**Method**

**Participants**

Thirty autistic participants (17 males; 11 females; 2 other: genderfluid and no gender preference) and 30 TD participants (8 males; 22 females) took part. Participants were recruited primarily from the South West of England, including via social media, support groups, and local community recruitment (posters, magazine articles, etc). All autistic participants had received a formal clinical diagnosis of ASD according to Diagnostic and Statistical Manual of Mental Disorders criteria (American Psychiatric Association, 2013), and confirmed this with a copy of their diagnostic report. Those who had received a diagnosis but were unable to access their report received the Autism Diagnostic Observation Schedule, Second Edition (ADOS-2; Lord et al., 2012), to confirm the diagnosis.

Ethical approval was obtained from the Psychology Research Ethics Committee at the University.

Table 1. Mean age, AQ, and Wechsler Abbreviated Scale of Intelligence (WASI-II) scores by group (standard deviations in parentheses)

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| --- | --- | --- |
|  | TD adults (N = 30[[1]](#footnote-1)) | Autistic adults (N = 30) |
| Age (years) | 34.87 (13.08); range = 18-59 | 33.00 (12.02) range 18-58 |
| VIQ | 108.83 (8.38); range = 94-142 | 106.97 (10.05); range = 85-128 |
| PIQ | 113.70 (10.75); range = 92-136 | 107.50 (12.84); range = 82-131 |
| FSIQ | 112.63 (7.21); range = 95-126 | 108.17 (11.08); range = 89-129 |
| AQ-50 | 13.97 (8.56); range = 2-30 | 34.90 (8.80); range = 14-48 |
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**Design**

The study utilised a 2 (Group: autistic vs. TD) x 2 (Prep: preparation vs. no preparation) x 3 (Support: open vs. semantic prompting vs. V-VP) x 3 (Context: CJS vs. health vs. employment) mixed factorial design, where support and context were within-subjects. To minimize carry-over effects of support, conditions were administered in a fixed order (consistent with Crane et al., 2012; Piolino et al., 2010): 1) Open Questions, 2) Semantic Prompting, 3) V-VP.

**Measures and procedure**

***ABM questions***

The study utilised an ABM interview task comprising questions about specific instances of potential witness scenarios in the CJS (where crimes may take place; e.g., *“tell me about a specific time… when you went to the bank”*), physical or mental health scenarios (e.g., *“tell me about a specific time... when you vomited”*), and social and non-social scenarios relevant to employment (e.g., *“tell me about a specific time… when you’ve shown someone how to use a piece of technology?”*). The interview comprised 18 questions (six CJS, six health, and six employment) and was developed specifically for the study, building on Crane and Goddard’s (2008) ABM interview (see also Bekerian, Dhillon, & O’Neill, 2001). Questions were refined following an online survey conducted with 95 TD and 26 autistic people (including two respondents with an informal diagnosis and two awaiting a formal diagnosis) to ensure that the questions overall represented situations that were not disproportionately more common for one group than the other.

The 18 interview questions were split between the three different support conditions, resulting in six questions in total per support condition (two from the CJS context, two from health, and two from employment; see Supplementary materials A for full list). Questions were balanced within each Support x Context condition according to the type of event such that (in all three of the support conditions) for the CJS context, one question related to places and one to events, in the employment context one question related to social and one to non-social work tasks, and in the health context one question related to mental health and one to physical health.

***Question support.*** Open questions provided no support (i.e., “*tell me about a time…*”), while semantic prompting used an initial prompt to cue semantic ABM (e.g., “*do you enjoy going to the cinema?*”) before then asking for a relevant specific instance in an identical format to the open questions (e.g., *“tell me about a time when you went to the cinema?”*). Finally, V-VP support (adapted from Brown & Pipe's, 2003 'Verbal Labels') also involved asking the initial question in open-question format, but was immediately followed by further instruction about the details that were expected (*‘tell me about* ***when*** *it happened, the* ***people*** *who were there, the* ***actions*** *that occurred, the* ***setting****, and the* ***objects*** *that were there’*; see Table 2). Participants also received a paper copy of the V-VPs ‘wheel’ prompt, and a coin to use to keep track as they moved between the words (in any order).

