

Note: APA no longer requires a “running head” for student papers (30).

The title of the paper, your name, affiliation, course number and title, instructor, and due date should appear on separate, double-spaced lines beginning 3-4 lines down from the top (30-35).

1
The page numbers should appear flush right in the header (32).

Memory Retention in Infancy and Toddlerhood

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PSYC 711: Developmental Psychology

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All margins should be set to 1” (45).

Do not indent the body paragraph of the abstract (38).

Abstract

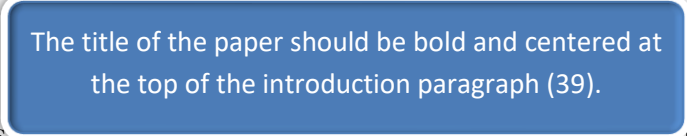

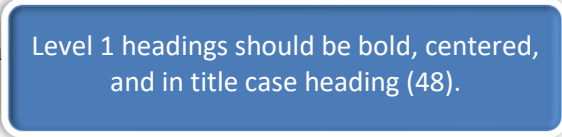
Memory is difficult to assess in infants and toddlers due to their lack of language and therefore inability to share memories. mobile experiment, infants and toddlers have been assessed through habituation and reactivation experiments. The findings on implicit memory also lead to understand the dependency and ability to generalize a memory. amnesia, where older children and adults cannot remember earlier than the age of three or four.

The heading "Abstract" should be centered and bold at the top of the second page (38). **Note:** Student papers do not usually require an abstract.

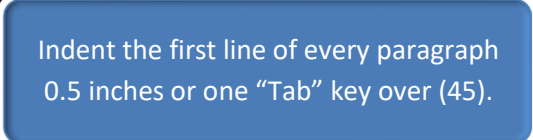
The abstract typically ranges from 150-250 words and should not exceed a single paragraph (38).

The entire paper should use a font that is "accessible to all users" including Times New Roman 12, Georgia 11, Arial 11, or Calibri 11 (44).

Memory and Retention in Infancy and Toddlerhood

Just as the body is developing and changing throughout life, so is cognitive processing. The brain develops throughout early life.  cognitive processing is memory. There is  a large difference between adult memory, retention, and the way that infants and toddlers have more memory capacity than adults. Infants and toddlers remember implicitly, or without conscious awareness, well. They can also be conditioned with limitations. Particularly in younger infants, the conditioning is highly contextual and slowly becomes more generalized with age. Retention is also limited by length of time. Infants also appear to lack explicit memory, including episodic or autobiographical memory. This leads to a phenomenon called infantile amnesia, where older children and adults cannot remember an event that occurred younger than three years old. Infants and toddlers have almost adult-like memory abilities with implicit memory; however, with explicit memory infants and toddlers do not.  the ability to retain.

Habituation

Two of the easiest ways to judge infants' memories is through habituation and operant conditioning. Habituation is a process by which infants learn and retain a wide variety of information. Habituation is a process by which infants learn and retain a wide variety of information (Berk, 2014, p. 163). Infants will show either a familiarity preference or a novelty preference with these objects and events. If the child sees two stimuli directly after learning one of them, the child will immediately stare at the unfamiliar stimuli, which is showing preference to it. This recovery of the new stimuli is a novelty preference, because the child recovered the memory that he or she remembers the stimuli, but showed a preference towards the new one (Berk, 2014, p. 135). Familiarity preference, on the 

other hand, is when the infant sees two stimuli after a delay of learning one of them, and shows

Level 2 headings should be bold, flush with the left margin, and title case heading (48).

35). These preferences show with habituation

of their environment.

Operant Conditioning

Operant conditioning demonstrates how infants and toddlers are capable of learning behaviors and retaining that behavior; this is demonstrated in the mobile test (Berk, 2014;

Hitchcock & Rovee-Collier, 1996). The infants studied

in the experiment done was to tie a ribbon attached from a mobile to a

when kicked, the mobile shook. The child learned by kicking

which demonstrated positive reinforcement. Once the behavior was learned, Hitchcock and

Rovee-Collier (1996) instated a forgetting period (6 to 20 days after training), a reactivation

of the reward (mobile moving), and finally observed

(kick). The infants showed the behavior and therefore

remember learning like adults; however, they do so for

shortly if the reward is reactivated. When infants forget an operant

response, it only takes a brief prompt for the infant to reinstate and extend that memory

dramatically (Berk, 2014, p. 163). On their own, the duration maximum for infants to remember

tasks increases linearly (Rovee-Collier & Cuevas, 2006, p. 124). A two-month-old infant could

retain learning for one to two days, while a 12-month-old infant can retain learning for 10 days (Rovee-Collier &

Cuevas, 2006, p. 124). This operant conditioning demonstrates that infants learn implicitly and retain that memory for some time

on the order of days. The duration of memory retention is dependent on

the age of the infant and the number of reactivations.

Use semicolons to divide multiple works in one citation. List the sources alphabetically (263).

When the author's last name is in the text, place the year of publication in parenthesis immediately after the last name. Then, place only the location in parenthesis at the end of the sentence before the final punctuation (262-263).

For a parenthetical citation, list all three elements at the end of the sentence in parentheses. Use an ampersand in parenthetical citations with more than 1 author.

While infants and toddlers can retain learned behaviors, they do have limits on how well they remember these behaviors. One example is context-specific learning. In the Hitchcock and Rovee-Collier experiment, infants were shown a toy that would move when they pulled on a string. When the infants were not able to retain the learning as the context changed.

