Commentary for Special Issue of *Applied Cognitive Psychology* in Honor of Alan Scoboria¹

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The world would be a better place if there were more people like Alan. What an extraordinary convergence of kindness, reflectiveness, persistence, ethics, breadth of knowledge, and raw smarts! He positively and substantially contributed to cognitive, clinical, and social psychology, and to the lives of his students and collaborators. This collection carries that legacy forward. Alan would have relished reading every one of these articles.

I am honoured by the opportunity to comment. I hope to do so in a way that Alan would approve. I begin with a brief reflection on one of the “big picture” ideas in Alan’s work. Then I discuss several issues that I know were near and dear to Alan and that have also occupied my own thinking for years. In addition to scientific accounts of true and false beliefs and memories, my comments are informed by the methodological reform movement. As an oldster, I also take this opportunity to mention a few earlier issues/findings that relate to current controversies.

Big Picture

How is it that we come to believe the things we do? I don’t mean philosophical beliefs, but rather everyday beliefs, such as why I think I plugged the car in last night, why I’m sure I’ve never eaten at a Chick Filet, and why I believe I hated junior high school. Such beliefs go a considerable distance to defining us as persons. Much of Alan’s research (especially his work with Giuliana Mazzoni and Irving Kirsh) addressed such questions, building on ideas that go back to Fredrick Bartlett.

One particularly important contribution of the Scoboria, Mazzoni, and Kirsch collaboration was their theoretical and empirical work on the relationship between autobiographical recollection, autobiographical belief, and the perceived plausibility of particular events. On a priori grounds that proposed that:

In most instances, an individual who remembers an event will believe that it has happened, and if it is believed to have happened, it will be seen as plausible. However, an event can be seen as plausible without the belief that it has happened, and one can believe that an event has happened without remembering it. Thus, memory is nested within belief, which, in turn, is nested within plausibility. Scoboria et al. (2004) p. 793.

That is a very helpful insight. Scoboria et al. (2004) developed an Autobiographical Memory and Belief Questionnaire to explore relationships between recollection, belief, schematic knowledge, and plausibility in nearly 700 respondents. Results strongly supported the nesting relation described above for the large majority of cases.

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But what was most exciting was the non-trivial number of cases in which violations of that pattern occurred. There were reports of vivid but non-believed memories, and instances in which respondents indicated that they believed they had experienced something that they nonetheless judged unlikely to have really happened. In a classic Alan Scoboria understatement, the authors observed “These instances may prove worthy of further study” (p. 803).

Indeed, Alan and co-workers went on to do a lot of fascinating work on non-believed memories and related phenomena. Highlights that particularly strike me include studies of “disowned” memories (essentially accurate memories that a person comes to believe are false) (Mazzoni, Scoboria, & Harvey, 2010). An analysis of non-believed autobiographical memories collected as part of an art project (Otgaar, 2019; cf. Ost, 2017). How people translate lack of memory in their reports (especially the difference between “I don’t remember that details” versus “That detail was not presented” (Krogulska, Scora, Scoboria, Hanczowski, & Zawadzka, 2020). Dating of non-believed memories (Scoria, Nespli, & Boucher, 2019). Belief as to the likelihood of occurrence of future autobiographical events (Scoboria, Mazzoni, Ernst, & D’Argembeau (2020). So cool. The mechanisms that underlie experiences of plausibility, belief, and recollection (and their opposites) continue to be of great interest and importance. I’m reminded of Schooler Ambadar, and Bendiksen’s (1997) report of two cases in which a woman experienced recovering memories of abuse but her partner said that she had talked about the abuse during the period of reported amnesia. We are not all of a piece. Scoboria and Henkel (2020) presented a fascinating set of ideas as to how we negotiate multiple influences to navigate the shifting seas of our autobiographical memories and beliefs.

Polarization, Effect Size Estimation, and Methodological Reform

Scholarship on the frailties of memory has often been polarized. Early work on the fallibility of eyewitnesses’ memory for details (e.g., Loftus, Miller, & Burns, 1978) tended to have a political tone, with claims about memory vulnerability aligning with defense-aligned commitments to protecting innocent suspects from miscarriages of justice. In the 1980s, controversy swirled around cases in which young children came to report extreme instances of sexual abuse (sometimes with bizarre and highly implausible elements of Satanism, animal sacrifices, murder, etc.). Some child development researchers emphasized evidence of young children’s vulnerability to suggestive influences (and other reasons to doubt the veracity of these sorts of allegations). Other developmentalists emphasized evidence of young children’s ability to give accurate accounts (and other reasons to give credence to abuse allegations). In the 1990s the emphasis switched to cases in which adults reported recovering memories of previously unknown histories of childhood sexual abuse. There too scholarly discourse tended to be polarized, with many memory researchers emphasizing reasons to doubt allegations of childhood abuse based on reported recovered memories and many clinicians emphasizing reasons to believe such allegations.

