

DESCRIBING MEMORIES- THE RELATIONSHIP BETWEEN SEMANTICS AND THE  
SELF-CONCEPT

By

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A Thesis Submitted to The Honors College

In Partial Fulfillment of the Bachelor's degree  
With Honors in

Psychology

THE UNIVERSITY OF ARIZONA

DECEMBER 2019

Approved by:

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**Abstract:**

This study focused on the effects of semantic autobiographical memory (AM) retrieval on one's self-concept. Participants recalled and wrote about up to four life chapters (specific time periods during their life) or recalled and wrote about up to four general knowledge (GK) stories (i.e. non-personal information) in the form of fairy tales. The fluency and accessibility of the self-concept was measured using the "I Am" assessment (Charlesworth, 2015), and was operationalized as three different identity statements: personality traits, physical traits, and identity roles.

Participants were initially given one minute to generate as many "I Am" statements as possible (i.e., Fluency portion), and were then given as much time as needed to generate all 20 statements (i.e., Accessibility portion). Participants then used a Likert scale to rate the information they recalled out of five points. In the Fluency portion, the control (fairy tale) group, who recalled GK, generated significantly more personality traits relative to the experimental (life-chapter) group, who recalled semantic AMs. During the Accessibility portion, the life chapter group generated significantly more identity roles relative to the fairy tale group. There were also differences in the total number of personality traits generated for the fairy tale group, relative to the life chapter group, however, this group difference was only marginally significant.

### **Introduction:**

Autobiographical memory is made up of episodic memories, which are personal past experiences, and semantic memories, which is factual knowledge relating to the self. This form of memory is essential for people to gain a sense of personal identity and impacts their psychological and physical well-being (Wang, 2011). Episodic AM is full of content that allows an individual to recall the past events from a specific time or place. This form of memory is explicit, because it takes a conscious effort to travel back in time through the mind's eye. For example, remembering one's fifth birthday party at the bowling alley and putting on their new pair of red and black bowling shoes, would be episodic by nature. On the other hand, semantic AM focuses on personal facts and personal traits that, while still explicit, do not rely on picturing the moment to moment components of an episodic memory. This would include remembering it was their 8th birthday, on January 12, 2013, in Chicago at the Lucky Strike bowling alley, but will not include any of the happenings or details that tell the story of that day. According to Haslam et al. (2010), philosophers and psychologists have been arguing that in order for an individual to comprehend one's self, there must be access to memories relevant to themselves and preservation of factual self-knowledge (i.e. episodic and semantic memories).

The idea of the sense of self and one's memory being related is not new. John Locke, a philosopher in the 17th century, believed the self and one's personal identity was based on their consciousness, whose content is thought to be fed by one's memory (Nimbalkar, 2011). As a whole, the 'self-concept' is dynamic and has no set definition. For this study, it can be viewed as the "conception of oneself that enables each individual to construct a personal identity," which is comprised of traits (i.e., I am tall) and roles (i.e., I am a student) (Grilli, 2015).

Following this idea, Charlesworth and colleagues (2015) predicted that participants who dwell on episodic AM, will have an increased ability to access their self-concept, in comparison to a control group. To do this, they designed an *I Am Fluency Task*, that measures the fluency and accessibility of physical traits, personality traits, and social identity roles. In this task, participants complete the phrase “I am \_\_\_\_\_” multiple times, after being primed to recall a ‘nostalgic’ life event (Charlesworth et al., 2015). In 2017, Ashley Samuels, an honors research assistant at the University of Arizona, worked with Dr. Matthew Grilli to test the effects of AM on the self-concept and replicated Charlesworth’s data (2015), stating “healthy individuals retrieving positive AMs, momentarily increase their accessibility of personality trait identity representations in comparison to reflecting on GK in a non-autobiographical fashion,” (Samuels, 2017). Both studies found that participants have an increase in their sense of self when primed with episodic AM, but what about semantic AM? Could having participants recall personal semantics facilitate the self-concept? If so, will it happen in a different way?

Grilli and Verfaellie (2015) completed another study involving patients with medial temporal lobe (MTL) amnesia. They found that MTL amnesia patients are able to bring up more roles, in comparison to traits, when supported by personal semantics. These findings suggest that retrieving personal semantics might specifically facilitate the generation of roles, as opposed to the traits which Charlesworth (2015) and Samuels (2017) saw in their studies on episodic AM. This idea that semantic AM can aid in the generation of roles was tested in our study. This was done by having participants reflect on either their life stories, a form of personal semantic memory retrieval, or general knowledge in the form of fairy tales, as a control (general semantic story telling). Participants then examined self-statement fluency and accessibility using the I AM tasks used by Charlesworth (2015) and Samuels (2017). We hypothesized that priming

participants with semantic AM will lead them to identify with and generate a larger number of social identity roles, in comparison to the control.

### **Methods:**

#### *Participants:*

49 Undergraduate students (33 females, 16 males) from the University of Arizona participated in the study. Ages ranged from 18 to 39 years ( $M=19.5625$ ;  $SD=$ ) . Each participant was recruited from the University of Arizona undergraduate subject pool. One other student (female, 17) signed up for this study, but no data was collected from them as they were underage and could not legally be a part of this study without parental consent. Each student was informed they could cease participation of the study at any point and receive credit, gave informed consent, and the study itself was approved by the University of Arizona Psychology Institutional Review Board. All participants were given one hour in total, and completed the study at individually assigned timeslots.

