>9</td>
</tr>
<tr>
<td>Lack of empathy</td>
<td>1.6</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: The most frequent categories among teachers with work-related experience in comparison to teachers with private experience.

Table 6. The percent of mentions of each category for teachers with private experience compared to those with work-related experience and the difference between the groups expressed in RRI (in descending RRI order)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Private experience (%)</th>
<th>Work-related experience (%)</th>
<th>RRI (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different thinking</td>
<td>2.5</td>
<td>0.5</td>
<td>400</td>
</tr>
<tr>
<td>Different sensations</td>
<td>5.8</td>
<td>1.6</td>
<td>263</td>
</tr>
<tr>
<td>Literal understanding</td>
<td>5.8</td>
<td>1.6</td>
<td>263</td>
</tr>
<tr>
<td>Need for time</td>
<td>1.7</td>
<td>0.5</td>
<td>240</td>
</tr>
<tr>
<td>Different behavior</td>
<td>5.8</td>
<td>2.7</td>
<td>115</td>
</tr>
<tr>
<td>Need for support</td>
<td>1.7</td>
<td>1.1</td>
<td>55</td>
</tr>
<tr>
<td>Need for predictability</td>
<td>3.3</td>
<td>2.2</td>
<td>50</td>
</tr>
<tr>
<td>Deficiencies in social interaction</td>
<td>10</td>
<td>8.2</td>
<td>22</td>
</tr>
<tr>
<td>Need for structure/routines</td>
<td>3.3</td>
<td>2.7</td>
<td>22</td>
</tr>
<tr>
<td>Generally negative</td>
<td>4.2</td>
<td>3.8</td>
<td>11</td>
</tr>
<tr>
<td>Structure/routines</td>
<td>5.0</td>
<td>4.9</td>
<td>2</td>
</tr>
<tr>
<td>Individual experience</td>
<td>1.7</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: The most frequent categories among teachers with private experience in comparison to teachers with work-related experience.
8. Discussion

This study compares teachers with and without experience of students with AS on the content and structure of their SR of these students. Also, we studied the role of private experiences in contrast to work-related experience at the school. We have used the concept of SR as an analytical approach, with an emphasis on experience and in doing so; our objective has been to grasp both the unifying and the differing dimensions of social thought. In fact, we find that different types of experience show an association with the structure and organization of teachers’ SR. Hence, the SR may be understood in relation to three conditions: no previous teaching experience with these students; personal experience at work; and, private experience acquired outside the school. Let us examine these more closely.
First, with regard to previous experience of students with AS, experience with AS may be central in creating an inclusive school. Teachers with experience, for example, appear to decode the surface behavior and think in terms of how the school might be better adapted for these students. For example, they associated to the categories “special interest” and “environmental adaptation at school”, but they also focused on the “need for time” and bring forward the “lack of executive functions” which is a key component in most knowledge acquisition. They acknowledge “literal understanding,” “need for predictability,” and diverse ways of processing information through different sensations. This correlates well with previous research showing that teachers’ willingness to include students with AS increases with the amount of time they have interacted with such pupils (Humphrey & Lewis, 2008; Huws & Jones, 2010; Yuker, 1994). In contrast, teachers without experience focused on “different perception,” “different thinking,” “communication difficulties,” and “intellectual profile.” While individual characteristics are mentioned by both of the groups, there is more focus on behavioral manifestations among teachers without experience. Using the biological impairment as a starting point for educational support for students with different needs is assumed to act inconsistently with the notion of enhancing inclusion (Gibbs, 2007). If teachers perceive behaviors as disruptive it is likely that students with AS receive non-mainstream provision instead of developing better practice around the behavior since teachers are the key agent for successful inclusion (Armstrong, 2013; Sharma et al., 2008). The difference between the two subgroups indicates that there is a risk that teachers without experience of children with AS may form a biased image of these learners which some researchers e.g. Huws and Jones (2010) suggest could possibly be altered by having substantial face-to-face encounters with them.

Second, work-related experience also appears to be associated with positive views about inclusion. For example, teachers with work-related experience more often mentioned the “generally positive” category than did teachers with private experience only. This indicates that they are more prone to include students (Glashan et al. 2004; Sharma et al., 2008) and resonates well with previous research which suggests that attitudes to inclusion seems to demonstrate a strong relationship with classroom management behavior (see e.g. Gibbs & Powell, 2012). Teachers with work-related experience seems to view these students’ perception differently; also they are more focused on their lack of executive functions, which indicates that they may accommodate for students with AS (McGregor & Campbell, 2001; Syriopoulou-Delli et al., 2012).