In my perception, many psychologists on both sides of these controversies felt an urgent sense of moral mission. And quite properly so. There are good grounds for concern that powerfully suggestive interview techniques and approaches to trauma-oriented therapy can lead people to develop false beliefs (and sometimes even false memories) of abuse that did not really happen. And there are overwhelming grounds for concern about real sexual abuse of children and about cultural forces that keep such abuse in the shadows. Some on one side of the Memory Wars heard first-hand the stories of parents whose adult children had accused them of appalling and improbable forms of abuse. Some on the other side heard first-hand accounts of real abuse. Of course, real abuse is a much more important problem. But the problem of suggestive approaches to trauma-oriented therapy could relatively easily be solved by convincing proponents of those approaches of their risks.

The sense of urgency that some cognitive psychologists felt about suggestive trauma-memory-oriented approaches to therapy was understandable, even laudatory. But it was in tension with the ideals of science. Many of us, me included, worked to develop compelling demonstrations of false memories and false beliefs for non-trivial childhood pseudoevents. The situation demanded such demonstrations, as trauma-oriented therapists were unimpressed by the earlier demonstrations of false reports of stop signs versus yield signs.

Demonstrations are valuable, but they must be interpreted with caution. Much of the research sparked by the recovered memories controversy was done before the methodological reform movement got going in 2010 (for an engaging and comprehensive review, see Nelson, Simmons, & Simonsohn, 2018). So the false-memory studies were not preregistered (i.e., no date-stamped, detailed plan for conducting the study and analyzing the data), leaving researchers with many decisions to make along the way (“research degrees of freedom”). Also, the number of subjects tested in individual studies was typically quite small, especially in the studies that most closely mapped to therapy situations, and information about how sample size was determined was rarely provided (so some studies may have based decisions as to whether to stop or continue data collection on how good the results looked). Also, it’s likely that some trauma-analog studies that were conducted were not published because they “didn’t work” (i.e., did not yield evidence of consistent with the hypothesis that suggestive influences often lead to false memories).

None of the foregoing is intended to minimize concerns about the potential harms of highly suggestive approaches to interviewing and to trauma-memory-oriented therapy. I have been warning of the riskiness of those approaches for nearly three decades, and I stand by those concerns. But in estimating likelihood or frequency of false reports of childhood traumas in the wider population, one must keep in mind that the extant experimental literature is characterized by small sample sizes and procedures that allow many researcher’s degrees of freedom. Also, that publication bias favours the submission and the publication of studies that obtained large effects. Combined, those factors are likely to lead to exaggerated estimates of the sizes of real effects (see Lindsay, 2020, for a review of steps researchers can take to improve effect-size estimation).

How Best to Measure False Memories of Childhood Pseudoevents?

One of the many things that made Alan special was his training in and commitment to clinical psychology. The clinical lens imbued his work on the contentious topic of false memories of sexual abuse with a sympathetic, sensitive, balanced quality. Alan also had unusually strong quantitative and statistical chops, enabling him to analyze data in sophisticated and illuminating ways. Combining clinical and quantitative/psychometric skills enabled Alan to make unique contributions.

As one example in which Alan brought these combines strengths to bear, Scoboria, Wade, Lindsay, Azad, Strange, Ost, and Hyman (2017) reported a mega-analysis of transcripts from eight peer-reviewed studies in which researchers attempted to implant false memories of a childhood pseudoevent. New judges applied the same theory-based scoring system to all of the transcripts. Across more than 400 original participants’s transcripts, new judges categorized about 30% as having false memories, ranging from “partial false memories” (9%) to “full false memories” (11%) to “robust false memories” (11%). Nearly 70% were categorized as having accepted the idea that the suggested event had occurred. Thus, the rate of false reports of suggested childhood pseudoevents varied dramatically as a function of the criteria used to define a false report.