#### *Materials and Procedures:*

The order in which participants signed up for this study determined their placement into the two different conditions: the “life chapter” group or the “fairy tale” group. The life-chapter group ( $n = 25$ ) recalled semantic AMs, while the fairy tale group ( $n = 24$ ) brought up general information about fairy tales, which were unrelated to their AM. Every odd participant was placed in the fairy tale group, and every even participant was placed in the life chapter group. To begin, demographic information; including age, ethnicity, gender, and total years of education was collected. Participants were also asked to report whether English was their first language, and how long they had been speaking English. This information was collected due to the

English-oriented writing-intensive nature of the Memory Retrieval Writing task and the I Am task. Participants also reported any learning disabilities, previous head injuries, losses of consciousness, and any history of neurological problems or psychiatric illnesses (Samuels, 2017). The ineligible underage student was given an educational experience about the experiment being conducted and was debriefed.

### *Memory Retrieval Tasks:*

In the study room, participants were told to look back on their lives and think about their different life chapters. For example “college years,” and “living in Tucson,” were two chapters identified by the researcher when explaining this task. The participants were then asked to generate up to four life chapters they were either experiencing or had experienced from any time in their life. This included writing about the people, places, and happenings of each chapter. 20 minutes were allotted to generate the four chapters, with a 10 minute warning being given, and aside from the warning each participant was alone in the room when generating their stories. Participants in the control condition were told to select up to four fairy tales they knew well, attempt to rewrite the stories from start to finish, and avoid using any personal feelings or experiences when doing so. By having them tell an objective story unrelated to their own semantic AM, these participants recalled neutral, general semantic information. The same time constraints and warnings were given to the members of the control group.

Once the memory retrieval task ended, a Likert scale was given to rate the levels in which participants, within the control condition, were “dwelling on personal memories”. The choices were 1 (not at all) to 5 (very much so). This manipulation check gave the researchers insight on whether the participants felt they were accessing memories that felt related to their AM.

### *I AM Fluency Task*

After being asked to recall either semantic AM or general semantic information, the I AM Fluency task (Charlesworth et al., 2015) was used to assess participants' self-concepts. The sheet they were given had a total of 20 "I Am \_\_\_\_\_" lines. Initially, the participants were given one minute to write as many I AM statements as they could, and after the time was up they were told they had as much time as they needed to finish all 20 statements. Each statement generated in the first minute was assessed as fluency (i.e., Fluency portion), the completed 20 statements was assessed as accessibility.

### **Results:**

#### *Number of Statements:*

Both the life-chapter and fairy tale groups completed an "I Am \_\_\_\_\_" assessment that contained a total of 20 open ended statements. Within the 60 second *Fluency* portion, 273 "I Am" statements were generated by the fairy tale group and 229 were generated in the life-chapter group. Together the groups generated a total of 502 statements. During this 60 second period, participants in the fairy tale group generated an average of 2.5 identity roles ( $SD=2.73$ ), 7.13 personality traits ( $SD=4.08$ ), and 1.75 physical traits ( $SD=2.17$ ). In the life-chapters group, the participants generated an average of 3.44 identity role ( $SD=2.8$ ), 4.64 personality traits ( $SD=3.08$ ), and 1.56 physical traits ( $SD=2.81$ ). In the *Accessibility* section, each participant completed all 20 fill in the blank spaces, adding up to a total of 980 statements. Participants in the fairy tale group generated an average of 5 identity roles ( $SD= 4.21$ ), 12.13 personality traits ( $SD= 4.35$ ), and 2.88 physical traits ( $SD= 2.77$ ). The life chapter group generated an average of 7.88 identity roles ( $SD = 4.75$ ), 9.44 personality traits ( $SD = 5.11$ ), and 2.2 physical traits ( $SD = 2.99$ ).

When completing the “I Am” assessment, a manipulation check was tasked to the fairy tale group, in order to measure how much each participant was dwelling on personal memories or experiences. They rated their feelings on a scale of 1 (not at all) to 5 (very much so). Between the 24 participants, an average score of 2.66 was given.

### *Fluency*

Using SPSS, we ran a mixed analysis of variance (ANOVA) with factors of group and I Am statement type. This ANOVA revealed that there was not a main effect of group, meaning that the life story and fairy tale groups did not significantly differ in fluency,  $F(1, 47) = 2.40, p = .13$ , partial eta squared = .05. However, there was a main effect of I Am type,  $F(1.78, 83.63) = 20.95, p < .001$ , partial eta squared = .31, and a significant interaction between group and I Am type,  $F(1.78, 83.63) = 3.41, p = .043$ , partial eta squared = .07. In regard to differences between groups in fluency, participants in the fairy tale group generated more personality traits relative to the participants in the life story group,  $t = 2.41, p = .02$ . The groups did not significantly differ in fluency for roles or physical traits,  $t$ 's  $\leq 1.19, p \geq .24$ . In regard to group differences in the relative use of I Am types, participants in the fairy tale group generated personality traits more than both roles and physical traits,  $t \geq 3.72, p$ 's  $\leq .001$ , with the latter two not significantly differing,  $t = 1.04, p = .31$ . In contrast, participants in the life story group generated physical traits less than both personality traits and roles,  $t \geq 2.20, p$ 's  $\leq .037$ , but the latter two I Am types did not significantly differ,  $t = 1.32, p = .20$ .

