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Autobiographical Memory and Social Identity in Autism

Wantzen, P., Boursette, A., Zante, E., Mioche, J., Eustache, F., Guénolé, F., Baleyte, J.-M., & Guillery-Girard, B. (2021). Autobiographical memory and social identity in autism: Preliminary results of social positioning and cognitive intervention. *Frontiers in Psychology, 12*, Article 641765. <https://doi.org/10.3389/fpsyg.2021.641765>

Summarized by Carol Westby

Autism spectrum disorder (ASD) is characterized by restricted and repetitive behaviors and social communication difficulties, which are associated with theory of mind (ToM) impairment that interferes with developing, maintaining, and understanding social relationships. Atypical behaviors in social contexts, as well as problems making friends and initiating a conversation or keeping one going impact the ability of persons with ASD to construct a social identity and define their personal identity relative to social groups (social identity theory; Tajfel & Turner, 1979). Typically developing (TD) children and adolescents construct their social identities through validating social interactions. The social communication difficulties of persons with ASD may interfere with their development of social identities through social interaction. Persons with ASD are likely to have difficulties sharing their personal experiences with others in ways that enable them to feel part of a group. Having a coherent social identity is related to mental health (Cooper et al., 2017). Autobiographical memory (AM) may provide a means of investigating social identity markers that are closely related to ToM and social skills (Perner & Ruffman, 1995; Welch-Ross, 1997). Analyzing personal narratives production may yield information on social positioning within a specific group, and within and outside the family, with reference to social identities.

In recent years, I have summarized and written a number of articles in *Word of Mouth* on the topic of personal narratives and AM. Autobiographical memory includes long-term memory of general personal knowledge or facts (semantic AM) and specific events related to individuals' own lives (episodic AM). Episodic AM allows individuals to remember past experiences (episodic autobiographical memories) and also to imagine possible future experiences (episodic future thinking)

(Tulving, 1985). AM serves three functions: directive, social, and self or identity. The ability of AM to link memory for past experiences with the ability to visualize future experiences is critical for self-regulation or the *directive function* of AM. Both episodic memories and future thinking involve auto-noetic consciousness, the ability to project states of self into time. When serving a *social function*, AM makes it easier for persons to initiate, develop, and maintain social relationships through conversations because many conversations involve sharing of personal narratives that are dependent on AM. Autobiographical information about the past and the projection into the future allow individuals to retain a sense of being a coherent person throughout their lifetime—to develop a *sense of self or identity*.

A number of studies have shown that persons with ASD exhibit deficits in AM, with greater impairment in episodic memory than in semantic memory. They produce personal narratives with reduced retrieval, specificity, elaboration, and episodic coherence and a decrease in details, particularly narrative, perceptual, emotional, and cognitive ones (Anger et al., 2019; Brown et al., 2012; Lind et al., 2014), affecting both past memories and projections into the future (Lind & Bowler, 2010; Marini et al., 2019; Terrett et al., 2013). The lack of contextual details and access to information also contributes to the atypical formation of a sense of identity. Authors of this summarized article conducted two studies of social identity in ASD. Study 1 investigated social identity through the autobiographical narratives of adolescents with ASD without intellectual disabilities (ages 10–19 years), compared with those of TD adolescents. Study 2 reinvestigated results of a cognitive remediation program targeting AM in three adolescents with ASD without intellectual disabilities.

Study 1: Autobiographical Memory and Self-Identity

Participants

Participants were 13 adolescents (11 males) with ASD and 13 TD participants (11 males) ages 10 to 19 years, matched on age and intelligence (verbal comprehension, perceptual reasoning, and working memory). Participants who had a diagnosis of attention-deficit disorder with or without hyperactivity, schizophrenia, a neurological disorder, or a history of head trauma or drug use were excluded.

Procedure

The authors used the “From Past to Future Task,” which explores specific past personal events and future thinking for the day before (recent past), last vacation (remote past), next day (near future), and upcoming vacation (distant future). Each participant was asked to produce descriptions of memories with as many details as possible:

- Focusing on the past (i.e., one event that happened yesterday and one last summer vacation): “Can you remember something that happened to you yesterday/last summer vacation? I want you to recall it with plenty of details as if you were reliving this event, and your description has to allow me to imagine this event too.”
- Focusing on the future (i.e., one event that could happen tomorrow and one next summer vacation): “Can you imagine what you might do tomorrow/next summer vacation, either something planned or something completely new, but I want you to imagine what could happen with plenty of details as if you were living this event, and your description has to allow me to imagine this event.”

All productions were recorded and transcribed. Social identity in the autobiographical narratives was investigated using the self-categorization theory of Turner and Reynolds (2011):

1. The personal self (lowest level, intrapersonal level; individual and personal characteristics with no reference to others).
2. The social self, at an interpersonal level (i.e., “I am a unique individual compared with others”) or

intergroup (i.e., “I define myself as the member of one group relative to another group”) level.