This point was also highlighted in Wade, Garry, and Pezdek’s (2018) commentary on Shaw and Porter (2015). Shaw and Porter reported that they induced “rich false memories” of committing a crime in 70% of their undergraduate participants. In keeping with open-science practices, Shaw and Porter made their transcripts available to Wade et al. Wade et al. trained judges to re-score the transcripts using the Shaw and

Porter criteria and the scoring system developed by Scoboria et al. (2017). The original scoring system reproduced the 70% figure, but only 26% met the Scoboria et al. criteria for full or robust memories.

In two follow-up studies, Wade et al. (2018) recruited more than 300 MT workers and had each read a few randomly selected transcripts from those that Shaw and Porter had classified as having “rich false memories.” The MT workers used a scale from 0 (not at all confident) to 100% (extremely confident) that the transcript was of a person who had a subjective experience of remembering the suggested event. For those transcripts that Wade et al. had found met the Scoboria et al. criteria for false memories, average ratings were fairly high (*M* of 66% in one study and of 52% in another). For those that the Scoboria scheme had classified as false beliefs but not false memories, mean ratings were low (*Ms* of 17% and 22%). In short, the Shaw and Porter scoring system used very liberal criteria for categorizing participants as having “rich false memories.”

In the taxonomy Scoboria et al. (2017) devised, participants were categorized as having “robust” false memories if judges perceived the participants to have expressed high acceptance that the suggested event had occurred and if the response was rated as having at least moderate amounts of elaboration and imagery. Some studies have used less stringent criteria for categorizing participants as having false memories.

Even the Scoboria et al. (2017) criteria for “robust” false memories probably do not generalize to real-world cases in which suggestive influences foment false memories of childhood sexual abuse. In the studies, the outcome measure was collected by the same researcher who wielded the suggestive influence, in the same social, spatial, temporal context. So everything about the situation supports and encourages acceptance of the pseudoevent.

Harmut Blank (1998) developed the “enlightenment” procedure to assess the extent to which postevent misinformation effects (a la Loftus et al., 1978) can be ameliorated by test instructions. Enlightenment involves explaining the nature of the experiment to subjects immediately before the test. Blank (1998, Blank & Launey, 2014) reported evidence that enlightenment can eliminate misinformation effects. Similarly, Clark, Nash, Fincham, and Mazzoni (2018) found that debriefed subjects in a false-memory experiment substantially reduced ratings of their belief that the suggested events had occurred.

Some studies using the familiar informant procedure have reported on subjects’ post-debriefing responses. For example, Lindsay, Hagen, Read, Wade, and Garry (2004) had 45 undergraduates work at remembering two real childhood events and one suggested event (putting Slime in the teacher’s desk). Although many of the participants were classified as having false memories of the suggested event, when they were later told that one of the events was false and asked to judge which one it was, all but three selected the pseudoevent. As per Alan’s work on non-believed memories, some expressed surprise and some spontaneously said things along the lines of “I can still remember parts of it.” But my present point is that most subjects in these sorts of studies appeared to discard their belief in the suggested event easily.

Most relevant to this issue, in an extraordinarily study Otgaar, Scoboria, and Smeets (2012) used the familiar informant procedure to encourage undergraduate participants to recollect one true event and one pseudoevent. Of 89 participants, 32 were classified as coming to believe they had taken a ride in a hot air balloon (with or without false memories). The authors were particularly interested in the finding that a non-trivial percentage of subjects subsequently reported non-believed memories of the hot-air balloon ride. I agree that is fascinating and important, but for present purposes I emphasize that only 1 participant was categorized as continuing to report a full false memory after debriefing.

In false-memory studies, accepting (or giving the appearance of accepting) the suggested event would have little consequence for the participant. Indeed, the social dynamics encourage compliance to demand. Coming to believe that your dad raped you when you were a child, and holding that belief so fervently that

you break off relations with him and take him to court – that’s a degree of conviction that no false-memory study could set as a criterion.

I argued above that it is easier to get people to meet criterion for having false memories and/or beliefs in an inconsequential pseudoevent than to get them to be utterly convinced that they were abused by a parent. But it is also important to bear in mind that the suggestive influences brought to bear by researchers are paltry compared to the prolonged, multifaceted, socially influenced orchestra of persuasion at play in extreme forms of trauma-memory-oriented therapy. In the case that introduced me to this issue, in the early 1990s, the counselor recorded in her notes of the first session that she suspected repressed memories of childhood sexual abuse, but it was only after a year of therapy and exposure to suggestive self-help books and other such influences, that the client began reporting recovered memories. Ultimately, she came to report implausible horrific events with sufficient certainty to convince authorities to bring charges against her father who was tried (but acquitted).

