



Importance of Gender on Long-Term Memory Ability

Afzalxon Maxamatov

Student of Rahimov School
 Gmail: mahamatovafzalkhon@gmail.com
 afzalxonmakhamatov@gmail.com
 Tel: +998994886334

Abstract

Maccoby and Jacklin's 1974 study on gender differences in human abilities and functions found that girls perform better in verbal ability, while boys excel in visuospatial and mathematical abilities. However, they rejected the hypothesis of gender differences in learning and memory. Recent research has shown that females tend to outperform males in memory, with 17 out of 64 reviewed experiments showing significant differences favoring females. This pattern has been observed in various studies, including those conducted in Europe or America. The study conducted in Tashkent, Uzbekistan, aims to challenge the long-standing notion of male superiority over females in memory and examines both implicit and explicit memories, two types of long-term memory, to determine if females can outperform males in long-term memory itself. The study involved a cohort of 40 volunteers from the same geographic locale and shared educational backgrounds. The study investigated semantic memory, episodic memory, and implicit memory in high school students. Participants were asked to memorize ten Chinese words and recite them to the best of their recollection. The results showed slight differences between genders in memory abilities. Females had a higher facility for acquiring new information and superior performance in semantic memory. In episodic memory, females showed a superior aptitude compared to males. Only nine out of twenty males were able to recall their first meeting with a close friend, while nearly fourteen out of twenty females provided intricate narratives. The study also found that females attained an average accuracy rate of 97 out of 100 percent in implicit memory tests, while males achieved an average accuracy rate of 95.8 out of 100 percent. These findings suggest that females have superior long-term memory abilities compared to males within the age range of 15-18 in Uzbekistan. However, it is essential to note that gender differences in memory abilities may vary across different age groups.

Keywords:

Long-term memory, gender, Maccoby and Jacklin, sociology, gender methodology, anthropology, teenagers, social philosophy.

Introduction:

In 1974, Maccoby and Jacklin published a highly cited work on gender differences in human abilities and functions. Their research concluded that girls perform better in verbal ability than boys, while boys excel in visuospatial and mathematical ability. However, Maccoby and Jacklin rejected the hypothesis of gender differences in learning and memory. Looking back, with an application of

the current widely-used model of five separate but interacting memory systems (episodic memory, primary memory, semantic memory, priming, and procedural memory; see Schacter & Tulving, 1994, and Tulving, 1983, 1993), a pattern of gender differences appears in the

research reviewed by Maccoby and Jacklin.¹ Specifically, examining studies on episodic memory reveals significant differences favoring females in 17 out of 64 reviewed experiments, whereas only 2 experiments revealed an advantage for males. Since then, much research has been conducted. For example, Paul D. Loprinzi & Emily Frith (2018) reported that females tend to outperform their male counterparts in autobiographical memory.² Hart and O'Shanick (1993) found gender differences favoring females for verbal material in the absence of differences for pictorial and figural stimuli. In Bloise & Johnson's (2007) study, it was concluded that women tend to recall more information (both emotional and neutral) than men. Thus, Bloise and Johnson (2007) found that women's memories of emotional information are better than men's. Herlitz, Nilsson, and Bäckman (1997) found that, within episodic memory tasks, female participants performed at a significantly higher level than male participants. Female participants overall had a higher level of encoding and retrieval than male participants in each of the episodic memory conditions. Finally, Nadal, Kevin L. (2015) found that women have consistently demonstrated a stronger short-term memory than men on the test.³ All the studies conducted on memory abilities were done in Europe or America. In their article "Working Memory Screening, School Context, and Socioeconomic Status: An Analysis of the Effectiveness of the Working Memory Rating Scale in Brazil," Engel de Abreu, P. J., Nikaedo, C., Abreu, N., Tourinho, C. J., Miranda, M. C., Bueno, O. A., & Martin, R. (2014) mention that memory abilities vary according to socioeconomic, demographic, and cultural factors. To understand whether the patterns demonstrated

in other countries also apply in Uzbekistan, we conducted memory experiments in Tashkent. We predict finding the same pattern as in previous studies, which shows females have an advantage over males in memory. By finding the same pattern, our research aims to challenge the long-standing notion of males' superiority over females in Uzbekistan. Additionally, previous studies focused on either semantic or episodic memory, which are subtypes of explicit memory and one type of long-term memory. Our study examines both implicit and explicit memories, two types of long-term memory, to determine whether females can outperform males in long-term memory itself.

Methodology:

Participants:

A cohort of 40 volunteers was chosen. A cohort comprised an equal gender distribution of local high school students who were from the same geographic locale (Tashkent, Uzbekistan), shared an identical age bracket (15–18 years old), and had similar educational backgrounds (standard or government education).

Procedure:

The exploration began with an investigation of semantic memory, which refers to the acquisition of general knowledge throughout an individual's life, including word meanings, concepts, facts, and ideas. To test this, high school participants were asked to memorize ten Chinese words, a language that was unfamiliar to them. After a three-hour break, they were asked to recall the words. However, the results did not allow us to conclude. Therefore, we decided to conduct a more sophisticated test on semantic memory. Participants were presented with unique monologues taken from books they had not

in the context of exercise. *Journal of clinical medicine*, 7(6), 132.

³ Nadal, Kevin L. (2015). The SAGE Encyclopedia of Psychology and Gender. Routledge. p. 342.

¹ MACCOBY, E. E., & JACKLIN, C. N. (1974). *The psychology of sex differences*. Stanford, CA: Stanford University Press.

