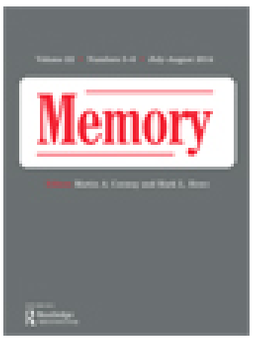

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REPORT

Accessibility of observable and unobservable characteristics in autobiographical memories of recent and distant past

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ABSTRACT

Self-reports regarding how people visualise themselves during events that occurred in the past show that for events from the distant past individuals report assuming a more external perspective than for events from the recent past [Nigro, G., & Neisser, U. (1983). Point of view in personal memories. *Cognitive Psychology*, *15*, 467–482; Pronin, E., & Ross, L. (2006). Temporal differences in trait self-ascription. *Journal of Personality & Social Psychology*, *90*, 197–209]. Thus it appears that, with the passage of time, representations of self embodied in memories of past events lose their position of an insider and assume a more ordinary position of self as an object seen from the perspective of an outside observer. The purpose of the present experiment was to examine this shift using a performance-based measure of accessibility. Results showed that self-judgements regarding unobservable, covert characteristics were faster for recent—compared to more distant—autobiographical events. However, self-judgements regarding observable, overt characteristics were faster for more distant events. This suggests an accessibility-based mechanism underlying the shift from internal to the relatively more external perspective in forming self-images related to the distant past.

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Autobiographical memory; temporal distance; self-judgments; vantage point; accessibility

Memories of events from individual's past contribute to one's sense of personhood and identity. This has been a focus of philosophical reflection (e.g., Locke, 1690/1971) and, more recently, of psychological theory and research (Conway & Pleydell-Pearce, 2000; Kihlstrom, Beer, & Klein, 2003; Prebble, Addis, & Tippett, 2013; Tulving, 1983, 2002; see also, James, 1890/1983). Such memories may differ in a variety of ways, including content, valence, and accuracy. Also, they typically include elements characterised by different degrees of specificity (cf., Conway & Pleydell-Pearce, 2000; Williams, Conway, & Cohen, 2008). Thus, my memory of a joyful graduation ceremony five years ago could include a tightly woven mixture of information that is sensory-rich and highly event-specific—for example, recollection of sights, smells, and feelings that I experienced at the time—and a more generic information regarding that specific period of my life, regarding typical graduation ceremonies that I attended over the years, etc. Regardless of all the variety, an element that is always included is a representation of self experiencing the event. This common thread of self-representation embodied in personal memories allows for mental time-travel in which representations of ourselves in the past can be revisited, an ability perhaps unique to our species (Tulving, 2002).

Just like other aspects of autobiographical memories, self-representations embodied in personal memories can take a variety of forms. While, there is currently no universally accepted model providing a systematic view of possible self-aspects, there is a growing consensus that self, as represented in personal memories, must not be viewed as a unitary concept but rather as a dynamic collection of interconnected multiple representations with specific representations becoming activated (or constructed) depending on both situational context and chronic accessibility (Conway, 2005; Kihlstrom et al., 2003; McConnell, 2011; McConnell, Brown, & Shoda, 2013; Skowronski, 2012). Such self-representations can invoke different social roles (e.g., myself as a college professor), social identities (e.g., national, political, or sexual identity); relations with others (e.g., me with my friend Joe), periods of one's life (e.g., now, during college years, during childhood, in the future). They can also differ in modality: including verbal/conceptual (e.g., a collection of self-descriptive trait-adjectives), visual (e.g., an image of one's own face), auditory (e.g., a sound of one's own voice), or even olfactory (e.g., a characteristic smell of one's own body—see Platek, Thompson, & Gallup, 2004). Finally, a distinction most relevant for research reported in this paper, self-representations can imply a predominantly internal or a

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predominantly external perspective—what can be seen from one's own point of view versus what can be seen from a point of view of an outside observer.