“The year can be omitted from a citation only when multiple narrative citations to a work appear within a single paragraph” (p. 265).

However, Hitchcock and Rovee-Collier (1996) found that learning did return once it was generalized or able to be seen in multiple contexts and eventually become neutral or not context dependent. Hitchcock and Rovee-Collier explained that the more retrievals made the more generalized the memory was. For infants, their memory is highly dependent upon context. When they learn a behavior in one context, they will only perform the behavior in that context until they learn it in a new context. With extinction, the forgetting of a learned

behavior in one context that the learning first occurred (Rovee-Collier & Cuevas, 1990). Original learning is permanent (Rovee-Collier & Cuevas, 1990). In different contexts, infants and toddlers can generalize learning (Hitchcock & Rovee-Collier, 1996). These generalizations are important for development, which is crucial to much of

APA requires location information for direct quotes and encourages it for paraphrases. The manual explains that it is “possible to cite a specific part of a source whether you are paraphrasing or directly quoting,” and the Regent University Student Handbook encourages location information to ensure proper attribution. (264).

memory retention, which will be discussed later. Because of this, the generalized memories demonstrated that this is a fundamental cognitive process that is not limited by age (Hitchcock et al., 1996, p. 398). Despite having a contextual limit, learning that is generalized demonstrates that this implicit memory is not limited by age or language, although it is subject to forgetting and retention.

For works with three or more authors including the first in-text citation, use the first authors followed by “et al.” (266).

The aspects of memory mentioned so far, habituation and operant conditioning, are concerning recognition, which is “noticing when a stimulus is identical or similar to one

previously experienced” (Berk, 2014, p. 164). For infants, this is much easier of a task as the stimulus will be present. Berk (2014) demonstrated that what is more difficult for this age is

If you are citing multiple pages, use 2 p’s instead of 1 and “separate the page range with an ‘en’ dash (p. 270).

present (p. 164). By the second half of the first year, Berk (2014) demonstrated that this improved with age, as one-year-old’s can recall events from three months, and one-and-a-half-year old’s for up to a year (pp. 164–165). Recognition comes easier to this age; however, recall does make an appearance continues to develop early.

With implicit memory, infants and toddlers show almost adult capabilities. However, the ability to remember explicitly is significantly limited. Older children and adult can rarely remember events happening before three or four years

phenomenon called infantile amnesia. It is normally believed to be a part of autobiographical memory. According to Berk (2014), children can recall one-time events from both recent and distant pasts (p.

Use the past tense when you are explaining an “action or condition that occurred at a specific, definite time in the past, such as when discussing another researcher’s work” (118).

to why infants cannot retain explicit, episodic memories. Berk demonstrated that one theory was simply that infants only had implicit memory and explicit memory developed later (p. 164).

Another is based on language. Older children and adults use language for encoding memory,

If a quote has 40 words or more, count it as a block quote and indent the quote 0.5 inches. Do not indent the next line if it is part of the same paragraph (p. 272).

which means, such as actions and behaviors, to encode information. This is why infants can learn behaviors but not retain event information. If language were required, the ability for episodic memory would increase.

One theory, by Rovee-Collier and K. Cuevas, depends upon contextual cues in which:

A cue is defined as that aspect of a situation which the experimenter manipulates, and the context is defined as the relatively invariant aspects of the setting in which the response occurs that do not affect the characteristics or demands of the task. (121)

Infants' memories are highly context dependent, which means to reactivate a memory the memory needs to be reinstated in the same context. Because remembering an event requires a person to know the context, time and place, of the event an infant would be unable to recall the event in a new context (Rovee-Collier & Cuevas, 2006). Rovee-Collier and Cuevas (2006) showed that a long-term memory can be reactivated. Therefore, because of the context dependency due to lack of recall ability as well as context dependency restrictions, the infant memory shows that humans are "designed and wonderfully made," which has great abilities early on and becomes greater through development (*English Standard Version*, 2020, Psalms 139:14).

When citing religious works such as the Bible, include the version, the year, and then the book, chapter, and verse as the location (see p. 274).

Conclusion

Infants and toddlers have more advanced memory ability than previously thought. However, this memory ability is hindered by the need to specific context dependency and reactivations of memory. Infants can learn behaviors and retain it for a significant amount of time and with the reactivations can retain memory even longer. Although they cannot show it, there is the potential of infants having explicit memory. However, the ability to remember events is hindered by lack of language, need for context, and length of time leading to infantile amnesia. Despite the restrictions, the infant memory shows that humans are designed with a fantastic mind, which has great abilities early on and becomes greater through development.

Label the Reference page "References" –
"bold and centered" (49)

References

Reference entries should be arranged
alphabetically, double-spaced, and use a
½" hanging indent.

Berk, L. E. (2014). *Development through the lifespan*. Pearson.

English Standard Version. (2020). Bible Gateway.

<https://www.biblegateway.com/versions/English-Standard-Version-ESV-Bible/>

Hitchcock, D. F. A., & Rovee-Collier, C. (1996). The effect of repeated reactivations on memory specificity in infants. *Journal of Experimental Child Psychology*, 62. 378-400.

Rovee-Collier, C., & Cuevas K. (2006). Contextual control of infant retention. *The Behavior Analyst Today*. 7(1). 121-132.

List only the author's first initial – never
their full first name to avoid gender bias.

"A reference generally has four elements: author, date, title, and source...considering these four elements and answering these four questions will help you create a reference for any type of work, even if you do not see a specific example that matches it" (283).

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