What teachers do not know

The emotional experience of Autism Spectrum Disorders

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Abstract - It has been widely recognised that people with Autism Spectrum Disorders (ASDs) are impaired in their capacity to understand the mental states of others [1, 2]. Recent research [3] extends the range of impairment to an inability to recognise the mental states of other people. The current study revisits this finding, noting that mental states exist as a result of our ability to identify emotions. The current study revisits this finding, noting that mental states exist in the process of identifying emotions. The current study revisits this finding, noting that mental states exist in the process of identifying emotions.

Keywords - Autism Spectrum Disorders, Theory of Mind, emotions, subjective experience, objective understanding, views of disability

I. INTRODUCTION

Do individuals with Autism Spectrum Disorders (ASDs) know that other people have mental states such as thought, emotion, and belief? Baron-Cohen, Leslie and Frith [1] raised this question over twenty years ago. They concluded that those with ASDs have a "deficit in understanding the mental states of others, or "mindblindness" [1]. This has been confirmed by subsequent studies [2, 7]. These studies into the capacity to know what others think or feel may be interpreted as tendencies to refer to the ability to impute mental states to self and others. Since its introduction, Theory of Mind has been intensively studied and has made significant contributions to the understanding of children's mental development [5] and the sociocognitive difficulties of people with ASDs [10].

Theory-of-Mind studies, however, have been criticised for excluding the voices of people with ASDs. Smolak [11], for example, points out that the voices of people with ASDs have been excluded from studies of children's understanding of mind. This raises the question of whether the understanding of children's understanding of mind can be considered to be the same as that of children with autism spectrum disorders. The current study aims to address this issue by identifying the voices of people with ASDs.

II. METHODS

A. Participants, settings and ethical considerations

As part of a larger study investigating the Theory of Mind of students with ASDs from their own perspective and those of their teachers, this study was conducted in three special schools in Seoul, Republic of Korea, which catered for students with ASDs and emotional and behavioral disorders. Students were invited to participate in the study if they identified themselves as people with ASDs, and if they could read and write, and were able to participate in the interview. Students were interviewed individually and in groups, with interviewers trained in conducting interviews with children and adolescents with autism spectrum disorders.

The data from the in-depth interviews and document review were analysed through a grounded theory approach [14]. A thorough reading of the data was followed by coding, a repetitive process of reading, coding, and comparing and contrasting data. Coding was applied to the data by line by line, transforming raw data into theoretical constructs [25]. Codes were grouped according to their similarities and differences. Conceptual codes were then made up categories, and categories emerged into hierarchies. The data from students and teachers were analysed separately and findings from both analyses were compared for commonalities and differences.

III. RESULTS

Student participants communicated about their experiences linguistically, from a single word to a short phrase or sentence. While most of their expression was found to be social, or understandable by others, some was private, or difficult to understand within a given social context. Students talked more often about unpleasant emotions than pleasant ones. In doing so they used more words, and more sophisticated words, to express their understanding of the world. Together these indicate that students with ASDs are more sensitive to the recognition of unpleasant emotions in themselves and express them through non-verbal means. Their emotional experiences were not clearly recognised by their teachers. While teachers generally believed that their students experienced emotions, they often used non-verbal means (e.g., laughter, tearful or calm to describe emotions). The next section shows these results in detail.

A. Question 1: Recognising Emotions in Self

As shown in Table 1, students recognised various emotions in self. The most frequently mentioned by students was "good", followed by "happy", "frightened", "angry", and "love". Of the 20 students, 19 talked about feeling "good"; They felt good in various situations, such as being alone, being with friends, watching soccer games at stadium, seeing buildings and cars, playing the violin, and being praised. The majority also felt "good" when they desired for things such as food, money, and places were fulfilled.
What teachers do not know

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Abstract

It has been widely recognised that people with Autism Spectrum Disorders (ASDs) are impaired in their capacity to understand the mental states of others [1, 2]. Recent research [3] extends the range of impairments to an inability to recognise and communicate with those with ASDs. The current study revisits this claim by investigating the emotional experience of secondary school students with ASDs. Alternative communication modalities and self-determination were adapted to the study of the voice of ASDs. Findings indicate that those with ASDs, teachers' understanding of student's emotions, and the general community are reflected on their attitudes towards the disabled.