### *Accessibility*

Similar to the Fluency portion, another mixed analysis of variance (ANOVA) with factors of group and I Am statement type was run for the Accessibility portion. Since each



participant generated a total of 20 “I Am” statements there was no main effective group  $F < 1, p = .33$ . There was a main effect of I Am type,  $F(1.59, 74.84) = 33.24, p < .001$ , partial eta squared = .41. There was also a significant interaction between group and I Am type,  $F(1.59, 74.84) = 3.88, p = .03$  with a partial eta squared = .08. This interaction was due to the life chapter group generating more roles relative to the fairy tale group,  $t = 2.24, p = .03$ . When observing the data for the total personality traits, a marginally significant difference between groups was found,  $t = 1.98, p = .05$ , due to participants in the fairy tale group generating more personality traits relative to the participants in the life chapter group. Similarly to the Fluency portion, there was not a significant difference between groups in the use of physical traits,  $t < 1, p = .42$ .

For the life chapter group, both roles and personality traits were generated more than physical traits,  $t$ 's  $\geq 4.46, p$ 's  $< .001$  but did not significantly differ from each other,  $t < 1, p = .41$ . For the fairy tale group, personality traits were generated more than roles and physical traits,  $t$ 's  $\geq 4.31, p$ 's  $< .001$ , which did not significantly differ from each other,  $t = 1.84, p = .08$ .

### **Discussion:**

For this study, participants generated I Am statements to aid in quantifying the salience of one's self-concept. Each statement was categorized as personality traits, physical traits, or identity roles. Previous research found that the retrieval of episodic AM facilitates the generation of traits in comparison to roles (Charlesworth, 2015). Samuels's research duplicated these results and determined that, while traits were primarily retrieved upon the recollection of an episodic AM, it came at the cost of identity roles being less readily available. After analyzing these previous findings, we predicted that accessing semantic AM would result in a change in the types of statements being generated, in comparison to the traits generated from episodic retrieval. Specifically, we hypothesized that priming participants for semantic AM would lead them to

identify with and generate a larger number of identity roles in comparison to our control. The results we obtained supported this hypothesis. This was due to there being a significant effect of the life chapter group generating more roles relative to the fairy tale group during the Accessibility portion of this study.

We tested different types of memories from that of Charlesworth and Samuels in their studies. The Charlesworth (2015) participants were asked to recall memories that evoked nostalgia or write facts about that the solar system (if they were in the control group). Samuels had participants select four words from a predetermined list, and used these words to guide the personal experiences they wrote about. Our study had participants in the life-chapter group think of and write about up to four different periods of their life, and we had the fairy tale group, to the best of their ability, accurately re-tell up to four fairy tales. In order to expand upon the types of statements generated when primed for specific types of AM, future studies may wish to test how certain demographics impact their results. While it was not tracked statistically, international students not only seemed to generate the largest amount of identity roles, they also appeared to complete the “I Am” assessment the fastest. Since the United States is an individualistic culture, the international students may have generated these roles faster and more frequently because of their exposure to a more collectivistic culture. Honing in on these demographics may allow new patterns to emerge that can deepen our understanding of why semantic memories aid in the salience of identity roles, and how culture plays a role in these findings.

During the Fluency portion of the experiment, the fairy tale group, which accessed GK, outperformed the life-chapter group in the number of statements made and in the type they generated. Specifically, they generated more personality traits relative to the participants in the life-chapter group. As stated in previous findings, personality traits are suggested to be the most

readily accessible identity statements participants can generate (Charlesworth, 2015, Samuels, 2017).

Each set of life chapters and fairy tales were written and saved as Word documents, but life chapter groups were not analyzed for how much participants began dwelling into what may have been episodic memories. This information may help determine why personality traits and roles were generated more often than physical traits. If done again in the future, researchers may want to narrow their guidelines so participants avoid recalling episodic memories all together, which may increase the significance found when comparing the amount of roles generated between semantic AMs and GK groups. With only 49 students, ages 18-39, future studies should test larger group sizes of varying age ranges, or continue to test a smaller group size while focusing on specific life stages such as older adults, teenagers, middle aged adults, or young children.

### **Conclusion:**

According to the results of our study, looking back at semantic autobiographical memories increases the accessibility of social identity roles. Previous research found that reflecting on positive autobiographical memories can increase the accessibility of personality traits, so, combined with our data, whether being tested for GK or episodic AM, healthy young-adults seem to identify most with personality traits. Although it is unclear why, together these pieces of evidence indicate that there is some type of connection between roles and personal semantics, because identifying with both personality traits and physical traits decreases after participants are primed for semantic AMs.

### References

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