Third, private experiences are associated with a more intimate understanding of how AS influences communication and routines. Teachers with private experiences, for instance, focused on “deficiencies in social interaction,” “different sensations,” “literal understanding,” “different behavior,” and “need for predictability.” These are elements that would be accentuated in the private sphere where there may be more opportunities for these to occur. Senses are prominent in situation where clothes might be rejected because of an unpleasant sensation, taking showers is sometimes pain-related and consistency of foods can be problematic. Importantly, misunderstandings due to literal interpretation and need for predictability are consequences of inclusive education may not be evident to teachers in the school setting but quite noticeable at home (Sciutto et al., 2012).

The valence of the total positive and negative phrases given by teachers with work-related experience was 17% more positive than the valence given by teachers with private experience, a finding in line with previous research (Glashan et al., 2004; Humphrey & Lewis, 2008; Syriopoulou-Delli et al., 2012). Also, since private experience is a more ubiquitous experience (e.g. McGregor & Campbell, 2001; Starr & Foy, 2012), teachers with such experience may be more realistic about the required support needed the mainstream classroom (Forlin & Chambers, 2011).

One explanation for the differences observed in the structure of the SR for teachers with various experiences might be that Swedish national policies provide a framework for inclusion, however, the municipalities have freedom in their interpretation of inclusion policies and the implementation process can be drawn-out (Isaksson, Lindqvist, & Bergström, 2007; SNAE, 2008). Thus, teachers in this study may be at different phases of working with inclusion. Teachers with work-related experience
have probably been introduced to improvement strategies while teachers with private experience only, might still regard the problems as residing within the student and not in the school environment and want the segregated alternative to ensure teaching resources for students’ individual educational support. Thus, they have less accepting attitudes to students’ difficulties as a result of organizational or environmental shortcomings. Our findings suggest that private experience partly endorses a different structure and organization of the elements of the representations than does work-related experience. The focus on needs as well as personal traits could be due to remnants of segregated forms of schooling. Another factor might be teachers’ negative feelings from inadequate inclusion experiences, since this is typically reported in surveys conducted by SNAE (2003). An additional interpretation of the above could be that private experience gives an insight into the inclusive classroom experience as stress inducing for students with AS. This could be perceived as partly due to teachers’ lack of knowledge about the specific disability (Mavropoulou & Avramidis, 2012; Moores-Abdool, 2010; Probst & Leppert, 2008).

The revealed difference among teachers with private experience is consistent with the known high levels of anxiety, depression, and school absenteeism among students with AS (see e.g. Batten, 2005). The stress and anxiety levels of students with AS in inclusive classroom can go unnoticed by educators but are more obvious in the home context (Cooper, 2011; Soles et al., 2008). However, this interpretation is not in accordance with the idea of inclusion where the importance of meeting the needs of all students, ensuring quality education and maximizing student participation is underscored (UNESCO, 1994). Hence in the Swedish case there is a need for more research in educational provision specifically targeting students with AS (see e.g. Rönnberg et al., 2012; SNAE, 2009).

This research is not without limitations. First, the sample and thereby the number of phrases provided is restricted. Nevertheless, the structure of the SR indicates consistent similarities and differences based on prior experience and the matrix trees underscore how these contribute to form the social representation. Second, because the sample was collected from six municipalities located in the central part of Sweden, the findings of this study may not be generalized to all teachers. Third, the web surveys were distributed via school principals; hence, the researchers did not have information about the teachers who did not respond to the survey. Such information could enhance interpretation of the findings.

9. Conclusion
In summary, our findings show that there is a correlation between teachers’ experience and their SR of students with AS. Those with experience are generally more positive to inclusion of students with AS in the classroom. However, those with private experience have a more intimate understanding of the possible special needs of students with AS. While this understanding might serve to better prepare the learning environment in the schools, it could also lead to less inclusion since these teachers are more aware of the problems these students have at school. Our study suggests that experience is a key to understanding why teachers do or do not support inclusion and therefore it provides a possible avenue for improving inclusion. Finally, our findings underscore the need for additional research on teachers’ SR of students with AS and inclusion and how these might be utilized in providing the best educational opportunities for students.

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