Keywords: Autism Spectrum Disorders, Theory-of-Mind, emotions, subjective experience, objective understanding, views of disability

I. INTRODUCTION

Do individuals with Autism Spectrum Disorders (ASDs) know that other people have mental states such as thought, feeling, and belief? Barrett-Colbourn, Leslie, and Frick [1] raised this question over twenty years ago. They concluded that those with ASDs have a 'deficit' in understanding the mental states of others, or 'mindblindness' [5, 6]. This has been confirmed by subsequent studies [7, 8]. These studies into the capacity to know what other people think or feel were initially directed towards the ability to imitate mental states to self and others. The Theory-of-Mind (ToM) studies, in particular the studies by Premack and Woodruff [8], who used the term Theory-of-Mind to discuss the children's reasoning. The Theory-of-Mind studies have been extensively reviewed in various disciplines and has made contributions to the understanding of children's reasoning capacities [9] and the social-cognitive difficulties of people with ASDs [10].

II. METHODS

Theory-of-Mind studies, however, have been criticised for excluding the voices of people with ASDs. Smakula [11], in a review of the literature, points to the need to develop accounts of communication and emotion that will allow the voices of people with ASDs to be heard. This study was designed to examine the following research questions:

1. How do students with ASDs experience emotion?
2. How do the teachers of these students understand students' emotions?
3. What are the similarities and differences between emotions of students with ASDs as subjective experience and objectively understood by their teachers?

III. RESULTS

Student participants communicated about their emotions linguistically, from a single word to a short phrase or sentence. While most of their expression was found to be social, or understandable by others, some was private, or difficult to understand within a given social context. Students talked more often about unpleasant emotions than pleasant ones. In doing so they used more words, and more sophisticated words, to describe unpleasant emotions. Together these indicate that student's with ASDs are more sensitive to the recognition of unpleasant emotions in themselves and express these emotions more easily. In addition, emotional experience were not clearly recognised by their teachers. While teachers generally believed that their students experience emotions, their cultural belief in children's emotional development may influence their recognition of these emotions (e.g., happiness and anger). The next section discusses these results in detail.

A. Question 1: Recognising Emotions in Self

As shown in Table 1, students recognised various emotions in their self. The emotion most frequently mentioned by students was "good", followed by "happy", "loved", "frustrated", "angry", and "love". Of the 20 students, 19 talked about feeling "good". They felt good in various situations, such as being alone, being with friends, watching soccer games at stadium, seeing building cranes and cars, playing the violin, and being praised. The majority also felt "good" when their desires for things such as food, money, and places were fulfilled.

<table>
<thead>
<tr>
<th>Emotion</th>
<th>Students experienced</th>
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<tbody>
<tr>
<td>Happy</td>
<td>19</td>
</tr>
<tr>
<td>Love</td>
<td>19</td>
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<tr>
<td>Good</td>
<td>19</td>
</tr>
<tr>
<td>Angry</td>
<td>14</td>
</tr>
<tr>
<td>Sad</td>
<td>15</td>
</tr>
<tr>
<td>Frustrated</td>
<td>10</td>
</tr>
<tr>
<td>Love</td>
<td>19</td>
</tr>
</tbody>
</table>

TABLE 1: EMOTIONS RECOGNISED BY STUDENTS IN SELF

Emotional state

Students experiencing

Happy

Smiling, fun, glad, good, happy, joy, love, like

Sad

Angry, sad, crying, cramp, distressed, frightened, hurt, not good, sick of it, sick, sad, nasty, tired

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Students spoke more often about unpleasant emotions than pleasant ones. They recognized 'sad' feelings in themselves in situations such as listening to music, being exposed to a scary story, being hurt by a friend, or being in a last-minute exam. They also recognized 'angry' feelings in themselves in situations such as having their belongings stolen, being hit by a car while crossing the street, being caught by a teacher, or being criticized by a peer. These two types of emotions were more frequently experienced by students than other emotions.

The majority of students' responses related to their own emotional experience were found to be dominated by logical movements of mind. For example, David said he would feel angry if his pen were taken, with a clear causal relationship between the two. This is comprehensible to others. Some responses, in contrast, appeared to be odd or incomprehensible. These can be explained by the concept of an associative movement of mind. The following example is from the interview with Brett, a 17-year-old secondary student.

Interviewer: When do you feel joy?

Brett: Sad (1).

Interviewer: When do you feel sad?

Brett: Joy (2).

Brett's first response, 'sad' (1), seemed to be associated with the word 'joy' in the first question, and the second response, 'joy' (2), seemed to be associated with the word 'sad' in the second question. This example indicates that his answers were generated in an associative rather than logical movement of the mind. Another example comes from Patrick, who was asked to answer 'angry' to the question 'When do you feel happy?' His responses seemed to be produced by selecting an emotion and associating from this (e.g., 'sad' with 'joy' and 'joy' with 'sad').