Table 2. Example support adaptations for questions within the employment context

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| --- | --- |
| **Support** | **Example questions** |
| Open questions | *“Tell me about a specific instance, more than a week ago, when you have had to make a difficult decision”* |
| Semantic Prompting | *“Are you good at organising things?”* (respondent answers). *“Tell me about a specific instance, more than a week ago, when you have organised something”* |
| Visual-Verbal Prompting (V-VP) | *“Tell me about a specific instance, more than a week ago, when you have met a deadline. Tell me about* ***when*** *it happened, the* ***people*** *who were there, the* ***actions*** *that occurred, the* ***setting****, and the* ***objects*** *that were there. You should use this card to help you structure your answer.”* |

***Preparation.*** Participants were randomly assigned to receive the questions in advance (‘Prep’), or not (‘No Prep’). Participants receiving preparation were given a summary of the task instructions and the question topics in open question format (they were not informed about support), and a visual schedule (details about the appointment, including a photo of the researcher and the room). They were also encouraged to make notes and bring these to use during the interview. Participants were asked to read the preparation materials and think of their memories by themselves, and were advised that they should not seek help from others whilst doing this. Participants not receiving preparation were not given specific information regarding what they would be asked about prior to the appointment, but were fully informed about the study and told that they would be asked to recall memories of personally-experienced events.

***Procedure***

All participants received detailed instructions regarding what was expected of them during the interview, including that they should recall a specific memory for each question, defined as a particular event from more than a week ago (due to the tendency for people to recall more recent events, which tend to be more specific; Jansari & Parkin, 1996) lasting no longer than a day (Williams & Broadbent, 1986). All participants received instructions as to the level of detail expected, an example of a specific memory, and a paper summary of the instructions (see Supplementary materials B and C).

***Prompting.*** If participants gave no reply, a very limited response, or only semantic/general information, the interviewer prompted them up to once per question: *“Can you think of a particular time, within a 24-hour period? One specific instance?”* (Crane et al., 2012). If they recalled the same event more than once to different questions during the interview, the interviewer asked them to recall a new memory. Interviews lasted on average 57 minutes (SD = 23, range = 21-132 minutes), were audio recorded, and transcribed verbatim.

***Coding***

Transcripts were imported into NVivo (2012) where responses to each question were coded for overall specificity, and then each unit of information provided was coded as episodic vs. semantic and relevant vs. irrelevant. In order to accurately measure the effect of support (semantic prompting and V-VPs) compared to open questions with no support, only details given by participants *prior* to a generic prompt were coded. Forty-seven per cent of the transcripts were double coded, with good inter-rater reliability for specificity (*r*= .728, α = .873) and relevance (episodic relevant *r*= .961, α = .801; episodic irrelevant *r*= .742, α = .938; semantic relevant *r*= .829, α = .766; semantic irrelevant *r*= .683, α = .556), *p*s < .001. In cases of disagreement, the first author’s ratings were analysed.

***Specificity.*** Participants’ responses to each question were coded for level of specificity on a 5-point scale (Piolino, Desgranges, Benali, & Eustache, 2002), see Supplementary Materials D.

***Episodic and semantic relevance.*** For each response, each new unit of information was coded as episodic or semantic, and as relevant or irrelevant. Episodic details were coded as relevant when they directly related to the temporal event (e.g., feeling cold during that particular supermarket visit) as well as episodic details directly related to the specific instance being discussed (e.g., referring to the outcome of a previous doctors’ appointment). Any episodic details about unrelated events were coded as irrelevant (e.g., discussing a later cinema trip in response to a question about going to the supermarket). Semantic information referring to general, non-event-specific information was coded as relevant (e.g., general time management skills when discussing meeting a deadline) or irrelevant (not related to the question, or referring to another person, e.g., their father’s poor time management skills) (See Supplementary materials E for an example coded response).

