**Background and aims**

There is a clear need for an interviewing model that supports an autistic witness’ individual processing style whilst utilising parameter-bound retrieval methods, but this must be compatible with both practical frameworks (e.g., *Achieving Best Evidence* guidance; Home Office, 2011) and theoretical understanding of the importance of witness-compatible retrieval (see Fisher & Geiselman, 1992). It must also be beneficial for non-autistic witnesses in order to be of practical value. The aim of the present study was two-fold. First, to empirically test a novel interviewing technique whereby the witness self-segments their memory of an event into their own discrete parameter-bound ‘topic boxes’ at the outset, before engaging in an exhaustive free recall retrieval attempt (followed by interviewer probing) within the parameters of each topic box in turn. Given that free recall is problematic for individuals with autism spectrum disorder (ASD), more supportive and witness-compatible interviewing of this nature that provides a frame of reference for the event and its component parts should help. In this novel method, which we refer to as a Witness-Aimed First Account (WAFA) interview, the witness self directs their recall, as would happen during a typical free narrative account, but rather than having a free flow verbalization of the entire event (which is difficult for autistic individuals) they provide their own segmentation of the event. The topic boxes are displayed on post-it notes as a reminder of the structure of the event, reducing demands on executive processes and allowing the witness to focus their search and retrieval strategies within individual segments. In addition to quantitative measures of participants’ recall under WAFA vs. control interviews, we also sought qualitative feedback from participant witnesses regarding their perceived utility of the different interview techniques.

Second, we examined whether autistic individuals would be relatively less affected than typically developing (TD) individuals when an event has a weak narrative structure – as is often the case in real life where only partial event information is perceived under poor viewing conditions, or when viewing is interrupted. Here, it was predicted that TD witnesses’ recall would appear more similar to autistic witnesses since they too would find it more difficult to generate a narrative. In order to test this, participants viewed two videoed events – one of which was ‘scrambled’ in 4-5 second segments that cut through the event’s natural breakpoints or borders (see Schwan & Garsoffky, 2004; Schwan, Garsoffky, & Hesse, 2000; Swallow et al., 2009) – and the other was viewed intact.

Based on the Task Support Hypothesis and relevant empirical literature, we predicted that WAFA interviews would elicit more detailed and accurate accounts from both autistic and TD mock witnesses. We also expected a diminution in both the completeness and accuracy of recall when the event’s narrative is scrambled (compared to when it is intact) for both autistic and TD witnesses, but that this difference would be somewhat attenuated for the autistic group and when interviewed with the WAFA model.

**Method**

**Design**

The study employed a 2 (Group: ASD vs. TD) x 2 (Interview: WAFA vs. control) x 2 (Video: scrambled vs. unscrambled) mixed design, where Video was within participants (counterbalanced between the two videos, groups, and interview conditions). All participants watched two videos, one of which was scrambled, and were interviewed about each video with either a WAFA interview or control interview. The dependent variable was interview performance, measured by the number of correct and incorrect details reported, and overall accuracy scores (correct details as a function of total details recalled).

**Participants**

A total of 63 participants were recruited: 33 autistic adults (27 males) and 30 TD adults (16 males)[[1]](#footnote-1). Autistic participants were recruited through existing databases at the University of Bath and City, University of London, and through ongoing recruitment calls for new participants via social media, local autism networks and organisations, and local newspaper advertisements. All autistic participants had received a formal diagnosis of ASD by experienced clinicians through the UK’s National Health Service according to DSM–IV (American Psychiatric Association, 2000) or DSM-5 criteria (American Psychiatric Association, 2013), which was confirmed with a copy of their original detailed diagnostic report. Those who had received a diagnosis but were unable to produce a detailed letter received the Autism Diagnostic Observation Schedule, Second Edition (ADOS-2; Lord et al., 2012), to confirm their diagnoses.