Students whose emotional recognition was characterised by an associative movement of mind could speak of her own emotions, but with a very limited vocabulary. For example, Jordan communicated his anger by shouting in body language, naming his emotions, naming his teacher, and saying 'Anger', 'Nasty', 'Ugh', and 'I feel annoyed'. While he could not verbalise the reasons for his distress, he was able to demonstrate his experience of anger.

B. Question 2: Teachers' understanding of their students' emotions

Teachers reported that almost all of their students experienced anger, and a majority experienced happiness, sorrow, frustration, and fear. Students also showed contrasting responses to the emotional experience rated. In each interview, the teachers were asked to rate their students' happiness (joy) and anger most frequently. They said that when their students felt happy (joyous) when their soccer team won or when they watched their favorite TV show. Conversely, they felt angry when their students were not on time, their routines were interrupted, and when they were told to do what they did not want to do. Teachers understood many of their students from difficult to express emotion, especially anger, in a contrasting way. For example, Ian expressed anger through the expression in his eyes and by shouting. Patrick did so by hitting, hitting the people around him. Nicholas expressed anger by hitting his head against a wall. His teacher, Felicity, said Nicholas knew he should not harm himself, but could not help himself.

The first difference is related to sensitivity to unpleasant feelings. As shown in Table I, students used a more sophisticated vocabulary to describe their unpleasant feelings, showing their responses to different emotions by their teachers. Furthermore, a qualitative difference was found in the variety of the situations or events mentioned by students and teachers that caused both pleasant and unpleasant emotions. The most important difference, however, is between the experience of empathy and the understanding of this experience. While the vast majority of students reported experiencing empathy, no teachers reported that their students reported experiencing empathy. Where do these discrepancies come from? This question is examined in Discussion and Conclusion.

IV. DISCUSSION AND CONCLUSION

This study investigated the emotional experience of students with ASDs, focusing on the recognition of emotions in self. Students with ASDs expressed a wide range of emotions, but with less verbal facility than might be expected from their peers without ASDs. Also, the range of situations or events that contextualised these emotions was relatively restricted for young adults in their late teens (e.g., home, school, and church, rather than the wider world). But the emotions themselves, and the situations that triggered them, had an universal.

This study is designed to address current criticisms concerning ways of studying the Theory-of-Mind and empathy with ASDs; the exclusion of their voices, failure to accommodate their communication styles, and an imbalance in the expectations for participants produced by a lack of ASDs in relation to their ability to understand each other’s minds. This study adopted alternative modes of communication, not just relying on speech (17), to listen to the voices of people with ASDs, and practised self-determination. Furthermore, the views of teachers were sought to see how their students were experiencing emotional experiences.

As a result, layers of emotions were uncovered. While some emotions were more widely recognised by students (e.g., good and sad), some were only recognised by a limited number of students (e.g., silly and joy). Some of the students' emotions were obvious, and so easily understood by their teachers (e.g., happy and angry), while some were more hidden and not understood. Sometimes students could not confirm the argument of Corrigan and Shakespeare (14), which is that the global experience of people with disability is too complex to be understood within a single framework. In addition, a clear disparity was found between the range of emotions of students with ASDs as subjectively experienced by themselves and Paul and objectively understood by their teachers—people without ASDs.

This disparity appears to be characterised by a lack of expression. The understanding that teachers develop for their students with ASDs depends upon whether their students are seen to express, and how they express it. In other words, teachers know only what their students express. However, students with ASDs are said to be unable to communicate (14), and therefore have more difficulty expressing. In some cases they did not communicate their emotions unless they were in a situation in which they were specifically asked to do so. Furthermore, the understanding of
Students spoke more often about unpleasant emotions than pleasant ones. They recognized 'sad' feelings in themselves in situations such as listening to music, being present at a wedding, being struck by classmates, and with their mother or friend being sick. Chris, a 17-year-old secondary school student, talked about being on the football team with his mother being emotionally and physically ill and happened to him that he could not explain. 'Sad' feelings were reported in relation to being angry, being hit by friends, being alone, imagining losing, having a crying friend, and having a sick mother.

Students felt 'frightened' when being angry, watching a horror movie, being attacked by other students in the school bus, being present at an amusement park ride. Students also felt 'love' for themselves, family members (especially their mother), their class teacher, their researcher, and a great friend.