Brewin and Andrews (2017) reviewed the literature on false memories and argued that the rate of false memories in the real world is no higher than 15% of individuals exposed to suggestive influences. But any “upper limit” on the percentage of adults who can be led to experience false memories will depend on interactions among numerous variables. As Ira Hyman and I noted in a Commentary on Brewin and Andrews:

Triers of fact faced with a particular case of alleged recovered memories of childhood abuse must go beyond science. They must speculate as to the complex calculus integrating factors such as the prior odds of the alleged events, concurrent evidence consistent and inconsistent with the allegations, the conditions under which the beliefs/memories emerged, and the nature of the reported memories and the confidence with which they are espoused. (Lindsay & Hyman 2017, p. 38)

Simons, Shoda, and Lindsay (2018) argued that research psychologist should explain, in their scientific reports, known or suspected constraints on the generality of their findings. Such self-critical transparency and modesty can push back against social norms that encourage psychologists to present their findings as though they were infinitely generalizable. A good name for an intro text in our field would be *Psychology: It Depends*.

Coming up Empty

Arguably what is most surprising about autobiographical recollections is NOT that they are so often false, but that they are so often inaccessible. The vast blanks that most of us have for many hours of our past lives don’t even seem to bother us. Just as we recollect only a few of our nighttime dreams, we recollect only a fraction of our waking moments. We’re blind to them in the same way we are blind to scenes behind our heads. We flow moment by moment down the stream of consciousness, paddling madly through the rapids, leaning back in the calms, sometimes glancing over our shoulders to the past and sometimes peering ahead to the future. But a lot of the journey never gets a second glance. Sometimes a confluence of conditions leads a never-before-recollected past moment to come unbidden to mind (Read & Lindsay, 2000). But a lot of the moments of our lives sink like stones and never again come to light save in the way we ride the currents of our lives (Lindsay & Read, 2006).

People have some insight into what they don’t know. In early work cited by Alan, Glucksberg and Watkins (1981) showed that people can quickly and accurately affirm that they don’t know a particular fact if they know little or nothing about the domain, but are slower and less accurate when they have lots of relevant knowledge. In one of those experiments, subjects who had learned (to criterion) a statement such as “It is not known whether or not John has a shovel” were slower and less accurate to respond “Don’t know” when asked if John has shovel than were subjects who had not learned anything about John’s shovel possessing.

Alan and his collaborators did a considerable amount of thoughtful work on meta-cognitions regarding not-known information. He showed that people can often differentiate between details that they saw but cannot bring to mind versus details that they were not shown (e.g., Scoboria, Mazzoni, & Kirsch, 2008). More recently, Krogulska, Skóra, Scoboria, Hanczakowski, and Zawadzka (2020) studied conversation processes through which subjects communicate in their verbal reports differences between unknowns that they believe they never encoded versus those that they believe they encoded but cannot recollect. They also found evidence, akin to Glucksberg and Watkins, that “the more details related to the particular queried information can be retrieved, the higher the feeling that the answer to a given question is known and thus the higher the likelihood that a specific candidate response will be provided instead of a “don’t know” response” (p. 1233).

When people think they don’t know the answer to a question, they are often reluctant to guess. Maria Zaragoza and her co-workers pushed participants to answer questions about details in a video that were not in fact shown in the video (e.g., Zaragoza, Payment, Ackil, Drivdahl, & Beck, 2001). It often took considerable persuasion to get participants to guess, and that when they did guess they often used hedges to flag the answer as suspect. In this domain, too, Alan and co-workers have major contributions, particularly with regard to the ambiguity of “don’t know” responses. As Scoboria, Mazzoni, and Kirsch (2008) explained, subjects may say “don’t know” when they believe they encoded the answer but cannot remember it or when they believe that their answer was not presented. Scoria and Fisico (2012) presented evidence that encouraging the use of DK responses can improve accuracy, especially on responses to unanswerable questions. And in a very clever experiment Krogulska et al. (2020) demonstrated that preceding questions with reinstated contexts reduces DK responses on both answerable questions (increasing accuracy) and unanswerable questions (decreasing accuracy).

Closing Comment

Alan Scoboria was an extraordinary person. He was fortunate to have terrific mentors in Giuliana Mazzoni and Irving Kirsch, and he surely did them proud. He also fostered the skills and careers of a considerable number of students, and he enriched the lives of many collaborators. I am grateful for the interactions I had with Alan. And I am sure that the impact of his work will continue to grow for many years, thanks in part to the fine work of the many contributors to this special issue.

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