There is a fundamental difference in the perspective from which we normally perceive ourselves compared to how we perceive others (Jones & Nisbett, 1971). For self, the perspective is inherently internal and involves a subjective experience of having a direct access to our own thoughts, intentions, feelings, and preferences that is typically absent in our perceptions of others. Instead, in considering others' unobservable characteristics we must rely on inferences from verbal reports, behavioural data, as well as on extrapolations from our introspective experiences (see Doherty, 2009; Stueber, 2006). In contrast, overt, observable characteristics of others may be experienced directly, while in the case of self, such characteristics are typically inferred or must be mediated by the presence of mirrors, snapshots, audio and video recordings, etc. Accordingly, research shows that representations of self tend to be skewed towards internal, unobservable characteristics. Compared to thinking about others, in thinking about themselves people typically focus on unobservable characteristics such as thoughts, intentions, feelings, and preferences rather than on observable characteristics. This has been demonstrated both in terms of content (McGuire & McGuire, 1986; Pronin, Kruger, Savitsky, & Ross, 2001) and in terms of accessibility of such representations (Andersen, Glassman, & Gold, 1998; Andersen & Ross, 1984; Karylowski & Ranieri, 2006). In addition, compared to other-judgements, self-judgements are more accurate for traits that are relatively unobservable, but not for highly observable traits (Vazire, 2010).

Yet, self-reports regarding how people visualise themselves during events that occurred in the past, show that for events from the distant past people report assuming a more external perspective than for events from the recent past. The finding is quite robust; it has been reported for different age groups and regardless of valence (Berntsen & Rubin, 2006; Nigro & Neisser, 1983; Piolino et al., 2006; Pronin & Ross, 2006; Sutin & Robins, 2007; Talarico, LaBar, & Rubin, 2004). Furthermore, it does not dependent on the use of measures that assume a clear dichotomy between the two perspectives; the effect has been replicated with measures based on the assumption that a memory may evoke a combination of the two perspectives, either simultaneously or sequentially (Rice & Rubin, 2009).

So, it appears that with the passage of time representations of self, embodied in memories of past events, may lose their position of an insider and assume a more ordinary position of self as an object seen from the perspective of an outside observer. Yet, while the existing evidence for such shift is substantial it is restricted to self-reports regarding visual self-images. The purpose of the present experiment was to extend those findings to trait self-judgements and to do so using a performance-based measure of accessibility. Specifically, we hypothesised that self-judgements regarding unobservable, covert characteristics should be faster with respect to recent (compared to more distant) autobiographical events, thus indicating an internal perspective. Such differences in accessibility should occur to a lesser degree, or should be reversed, for self-judgements regarding observable, overt characteristics, indicating a shift toward an external perspective.

Method

Participants

Forty-four Polish undergraduates participated in the experiment in exchange for extra class credit. There were 38 women and 6 men. The average age was $M = 21.93$ years ($SD = 4.57$).

Procedure and design

The study was conducted individually in the computer lab. Participants were informed that they will be asked to make judgements regarding how they were feeling and how they acted in two "social situations" in which they participated—one very recent (recent event) and one that occurred about 10 years ago (distant event). Participants were given an example of a family dinner as a type of a social situation they could choose.[1] The experimental task was divided into two parts, one involving the recent event and one involving the distant event. The order of the two parts was counterbalanced: for half of the participants the first part involved the recent event and the second part involved the distant event and for the other half, the order was reversed. At the beginning of each part, participants were asked to try to vividly recall the event (recent or distant) and to write its brief description. This was done to make sure that participants focussed on specific, cognitively accessible autobiographic memories.

For each of the two parts, recalling and describing the event was followed by two blocks of self-ascription judgements with 10 judgements per block. Thus each participant made a total of 40 judgements. Each of those judgements involved a different personal characteristic, all of them positive (e.g., brave, cheerful, happy, helpful, honest, mature, polite, smart, etc.). Negative adjectives were not included in order to reduce effects of self-presentational concerns on response latencies. The order of the adjectives was constant for all participants.

Also, within each of the two parts (referring to recent versus remote autobiographical memory event), characteristics in one block were always preceded by a qualifier *feel* (e.g., feeling brave, feeling cheerful, feeling happy, feeling helpful, feeling honest, feeling mature, feeling polite, feeling smart, etc.) and in the other block by a qualifier *act* (e.g., acting brave, acting cheerful, acting happy, acting helpful, acting honest, acting mature, acting polite, acting smart, etc.), referring to either internal

(unobservable) or external (observable) manifestation of a given characteristic. The order of feel versus act blocks was counterbalanced across participants: for half of the participants the first block within each of the two parts involved feel judgements and the second block involved the act judgements and for the other half, the order of feel versus act blocks was reversed. Thus, with the order of adjectives constant, each adjective was used for each of the four combinations of judgements (feel versus act judgement regarding recent versus distant event) for exactly 25% of participants. The resulting within-participant design was 2 (feel versus act judgement) × 2 (recent versus distant event) with order of both factors counterbalanced across participants.