Some of the unpleasant feelings students recognized within themselves invite closer investigation. Feeling sad when their self or a friend is sick or sick, or recognizing that feeling of self when suffering from crying friends or sick, means the definition of empathy, an emotional response more congruent with another emotion or situation than one’s own [8]. These responses were reported by the majority of students with 'sad' feelings as 'frightened', 'sad', variations of unpleasant feelings such as 'frightened', 'sad', or 'lair'. These emotional responses have in common the fact that they are related to emotional state or experience. In other words, students stopped out of their own or other persons' experience to enter into and share another's emotional state.

While the majority of students' emotional responses were understandable by others, some were private, difficult to understand within the social context. These took the forms of difficulty in empathy, physically expressed emotion, and absence of emotional expression. Regarding difficulty in empathy, asked how he feels when his mother is sick Brett first said 'good' and after a long pause and inner struggle said, 'frightened'.

Some students attended to the physical features related to emotion rather than to the emotion itself. For example, in the scene of the four drawings illustrating the fundamental emotions of happiness, sorrow, anger, and fear, the word 'sad' was written on the face of the smiling woman, and the sad face as 'crying red'. The drawing of the frightened face was recognized as expressing both the emotion and the expression, and the face, 'grandmother' because the wrinkles on the face. Sometimes students avoided a direct as significant for other. Sometimes students avoided a direct expression of emotion. For example, asked how he feels when he is sick, David said 'headache'. Michael, whose mother is sick, Edward said 'headache'. Michael, whose mother is sick, Edward said 'headache'.

These patterns of response were identified through constant comparison. This included repeated readings of the reflections and comparing them with other codes and categories that explain the variety of students' reflections and movement of mind. A logical movement of the mind follows socially shared trajectories. Emotional experience dominated by logical movement therefore tends to be comprehensible to others.

The majority of students' responses related to their own emotional experience were found to be dominated by logical movements of mind. For example, David said he would feel angry if his pen was taken by one of the drawings. He called his feeling of 'anger' directly caused by 'his pen taken away', with a clear causal relationship between the two. This is comprehensible to others whose responses, in contrast, appeared to be odd or incomprehensible. These can be explained by the concept of an associative movement of mind. The following example is from the interview with Brett, a 17-year-old secondary student.

Interview: When do you feel sad?
Brett: Sad (1).
Interviewer: When do you feel sad?
Brett: Joy (2).

Brett's first response, 'sad' (1), seemed to be associated with the word 'joy' in the first question, and the second response, 'joy' (2), seemed to be associated with the word 'sad' (1), in the second question. This example indicates that his answers were generated by an association rather than logic.

Another example came from Patrick, who was asked 'angry' to the question 'When do you feel pleasant?' These responses seemed to be produced by selecting another emotion and associating from this ('sad', 'joy', and 'sad')

Students whose emotional recognition was often characterised by associative movement could speak of their own emotions, but with a very limited vocabulary. For example, Jordan communicated his anger by demonstrating it in body language, naming his teacher, naming his teacher, frequently using the word 'Anger', 'love', and 'joy', and saying 'Anger', 'love', and 'joy'.

While he could not verbalise the reasons for his distress, he was able to demonstrate his experience of anger.

B. Question 2: Teachers understanding of their students' emotions

Teachers reported that almost all of their students experience anger, and a majority experienced anger, happiness, love, enjoyment, laughter, and excitement, as well as anger.

This is in line with the majority of students' responses (Table I). Teachers reported that all students experienced happiness (joy) and anger most frequently. They said that students feel happy (joyous) when their soccer team wins, and they feel sad when they lose. When they were asked why they feel those emotions, they were told that they feel happy when they win and sad when they lose. Teachers also noticed that students feel sad when their friends are sad, and they feel happy when their friends are happy. Teachers were asked to tell a story about a time when they felt happy or sad.

Teachers understood many of their students' responses to emotions, especially anger, in a context way. For example, Ian expressed anger through the expression in his eyes and by shouting. Patrick did so by hitting, biting, and kicking the person around him. Nicholas expressed anger by hitting his head against a wall. His teacher, Felicity, said Nicholas knew he should not hurt himself, but could not help himself.

The first difference is related to sensitivity to unpleasant feelings. As shown in Table III, students used a more sophisticated vocabulary to describe their unpleasant feelings, while teachers used a more restricted vocabulary. More important, a qualitative difference was found in the way of the situations or events mentioned by students and teachers that caused both pleasant and unpleasant emotions. The most important difference, however, is between the experience of empathy and the understanding of this experience. While the vast majority of students are experiencing empathy, no teachers reported that they were experiencing empathy. Where do these differences come from? This question is examined in Discussion and Conclusions.