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| **Supplementary materials A: Question topics within each Support x Context condition**

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|  | **Open** | **Semantic** | **V-VP** |
| **CJS (functional activities)** | Train (bus) | Supermarket | Bank (Post office) |
| **CJS (leisure activities)** | Cinema (theatre) | Party | Out for meal |
| **Health (Physical)** | Vomited | Fallen over/ bashed into something  | Accidentally cut yourself |
| **Health (Mental)** | Angry | Worried | Sad |
| **Employment interview (Social)** | Worked as a team  | Disagreement | Use technology |
| **Employment interview (Non-social)** | Difficult decision | Organising | Deadline |

**Supplementary materials B: General instructions for the ABM interview**Hi, thanks again for taking part in this study. There will be three blocks of questions about memory, and we can have a short break in between the blocks if we need to. Try to answer as best you can, but there aren’t any right or wrong answers. As the interviewer, I’m only allowed to say certain things in response to your answers. So, I’ll be asking you to remember and tell me about some things that you have personally experienced. When I ask you the questions, I’d like you to tell me a specific memory that you have – a memory of a particular event lasting no longer than a day – from more than a week ago (so don’t recall something that happened within the last 7 days) but it can be any memory from before this. We’re interested in your ability to recall in detail a specific instance each time, so try to give details of an event, or things that happened at only one time, at a particular place and within the same, single day. You should try to include the ‘who, what, where and when’ of the memory, and try to recall a different instance/event for each question. Here’s an example of a specific memory for going swimming: “I remember it was during summer but it was a really cold day. My brother insisted we try out the new outdoor pool at the leisure centre. I remember I had my new red swimming trunks on. There was hardly anyone at the pool, and I remember jumping in and the cold of the water taking my breath away! I got out as quickly as I could and my brother called me wimp”.Finally, take your time to think about the memory before giving your answer whenever you need to. These instructions are here for you if you need them.**Block 1: Open questions**1. Tell me about a specific instance, more than a week ago, when you have **been on a train (bus)**
2. Tell me about a specific instance, more than a week ago, when you have **been to the cinema** **(theatre)**
3. Tell me about a specific instance, more than a week ago, when you have **vomited**
4. Tell me about a specific instance, more than a week ago, when you have **felt angry**
5. Tell me about a specific instance, more than a week ago, when you have **worked as part of a team**
6. Tell me about a specific instance, more than a week ago, when you have **had to make a difficult decision**

**Block 2: Semantic support questions**Great, so that's the first block done. As before, I’d like you to tell me a specific memory that you have – a memory of a particular event lasting no longer than a day – from more than a week ago (so don’t recall something that happened within the last 7 days), but it can be any memory from before this. We’re interested in your ability to recall in detail a specific instance each time, so try to give details of an event, or things that happened at only one time, at a particular place and within the same, single day. You should try to include the ‘who, what, where and when’ of the memory, and try to recall a different event for each question. Take your time to think about the memory before giving answer whenever you need to. The instructions are there if you need them.The questions are in a slightly different format this time. I’ll first ask you to personally reflect on how much you enjoy something, or how much a description applies to you, before I ask for a specific instance related to that thing. 1. **Do you enjoy going to the supermarket?**

Tell me about a specific instance, more than a week ago, when you have **been to the supermarket**1. **Do you enjoy going to parties?**Tell me about a specific instance, more than a week ago, when you have **been to a party**
2. **Are you clumsy?**Tell me about a specific instance, more than a week ago, when you have **hurt yourself being clumsy, such as falling over or bashing into something**
3. **Are you a worrier?**

Tell me about a specific instance, more than a week ago, when you have **felt worried**1. **Are you argumentative?**

Tell me about a specific instance, more than a week ago, when you have had **an argument or a disagreement with another person** 1. **Are you good at organising things?**