² Loprinzi, P. D., & Frith, E. (2018). The role of sex in memory function: considerations and recommendations

previously read. Each participant had 15 minutes to familiarize themselves with their respective monologue, followed by a three-hour interval. Afterward, participants were individually summoned and tasked with reciting their monologue to the best of their recollection. Each monologue consisted of 100 words, and the performance was evaluated based on the degree of overlap between the participants' recitation and the written monologue. Using interchangeable synonyms of the words was considered an error. Each matching word and accurately sequenced sentence contributed one point toward the overall score. After assessing semantic memory, a two-day break was given to participants. Then, we commenced the investigation of episodic memory, which involves recalling personal experiences that occurred at specific times and locations. Participants were asked to recount the details of their first encounter with their closest friends. Once the assessment of episodic memory was completed, participants were granted another two-day break.

The assessment of implicit memory was then conducted, which involves the memory of skills and tasks that are not necessarily conscious. Touch typing was used to assess performance in implicit memory tasks. To minimize biases, a touch typing test was initiated, revealing that eight people already knew touch typing. These people were excluded from the research, and the number of females slightly outnumbered the males, with 18 and 14, respectively. To make the numbers equal, four girls were excluded from the experiment. The research involved 28 participants who were taught the fundamentals of touch typing for 15 days, with each letter on the keyboard meticulously taught. After every letter was learned, participants refrained from practicing typing on the computer for the next 20 days. After that 20-day interval, the accuracy of each participant was evaluated by taking a typing test on typing.com, where words appeared on the screen and participants needed to type them. To avoid any potential instances of dishonesty, participants' hands and keyboards were concealed using cardboard, ensuring the keys remained hidden. Finally, participants were

debriefed, and they received credit for their participation.

Results And Discussion:

The main objective of our experiment was to investigate whether gender differences exist in long-term memory. Our research on semantic memory revealed that there were slight differences between the memory abilities of both genders. All participants perfectly remembered the ten Chinese words. Since our word research didn't produce the expected results, we conducted another test on semantic memory using monologues. The female participants scored an average of 77.12, while the males scored an average of 75.78. We concluded that within the age range of 15-18, females have a higher facility for acquiring new information than males and exhibit superior performance in semantic memory. In the case of episodic memory, which involves recalling personal experiences at specific times and locations, females showed a superior aptitude compared to males. Only nine out of twenty males were able to recall their first meeting with a close friend, while nearly fourteen out of twenty females provided intricate narratives, including vivid details such as their friend's attire and even the weather conditions. Our findings support the claim that girls are taught from an early age to impart emotional and descriptive details when recounting events, thereby enhancing their ability to retain past experiences. Interviews conducted with female participants further corroborated this observation. The results of the implicit memory test, which assessed procedural memories such as sewing or driving, showed that females attained an average accuracy rate of 97 out of 100 percent, while males achieved an average accuracy rate of 95.8 out of 100 percent. These findings suggest that within the age range of 15-18 in Uzbekistan, females have superior long-term memory abilities compared to males. However, it is essential to acknowledge that memory capabilities can vary based on cultural, socioeconomic, and demographic factors. To establish a definitive and comprehensive connection between gender and memory,

further studies incorporating larger sample sizes, diverse age ranges, and advanced technological methodologies are imperative. This research serves as a foundational framework, paving the way for future investigations to delve deeper into the intricate nuances of gender and memory. It is also a reminder that women have no disadvantages compared to men, especially in memory.

Conclusion:

In conclusion, our research sheds light on the nuanced landscape of memory abilities within the context of Tashkent. The findings highlight that females, aged 15–18, tend to outperform their male counterparts in both explicit (semantic and episodic) and implicit memory tasks. While the advantage is slight, it challenges the long-standing notion of males having the upper hand in various domains. Moreover, the study emphasizes the importance of considering cultural and socioeconomic factors when examining gender differences in memory. These insights contribute to a broader understanding of memory processes and gender dynamics, urging further exploration with larger and more diverse populations. As we move forward, it is crucial to acknowledge that individual capabilities are shaped by multifaceted factors and assumptions based on gender stereotypes should be reevaluated. Our research invites a more comprehensive examination of memory abilities, fostering a nuanced perspective that transcends conventional notions of gender-based cognitive disparities.

References:

1. MACCOBY, E. E., & JACKLIN, C. N. (1974). *The psychology of sex differences*. Stanford, CA: Stanford University Press.
2. SCHACTER, D. L., & TULVING, E. (1994). What are the memory systems of 1994? In D. L. Schacter & E. Tulving (Eds.), *Memory systems 1994* (pp. 1-38). Cambridge, MA: MIT Press.
3. Loprinzi, P. D., & Frith, E. (2018). The role of sex in memory function: considerations and recommendations in the context of exercise. *Journal of clinical medicine*, 7(6), 132.
4. HART, R. P., & O'SHANICK, G. J. (1993). Forgetting rates for verbal, pictorial, and figural stimuli. *Journal of Clinical & Experimental Neuropsychology*, 15, 245–265
5. Bloise, S. M., & Johnson, M. K. (2007). Memory for emotional and neutral information: Gender and individual differences in emotional sensitivity. *Memory*, 15(2), 192-204.
6. Herlitz, A., Nilsson, L. G., & Bäckman, L. (1997). Gender differences in episodic memory. *Memory & cognition*, 25(6), 801-811.
7. Engel de Abreu, P. J., Nikaedo, C., Abreu, N., Tourinho, C. J., Miranda, M. C., Bueno, O. A., & Martin, R. (2014). Working Memory Screening, School Context, and Socioeconomic Status: An Analysis of the Effectiveness of the Working Memory Rating Scale in Brazil. *Journal of Attention Disorders*, 18(4), 346.
8. Nadal, Kevin L. (2015). *The SAGE Encyclopedia of Psychology and Gender*. Routledge. p. 342.