TD participants were recruited through social media, local newspaper advertisements and existing contacts and databases. In order to screen for possible undiagnosed ASD, all TD participants completed the Autism-Spectrum Quotient (AQ; Baron-Cohen et al., 2001), and the sample all scored below the recommended cut off of 32 points (Woodbury-Smith et al., 2005). As expected, the ASD group scored significantly higher than TD participants on the AQ, *t*(61) = 10.36, *p* <.001, *d* = 2.63. Specific data on ethnicity, socioeconomic status and educational attainment levels were not recorded.

Participants completed Vocabulary and Matrix Reasoning subtests from the Wechsler Adult Intelligence Scale (WAIS-IV; Wechsler, 2008) as indices of verbal and non-verbal ability on which groups were matched. Participants also completed three working memory subtests from the WAIS IV: Digit Span, Arithmetic, and Letter-Number Sequencing, partly to serve as filler tasks between videos and interviews, and partly to establish whether autistic and TD groups differed on a measure of executive function that might be relevant to retrieving complex events. The sum of the standardised scores across the three working memory measures were used as an index of working memory. A series of two-way ANOVAs indicated that there were no main effects of Group, Interview, or Group x Interview interactions for age (all *p*s >.156, ηp2s < .03), vocabulary (all *p*s >.304, ηp2s < .02), matrix reasoning (*p*s >.138, ηp2s <.04), or working memory index scores (all *p*s >.515, ηp2s <.01).

Participants were reimbursed for their time at standard University rates. The study received ethical approval from the Psychology Ethics committees at the University of Bath (16-026) and City, University of London (PSYETH (S/L) 15/16 210).

**Crime stimulus videos**

Two videos were developed specifically for the purposes of this study[[2]](#footnote-2). One depicted a handbag theft in a car park and the other a fight in a bar, and each video lasted around 1 minute 40 seconds. The video of the handbag theft began with three friends chatting as they walked towards a car in a carpark. After getting in and driving off they spotted another friend walking along and stopped to offer her a lift. Just after she got in the car a young male knocked on the window and began to ask for directions, before reaching in through the open window, grabbing the handbag from the lap of the front passenger and running off. The front passenger got out of the car and ran after him. In the bar fight video, a male was buying drinks at the bar for a female friend, while another female walked over to chat about a coursework assignment. On getting their drinks the male and female walked over to the other side of the bar where they sat down at a table. Their conversation was interrupted by two males talking in raised voices that escalated into shouting. One of the males pushed the other before punching him to the ground and repeatedly punching him twice more. The male friend went over and declared that he was unconscious, while a girl who was sitting behind them called an ambulance. The bar fight and car park theft videos were designed to be broadly similar in terms of number and range of details. For example, each video utilised six actors (all aged between 18-30 years) plus bystanders, portrayed a similar number of key actions before and during the crimes, and comprised visually rich surroundings with additional person, object and surrounding details available. There was no difference in the number of correct details that participants reported between the bar fight (max. = 213 reported correct details) or car park theft videos (max. = 209 reported correct details), *F*(1, 60) = 0.25, *p* = .617, ηp2 = .004.

Two versions of each video were created: one with an ‘unscrambled’ (intact) narrative and the other a ‘scrambled’ narrative where the event’s natural event boundaries and narrative coherence (story) was disrupted. This was determined during a pilot study in which 41 participants indicated where they perceived each video’s natural event boundaries to start and finish. Response frequencies were then plotted on a time graph and 4-5 second segments of the video were selected that cut across these natural event boundaries. Videos were then reconstructed by placing these clip segments in a random order, thus removing each video’s natural segmentation and narrative structure to form scrambled versions.

**Procedure**

Participants were tested individually in dedicated laboratory space at the University of Bath or City, University of London. After watching the first video participants completed unrelated tasks (including WAIS subtests) for approximately 30 minutes, before they were interviewed about the video under their assigned interview condition (WAFA vs. control). Following a break, they watched the second video, followed by unrelated tasks (the remaining WAIS subtests) again taking around 30 minutes, before they were interviewed for their memory of the second video (using the same assigned interview condition as before). The order in which the videos were presented and whether the handbag theft or bar fight was scrambled was counterbalanced between participants and interview conditions.