Tell me about a specific instance, more than a week ago, when you have **been involved in organising something****Block 3: V-VP (with pie diagram)**Great, so that's the second block done. As before, I’d like you to tell me a specific memory that you have – a memory of a particular event lasting no longer than a day – from more than a week ago (so don’t recall something that happened within the last 7 days), but it can be any memory from before this. We’re interested in your ability to recall in detail a specific instance each time, so try to give details of an event, or things that happened at only one time, at a particular place and within the same, single day. You should try to include the ‘who, what, where and when’ of the memory, and try to recall a different event for each question. Take your time to think about the memory before giving answer whenever you need to. These instructions are here for you if you need them.The questions are in a slightly different format again, and this time we'll use this card to help you remember. It has a diagram with some words you may find useful to help you in structuring your answers. You don’t have to use the words in any particular order, and you can come back to the words as often as you like, in any order. This is a place marker that you can use to keep track of which word you’re using, if you like. 1. Tell me about a specific instance, more than a week ago, when you have **been to the bank (post office).** Tell me about **when** it happened**,** the **people who** were there, the **actions** that occurred, the **setting**, and the **objects** that were there. You should use this card to help you structure your answer.
2. Tell me about a specific instance, more than a week ago, when you have **been out for a meal.** Tell me about **when** it happened**,** the **people who** were there, the **actions** that occurred, the **setting**, and the **objects** that were there. You should use this card to help you structure your answer.
3. Tell me about a specific instance, more than a week ago, when you have **accidentally cut yourself.** Tell me about **when** it happened,the **people who** were there,the **actions** that occurred, the **setting**, and the **objects** that were there. You should use this card to help you structure your answer.
4. Tell me about a specific instance, more than a week ago, when you have **felt sad.** Tell me about **when** it happened**,** the **people who** were there,the **actions** that occurred, the **setting**, and the **objects** that were there. You should use this card to help you structure your answer.
5. Tell me about a specific instance, more than a week ago, when you have **shown someone (or they have shown you) how to use a piece of technology.** Tell me about **when** it happened, the **people who** were there,the **actions** that occurred, the **setting**, and the **objects** that were there. You should use this card to help you structure your answer.
6. Tell me about a specific instance, more than a week ago, when you have **met a deadline.** Tell me about **when** it happened, the **people who** were there,the **actions** that occurred, the **setting**, and the **objects** that were there. You should use this card to help you structure your answer.

**Supplementary materials C: Participant printed notes provided at interview*** Tell me a *specific* memory
	+ from *more* than a week ago
	+ try to give details of an event, or things that happened within one day
* There aren’t any right or wrong answers
* Take your time to think about the memory before answering

**Supplementary materials D: specificity coding (as in Piolino, Desgranges, Benali, & Eustache, 2002)** |
| **Score and criteria** | **Example response** |
| 4 = Specific event (isolated, situated in time and space) with rich detail in terms of actions, thoughts, perceptions, images, etc.  | “*I went to the bank two weeks ago, on a Thursday. It was sunny and a nice lady with long hair greeted me at the counter. I asked her if I could discuss a mortgage application, so she showed me upstairs to a little private booth. I found it odd that they had glass windows all the way around, and all of the booths had the same three pictures on the wall…”*  |
| 3 = Specific event (isolated, situated in time and space) with few details | *“I went to the bank two weeks ago, on Thursday. I didn’t have to wait long so it was all over pretty quickly.”* |
| 2 = Generic event (repeated or prolonged over time, situated in time and space) | *“I go to the bank every Thursday to pay in cash for work. Last time was just the same as ever.”* |
| 1 = Vague event (repeated or prolonged over time, not situated in time and space), | “*Whenever I go it’s always so busy. I avoid it at all costs.”* |
| 0 = Absence of memory  | “*I don’t know”* or “*I can’t think of anything”* or general information about a theme, e.g., *“I never go, I hate banks”* |

**Supplementary materials E: Example response coded for relevance**

In this example response: *“I walked into the bank. It was the bank on Broad Street. I usually avoid going to the bank. Like the other time when I went to a different branch and it was terrible. I also avoid supermarkets”*, “walked”, “bank”, and “broad street” would be coded as relevant episodic details, “I usually avoid going to the bank” would be coded as a relevant semantic detail, “Like the other time when I went to a different branch” and “it was terrible” would be coded as irrelevant episodic details, and “I also avoid supermarkets” would receive a semantic irrelevant code.

1. AQ data for one autistic participant was not available. [↑](#footnote-ref-1)