In making judgements participants were asked to identify to what extent particular (feel or act) characteristic applied to them during that specific (recent or distant) event. Responses were provided on a 5-point scale ranging from 1 (*Definitely No*) to 5 (*Definitely Yes*).[2] Participants were asked to work at the fastest comfortable pace and were informed that both their responses and response latencies were recorded.

Results

Descriptions of recent and distant memories

Exploratory analyses of the descriptions of recent and distant memories were conducted to examine possible differences between the two sets with respect to length of the description (number of words), type of the event (e.g., a meal, party, outing, etc.), specificity (specific, categorical, extended, etc.), and valence (positive, neutral, or negative). Analysis revealed that the descriptions of recent and remote memories did not differ in length. The average number of words was $M = 96.61$ (SD = 59.82) for recent memories and $M = 92.02$ (SD = 59.76) for remote memories, $t_{(43)} = 1.15$, n.s. Similarly, no clear differences occurred with respect to the type of event described. A meal with family and/or friends was the most common event for both recent, $n = 35$ (80%), and for distant $n = 30$ (68%) memories. Other, less common, occurrences included a party or another social gathering with friends: $n = 7$ (16%) of recent memories and $n = 2$ (5%) of distant memories, outing with family and/or friends: $n = 2$ (5%) of recent memories and $n = 3$ (7%) of distant memories, and work/school related event: $n = 2$ (5%) of recent memories and $n = 2$ (5%) of distant memories.

An overall valence of each of the 44 recent memories and each of the 44 distant memories was assessed by assigning each memory to one of three categories: "rather positive", "neutral or undecided", and "rather negative". In order to minimise bias, coding was performed by JJK using a listing of event descriptions—prepared by BM in random order and with the content indicative of the time of the event (recent versus distant) masked.[3] Using this procedure, 26 (59%) of the recent memories and 31 (70%) of the distant memories were classified as rather positive. In addition, nine (20%) of the recent memories and five (11%) of the distant memories were classified as neutral or undecided. Finally, nine (20%) of the recent memories and eight (18%) of the distant memories were classified as rather negative. The McNemar–Bowker test (Bowker, 1948) revealed that, overall, the effect of the time of the event on the ratings of valence did not approach significance ($\chi^2_3 = 2.20$, n.s.).

The same edited listing of events was used by JJK to assess instances of overgeneral memories (Williams & Broadbent, 1986; Williams & Dritschel, 1992). The goal was to classify each memory as either specific or as an instance of overgeneral memory—either categoric memory, extended memory, or semantic associate (see Appendix 2 of Raes, Hermans, Williams, & Eelen, 2007 for coding examples). Using this procedure, 87 out of the 88 descriptions were classified as specific and only one (distant) as categoric.[4] Thus, it appears that, overall, participants followed instructions and produced descriptions of specific events for both recent and distant memories.

Latencies of feel and act judgements

Response latencies of self-judgements involving unobservable (feel) and observable (act) characteristics constituted the main measure of interest. Latencies shorter than 500 ms (0.8% of responses) and latencies longer than 10,000 ms (0.4% of responses) were considered invalid and were dropped from the analysis. Also, to reduce positive skew, latencies were converted to natural logarithms (see Winer, 1971, p. 200).

A preliminary analysis revealed a moderately strong practice effect across the 40 trials, with higher serial position associated with shorter latencies—the average Fisher's z was $M = -0.45$, corresponding to $r = -.43$ and differed from 0 significantly ($t_{43} = 14.35$, $p < .001$, $\eta^2 = .54$). Accordingly, in order to reduce error variance, the main analysis was performed on latencies regression-adjusted for the effect of serial position. Because only six men participated in the experiment, gender was not included in the main analysis. An auxiliary analysis with gender included in the design revealed that none of the effects involving that variable approached significance.

A 2 (time: recent versus distant) × 2 (judgement type: feel versus act) repeated-measures analysis of variance (ANOVA) conducted on latencies revealed no main effects (both p's > .1). The predicted interaction was significant ($F_{1,\ 43} = 7.45$, $p = .009$, $\eta^2_p = .15$). Comparison of simple effects revealed that the feel judgements were significantly faster for the recent ($M = 2073$ msec.[5]) than for the distant autobiographical memories ($M = 2246$ msec., $F_{1,\ 43} = 5.24$, $p = .027$, $\eta^2 = .11$). Yet, for the act judgements there was a tendency to the opposite with faster judgements for the distant (2160 msec.) than for the recent autobiographical memories (2274 msec., $F_{1,\ 43} = 3.44$, $p = .07$, $\eta^2 = .07$). In addition, for the recent autobiographical memories, the

feel judgements were significantly faster than the act judgements ($F_{1, 43} = 5.90$, $p = .019$, $\eta^2 = .12$). This, however, was not the case for the distant autobiographical memories ($F_{1, 43} = 1.55$, n.s.).