3. Highest level corresponds to the notion of “we are humans versus animals or other non-humans.”

The social-self level can be divided into three categories:

- Egocentric—the speaker is present but not included in a social group (self-reference; for example, “I went to the beach with my friend”).
- Intracentric—the speaker is included in a social group (inclusive reference; for example, “We went to the beach with my friend”).
- Allocentric—the speaker is not present and not included in a social group (reference to others; for example, “My friend went to the beach”).

Free recalls were divided into clauses; each clause was segmented into functional elements. A *functional element* is a set of words articulated around a verbal core that has a particular function in the sentence. The elements were coded to allow the researchers to investigate social position in an autobiographical narrative. For social position, each clause was assigned to one of the three categories:

- Personal—relating solely to the participant;
- Social—relating to other people, with or without the participant:
 - For social context, clauses were assigned to either the family circle (references to parents, siblings, etc.) or extended circle (references to close friends, acquaintances, neighbors, etc.).
 - For social inclusion, clauses were assigned to (a) self-references (participant present but not included in the social group, for example, “me and her,” (b) inclusive references (participant present and included in the social group, for example, “we,” or (c) references to others (participant not present and not included in the group, for example, “him”).
- Neutral—relating to no one; description of the environment, general knowledge about the world

After each event, the researchers asked for details about the event, including who was present, to assign the correct social category. For example: “Last night/ I watched/ a movie/ on the couch/ with my cousin”

would be scored 5 (five segments or functional elements) and classified as social (event related to other people), family circle (cousin), and self-reference (“I” and “my cousin”). Some sentences might fall into more than one category, in which case the total score would have to be divided between these categories. For example, “Last night/, I watched/ a movie/ on the couch/ with my cousin and my friend” refers both to the family circle (“cousin”) and to the extended circle (“friend”).

Results

- The ASD group produced more autobiographical narratives than the TD group did.
- There was a predominance of social references in the narratives of the TD group but not in the ASD group.
 - Participants with ASD associated themselves less with others in their narratives and made more references to others only, compared with TD adolescents.
 - Narratives produced by the ASD group focused more on family and less on the extended social circle (e.g., friends, acquaintances) than TD narratives did.
 - The narratives of students with ASD focused less on inclusive references and self-references than TD narratives did; that is, they produced fewer references in which they associated themselves with someone else when they reported extended circle memories.
 - The decrease in self-references and inclusive references, especially in the extended circle, was associated with high autistic traits.
- No significant difference was found between the TD and ASD groups on the distribution of content (neutral, personal, or social). However, the distribution varied across groups, with more social references (allocentric) in the TD group. Participants with ASD seemed to have no preference for social content in their narratives.
- Narratives produced by the ASD group contained fewer self-references (egocentric) and more references to others (allocentric) than those produced by the TD group. References to others predominated over other positions involving oneself in the ASD group (self-reference and inclusive reference). The opposite pattern was observed among TD participants, as they produced more inclusive references (intracentric).

Study 2: Autobiographical Memory Rehabilitation

AM events are produced in the context of social relationships, within the family, where communication may be facilitated by shared memories, and also in social contexts including people with whom the child has regular contact. AM is essential in social interactions by supporting conversation that facilitates the development of social bonds. Persons improve empathy and understanding of others by relying on AM to share life experiences. Collaborative construction of personal narratives contributes to development of identity. Persons with ASD exhibit less of a social self-identity. The authors of this study developed an intervention program focusing on social interactions through AM (SIAM).

Participants/Method

Six participants with ASD from Study 1 were participants in Study 2—three students (one 13 years of age and two 16 years of age) received the SIAM intervention program and three matched students served as controls. The SIAM intervention consisted of 8 weekly 90-min sessions (30-min individual sessions and 60-min group sessions). Individual sessions featured teaching about AM and personal exercises; group sessions allowed for sharing of personal memories with the view of improving social conversational skills and creating social interaction bonds. Participants underwent pre-(T1) and post-(T2) assessments of AM, together with a general cognitive evaluation. The pre-assessment was the Study 1 assessment. The SIAM program aimed to improve conversational skills and, consequently, social interactions and social identity in autism. It featured the following:

1. Therapeutic education on the nature of semantic and episodic AM and episodic future thinking.
2. Induction of episodic specificity by creating an image or a mental video of the memory and remembering a maximum of details. Using an induction methodology, the researchers asked the students to recall details about the setting, people, and actions in the video they had seen using mental imagery probing; they were also asked to report everything they could remember and to be as detailed as possible. For example, for the setting probe, students were asked to report about the environment, the objects in it, and how they were

arranged; for the people probe, participants were asked to report about what the people looked like and what they were wearing; and for the actions probe, participants were asked to report about what the people had done in the video and how they did these things, starting with the first action and ending with the last action (Madore & Schacter, 2014).