IV. DISCUSSION AND CONCLUSION

This study investigated the emotional experience of students with AS/AD, focusing on the recognition of emotions in self. Students with AS/AD expressed a wide range of emotions, but with less verbal facility than might be expected from their peers without AS/AD. Also, the range of situations or events that contextualised these emotions was relatively restricted for young adults in their late teens (e.g., home, school, and church, rather than the wider world). But the emotions themselves, and the situations that triggered them, were universal.

This study is designed to address current criticisms concerning ways of studying the Theory-of-Mind and of people with AS/AD: the exclusion of their voices, failure to capture the complexity of their social cognition styles, and an imbalance in the expectations for people with AS/AD and without AS/AD in relation to their ability to understand each other's minds. This study adopted alternative modes of communication, not just relying on speech [17], to listen to the voices of people with AS/AD, and practised self-determination. Furthermore, the views of teachers were sought to know how they perceive the emotions that they observe in their students.

As a result, layers of emotions were uncovered. While some emotions were more widely recognised by students (e.g., good and sadness), some were only recognised by a limited number of students (e.g., anger and sadness). Some of the students' emotions were obvious, and so easily understood by their teachers (e.g., happy and angry), but some were more hidden and not understood. For example, feeling sad was confirmed the argument of Coker and Shakespeare [14], which is that the global experience of people with disability is too commonly assumed and taken away from them. In addition, a clear disparity was found between the range of emotions of students with AS/AD as subjectively experienced by themselves and Paul objectively understood by their teachers — people without AS/AD.

This disparity appears to be characterised by a lack of expression. The understanding that teachers develop for their students with AS/AD depends upon whether their students are seen to express, and how they express it. In other words, teachers know only what their students express. However, students with AS/AD and teachers are equally involved in communication [15], and therefore have the same chance of expression. In some cases they did not communicate their emotions unless they were in a situation in which they were specifically asked to do so. Furthermore, the understanding of

TABLE II. TEACHERS' UNDERSTANDING OF THEIR STUDENTS' EMOTIONAL EXPERIENCES

<table>
<thead>
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<th>Emotional experience</th>
<th>Teachers know their students experienced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalent</td>
<td>Happiness (joy), constant, love or care, enjoyment, laughter, excitement</td>
</tr>
<tr>
<td>Unprevalent</td>
<td>Anger, sadness, frustration, fear, irritation, disappointment, stress</td>
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Teachers also reported that most students demonstrated care for their classmates. According to Edward's teacher, Frederick, Edward kept an eye on one of his classmates at school excursions and waited for him when he was left behind. Some teachers wondered whether this kind of behaviour comes from a learned routine, students having previously been asked to look after other classmates, or from spontaneous interest. (Christ's teacher, Jenny, commented that regardless of the reason, this kind of behaviour showed that students with AS/AD are so interested in their classmates. She gave the example of Christ, who would urge his classmates to eat and drink what was provided at school lunch, apparently motivated by a sense of duty. The recipients of students' care extended to family members and teachers.

Question 3: Comparing students' emotional experience and their teachers' understanding

This section compares these two accounts of emotion to recover similarities and differences as a way to answer the research question: What are the similarities and differences between the emotions of students with AS/AD as subjectively experienced and recognised their teachers' understanding of these emotions? This comparison reveals that two sets of experiences can be classified into each other (Table III). Furthermore, students' particular sensitivity to unpleasant feelings was recognised by one teacher, not all, who commented that his students speak more often of their unpleasant feelings than their pleasant ones. Nevertheless, this comparison demonstrates greater differences than similarities.

TABLE III. SUBJECTIVE EXPERIENCE VS OBJECTIVE UNDERSTANDING

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teachers may have been influenced by the apparent inflexibility displayed by their students with ASDs in certain behaviours, such as avoiding eye contact. The absence of overt expression of empathy, for example, may have given rise to this failure to recognize it within their students.

This disparity between emotions as subjectively experienced and objectively understood highlights the importance of communication, and how communication is a problem for people with ASDs. It also highlights the importance of developing methods that enable the full range of the voices of the people in the community to be heard in the range of the field of the voices of people with ASDs in research. However, the most important aspect of understanding is how the minds of people with ASDs work. As Bovee (1999) asked, why have we been concerned about people with ASDs not knowing what is happening in the minds of people without ASDs, but are concerned about people with ASDs not knowing what is happening in the minds of people without ASDs?

ACKNOWLEDGMENTS

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