**Interviews.** The WAFA interview procedure was developed specifically for this research by the first two authors. All interviews were conducted by one of three female research assistants who were trained in accordance with the UK investigative interview model (PEACE) and Achieving Best Evidence guidance (Home Office, 2011) by the second author. Interviews in both conditions were preceded by a rapport phase in which the interviewer engaged in conversation with the participant about a neutral topic of interest, such as whether they had taken part in research before, and then an ‘engage and explain’ phase where the interviewer outlined the purpose and structure of the interview (which differed for control and WAFA interviews – see below for details). Participants were informed that the interviewer had not seen the video themselves and that they should therefore describe the event in as much detail as possible. They were instructed to recall everything that they could remember, even if only partial pieces of information came to mind, but not to guess.

*Control interviews* then asked participants to engage in an exhaustive and uninterrupted free recall attempt of the entire video. After the witness had indicated that they had come to the end of their free recall attempt they were then asked follow-up witness-compatible tell/explain/describe questions that probed the witness’ initial account in more detail. If the witness did not refer to an event or action they were not questioned about it; however, if they recalled that ‘a guy was knocked out’ they would be probed for further details of this (how, who, where, when, etc.) adopting the same language that was used by the witness (e.g., ‘describe the guy who got knocked out’).

*WAFA interviews* asked witnesses to self-segment their free narrative recollection from the beginning. This was achieved through asking the witness: ‘In just a couple of sentences or a few words, what was the most important event that happened in the video’. The interviewer noted down the event on a post-it note which was then displayed on the wall adjacent to the desk and visible to both interviewer and witness. They were then thanked and informed that the interviewer would return to that event in a short while. They were then asked, ‘tell me something else that happened’, which was again noted and displayed on a post-it note. This continued until the participant indicated that they had completed segmenting the events (see Figure 1 for an example). Once complete, the interviewer then revisited each of the self-directed free narrative topics in turn, and in the order that the witness recalled them, asking the witness to provide a free recall account within that topic. This was then followed by tell/explain/describe questions probing further detail about each event with the same witness compatible-questioning used in the control interviews.



Figure 1. Example of self-segmentation of recall by a participant in phase 1 of the WAFA interview condition.

All interviews concluded with a closure phase, in which the participant was thanked for their time and asked if they would like to add to or change their account or if they had any questions.

**Interview coding**

Interviews were transcribed and then each unit of detail that participants recalled was coded as correct (if it matched that in the video) or incorrect (e.g., describing the perpetrator’s jumper as blue when in fact it was grey, or reporting an object that was not present in the video at all). Phrases were broken down and scored at the finest level of detail available. For example, a participant who reported, “A friend got in [action] the woman’s [gender] car [object], wearing a brown [description] coat [clothing] and red [description] backpack [object]. Her [gender] name was Sarah [name] and she was headed into town [action]” would receive 10 points (assuming that none of these details had already been mentioned previously). Accuracy scores were calculated by dividing the number of correct details reported by the total number of details (i.e., correct + incorrect details) reported. Items were only scored the first time they were mentioned, and statements that could not be verified or expressed opinion (e.g., ‘he looked a bit shifty’) were not coded. Twenty-three interviews (18.25%) were randomly selected and blindly recoded by an independent coder against the original videos. Strong agreement was reached between the raters, with intraclass correlation coefficients of .93 for correct details and .90 for incorrect details.

1. Inspection of the data revealed an outlier from the TD group as recalling an unusually high number of details (>3.5 *SD*s from the mean), and they were excluded from subsequent analyses. [↑](#footnote-ref-1)
2. The stimulus videos are available online at: <https://www.youtube.com/playlist?list=PLV9WU7h_aldknW3zmWzrgMO7rEBtNrfVD> [↑](#footnote-ref-2)