A potential problem in the interpretation of the differences in average response latencies is that such differences may be due to the underlying differences in the average extremity of responses (Fazio, Powell, & Williams, 1989; Luce, 1986; Powell & Fazio, 1984). This is because more extreme responses (e.g., 1 or 5 on a 5-point scale) are typically faster than responses that are closer to the mid-point of the scale (e.g., 3 and, to a lesser degree, 2 and 4). As expected, within-participant correlations between latency and extremity of judgements (with responses of "1" and "5" coded as most extreme and responses of "3" coded as less extreme) revealed the usual pattern with longer latencies associated with less extreme judgements. Specifically, average Fisher's z was $M = -0.22$, corresponding to $r = -.21$ and differed from 0 significantly ($t_{43} = 6.77$, $p < .001$, $\eta^2 = .21$).

A 2 (time: recent versus distant) × 2 (judgement type: feels versus acts) repeated-measures ANOVA conducted on extremity scores revealed no significant effects (all p's > .1), indicating that extremity of responses did not differ significantly between the experimental conditions. Nevertheless, in order to reduce error variance and to avoid potential confounding—albeit nonsignificant—an auxiliary 2 × 2 ANOVA of latency data was conducted, this time on latency scores adjusted both for the serial position and for response extremity. This analysis revealed a pattern of results very similar to the original ANOVA with significant interaction ($F_{1, 43} = 8.31$, $p = .006$, $\eta_p^2 = .16$). As in the original analysis, feel judgements were significantly faster for the recent than for the distant autobiographical memories ($F_{1, 43} = 4.33$, $p = .043$, $\eta^2 = .09$). The pattern was reversed—this time significantly—for the act judgements, with shorter latencies in the case of distant compared to the recent autobiographical memories ($F_{1, 43} = 5.33$, $p = .026$, $\eta^2 = .11$). As in the original analysis, for the recent autobiographical memories, the feel judgements were significantly faster than the act judgements ($F_{1, 43} = 6.56$, $p = .014$, $\eta^2 = .13$). This, once again, was not the case for the distant autobiographical memories ($F_{1, 43} = 1.48$, n.s.).

Discussion

Our results show that judgements regarding unobservable (covert) self-aspects are faster for recent—compared to more distant—autobiographical events, yet judgements regarding observable (overt) aspects are faster for events that occurred in a more distant past. Consequently, greater accessibility of unobservable—compared to observable—aspects seen in self-judgements associated with recent events does not occur for such judgements regarding distant events. No clear-cut differences were found between descriptions of recent and distant events in terms of length of the description, type of situation, valence, or specificity.

The shift in accessibility of unobservable versus observable aspects of traits closely parallels previous findings regarding the use of internal versus external perspective in how people visualise themselves in situations from recent and from more distant past (Berntsen & Rubin, 2006; Nigro & Neisser, 1983; Piolino et al., 2006; Pronin & Ross, 2006; Rice & Rubin, 2009; Sutin & Robins, 2007; Talarico et al., 2004). While those previous studies used introspection-based, subjective measures of internal versus external perspective, a performance-based measure was used in the present study. This feature of present research is important. Even though measures based on introspection can provide valuable, theoretically and practically relevant data (cf., Kriegel, 2015; Varela & Shear, 1999), the exclusive use of such measures in the study of any specific phenomenon may lead to shared biases that without the use of more objective methods would be hard to overcome (cf., Gertler, 2015; Schwitzgebel, 2008). This, of course, is not to say that a measure based on latencies of self-referent judgements is free from any potential biases. In particular, such measure may be affected by self-presentational concerns. In order to address such possibility, future research should systematically examine the effects of memory age on latencies of feels and acts judgements depending on the use of positive, negative, or neutral trait-adjectives.