3. A recollection procedure ranging from general personal knowledge to more specific and detailed memories.
4. Collective training on sharing memories and assessment of the richness of memories by a peer.
5. Cued recall. The authors created visual icons to cue semantic and episodic memory—icons to cue place, time, people involved, activities, sequence of events, sensory experiences, and emotional responses (Anger et al., 2019; see a summary of Anger article in 2020 *Word of Mouth* 32:2).

Results

All three adolescents improved their social recall of memories, reporting more detailed and appropriate events. The intervention facilitated the adolescents' social interactions; they spontaneously asked for more details about a memory recounted by a peer. Families reported that the students enjoyed sharing memories.

Implications

During adolescence, students are developing a stable self-identity. The ability to exhibit this self-identity in coherent personal narratives, which are dependent on AM, is linked to well-being. Speech-language pathologists (SLPs) routinely assess and seek to develop the narrative skills of students with a variety of communication impairments, including ASD. The focus of much narrative intervention has been the development of structural elements of narratives (story grammar structures, for example, setting, initiating event, reaction, plan, attempts, consequences). And more attention has been given to fictional narratives than personal narratives. The ability to generate fictional narratives is associated with academic performance. Less attention has been given to facilitating children's personal narratives, which depend on AM and are associated with social-emotional development, executive function, and mental health.

Study 1 in this article provides a framework that an SLP could use in eliciting personal narratives from

students and evaluating aspects of students' identity. They can note whether the students tell social personal stories, that is, are their stories about the family circle or about the extended circle of friends and acquaintances? Are their stories egocentric (they talk about themselves being present in the experience but do not include themselves in the group), intracentric (the student talks about being present and included in the group), or allocentric (the student is not present in the story—the student refers only to others)? TD persons nearly always tell their stories from a first-person perspective. Although persons with ASD may tell their stories from a first-person perspective, they are more likely than persons without ASD to tell their stories from a third-person observer perspective—as though they are standing on the sidelines watching what is happening. SLPs could use the information gathered from such an assessment to facilitate development of AM skills to promote the development of social skills and identity.

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Comprehending Multiple Texts

Florit, E., De Carli, P., Giunti, G., & Mason, L. (2020). Advanced theory of mind uniquely contributes to children's multiple-text comprehension. *Journal of Experimental Child Psychology*, 189, 104708. <https://doi.org/10.1016/j.jecp.2019.104708>.

Summarized by Carol Westby

From late elementary school, students are expected to understand information from multiple texts. Students are required to understand the ideas and perspectives presented in different texts by comparing and reasoning about the information used to support a claim and to express them in written tasks (Barzilai et al., 2018). Understanding single coherent texts relies on individual characteristics that are linguistic, cognitive, and metacognitive in nature. There are few studies on children's multiple-text comprehension. This study by Florit and colleagues dealt with the role played by a metacognitive individual characteristic and advanced theory of mind (AToM) in fourth and fifth graders. AToM skills are second- or higher-order forms of mental reasoning that involve the ability to reason about what a person believes or thinks about mental states held by a second person (second-order ToM) or to comprehend lies/double bluffs, sarcasm, or figurative language (higher-order ToM). First-order ToM, involving the ability to think about beliefs of another, has been traditionally investigated in preschool. Second-order ToM develops between 5 and 7 years of age, and higher-order ToM develops after age 7. These forms of reasoning are relevant for everyday social understanding, learning, and school achievement (Lecce et al., 2010, 2014) and are likely to play a crucial role in multiple-text comprehension. With advancing ToM skills, children and adolescents not only develop more complex interpersonal ToM (ability to take the perspective of the thoughts and feelings of others), but they also develop more complex intrapersonal ToM (ability

to reflect on their own thoughts and feelings, what they know, and how to gain information). Intrapersonal ToM is an aspect of metacognition. Both interpersonal and intrapersonal ToM are critical for text comprehension.

Multiple-text comprehension involves constructing meaning from texts that present the same topic or issue from different perspectives and, therefore, may contain partly overlapping and partly conflicting information. Three levels of representation should be constructed through the involvement of readers' linguistic, cognitive, and metacognitive characteristics (Rouet & Britt, 2011):

- First level: the situation model that allows the processing of information from each single text and is essential for both single- and multiple-text comprehension.
- Second level: the intertext model that allows an understanding of the existence of different perspectives through the representation of text sources and relations to text content.
- Third level: the integrated mental model that allows the integration of the content of texts into a coherent representation by comparing consistencies and reconciling discrepancies among them. The authors of this study focused on the third level or integration.

AToM has been shown to be related to measures of single-text comprehension performance (Lecce et al., 2014) and children's metaknowledge about reading (Lecce et al., 2010). Different explanations have been proposed for this relationship:

1. A higher ability to understand mental states accounts for a higher ability to represent and moni-