Both the present results and the results of studies showing perspective shift in self-visualisation fit well with a view that autobiographical memories are to a large degree constructed, rather than simply recalled (Conway, 2005; Conway & Pleydell-Pearce, 2000; Rubin & Umanath, 2015; Williams et al., 2008). Accordingly, what will be included in such constructed memories depends on accessibility, both chronic and situationally specific. With traces of originally experienced visual images, sounds, and emotions fading over time, generic, schema-based representations of past events become relatively more accessible and increasingly likely to serve as building blocks of such memories (see also temporal construal theory, Trope & Liberman, 2010). Thus, older memories are typically experienced as less detailed and less vivid. At the same time such memories are more independent from how the actual event was originally encoded and more influenced by knowledge structures with no direct ties to the original sensory experience. Consequently, "recalling" the event from a different (external) perspective becomes both easier (thus, faster) and more likely to occur.

Although no clear-cut differences were found in the present experiment between written descriptions of recent and distant memories, this should not be treated as an evidence that the two sets of memories were, indeed, equivalent. Because participants were not interviewed about their memories and because many descriptions were relatively short, only the most rudimentary

analyses were feasible. Future research should attempt to relate accessibility of observable and unobservable aspects of self-representations in recent and distant memory to phenomenological aspects of those memories including their vividness and abstractness, features known to differ between recent, typically more vivid, and remote, typically more abstract, memories (cf., Sutin & Robins, 2007).

It is worth noting that in the present experiment the distant memories referred to events that, for most of our participants, took place during their early teenage years. This leaves open the possibility that the difference in accessibility occurred as a result of the differences between old and new memories at the time of encoding, with the older memories being initially encoded in a more balanced way and without favouring the covert self-related content such as one's thoughts, feelings, intentions, etc. While, such possibility cannot be excluded it seems unlikely. Firstly, if anything, compared to college students, teens would be more not less likely to encode events in a way that emphasises their own subjective perspective (Hoffman, 2000). Secondly, conceptually similar effects have been found when comparing the contents of self-descriptions related to recent (or current) events with those related to more distant events that nevertheless occurred in adulthood (Nigro & Neisser, 1983; Pronin & Ross, 2006). Thus, it appears that the shift away from the overrepresentation of privileged, unobservable self-content as one moves from recent to more distant autobiographical memories is unlikely to be due to the differences at encoding.

Future research should also explore a role of hearing (often, repeatedly) the story told to us by others who were present at the time the original event took place. Such experiences could have the effect of supplementing the original memories with additional content involving a more external perspective. If so, the shift in accessibility observed in the present study should not occur (or should occur to a lesser degree) for autobiographical events that did not involve the presence of others, particularly others with whom we continue to have contacts that involve retelling the stories of shared past experiences, a frequent occurrence among old friends and family members.

Notes

1. This was intended to point participants to a broad area that is usually well represented in autobiographical memory for both recent and distant past. At the same time we wanted to avoid leaving the choice completely unrestricted as this could make the task (subjectively) more difficult.
2. It should be noted that, in measuring accessibility researchers usually rely on a dichotomous response scale, rather than on a 5-point Likert-type scale (however, see: Cucina & McElreath, 2005; Fazio & Williams, 1986; Karylowski, 1990; Karylowski, Konarzewski, & Motes, 2000; Karylowski & Ranieri, 2006; Lischetzke, Cuccodoro, Gauger, Todeschini, & Eid, 2005; Mrozinski & Karylowski, 2011; Staats & Skowronski, 1992, for some exceptions—see Fazio, 1990, for an argument in favour of using latency measures with a Likert-type scale).

   While the use of a dichotomous scale undoubtedly reduces (or even eliminates) noise variance associated with the motoric search time to find the relevant key to press, it makes it impossible to tease out the effects of response extremity on accessibility (see Fazio et al., 1989; Luce, 1986; Powell & Fazio, 1984). This last consideration was a deciding factor in the decision to use a 5-point scale in the present experiment.
3. To assess reliability, those ratings were compared with ratings made by BM who used unedited descriptions of each of the 88 memories. Overall, the agreement was 89% for recent and 84% for remote memories, resulting in Cohen's kappas of $k = .77$ and $k = .71$, respectively. All cases of disagreement involved the "neutral or undecided" rating assigned by one of the raters and either "rather positive" (75% of disagreements) or "rather negative" (25% of disagreements) assigned by the other.
4. Independent ratings performed by BM using unedited descriptions revealed agreement of 98% and 95% for recent and distant memories, respectively.
5. To facilitate presentation, throughout the paper, mean latencies are presented after being converted back to milliseconds.

Disclosure statement

No potential conflict of interest was reported by the authors.

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