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

Memory Retention in Infancy and Toddlerhood

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PSYC 211: Developmental Psychology

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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).

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 memory. Through different experimentation, such as the mobile experiment, infants and toddlers have shown recognizing familiarity, assessed through habituation and operant conditioning. The retention of this memory varies; however, the more reactivations or reminders for the memory can be retrieved. These memory also lead to understanding the infant and toddler's context to generalize a memory. Finally, this paper will explore infantile 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 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).

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

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 becoming more complex and efficient. There is a large difference in memory abilities between infants and toddlers. Infants and toddlers can 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 adult 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 have the ability to retain.

Habituation

Two of the easiest ways to judge infants' memories is through habituation and preference conditioning. Habituation has shown researchers infants learn and retain a wide variety of information while watching objects and events (Berk, 2014, p. 163). Infants will show either habituation or a novelty preference with these objects and events. If the child sees a familiar object for learning one of them, the child will immediately stare at the unfamiliar object 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

Double-space all lines (45).

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Level 1 headings should be bold, centered, and in title case heading (48).

Indent the first line of every paragraph 0.5 inches or one "Tab" key over (45).

other hand, Level 2 headings should be bold, flush with the left margin, and use title case heading (48). Infants show a preference for a novel stimulus after a delay of learning one of them, and shows memory of their environment (Berk, 2014, p. 135). These preferences show with habituation infants can learn about the environment and memory of their environment.

Operant Conditioning

Operant conditioning demonstrates the ability of learning behaviors and retaining that behavior (Berk, 2014; Hitchcock & Rovee-Collier, 1996). In an experiment done was to tie a ribbon to a mobile. When the child kicked, the mobile shook. The child learned by kicking that they could make the mobile move, 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 period where they would remind the child of the reward (mobile moving), and finally observed to see if the infant would do the behavior again. For and therefore retention. This shows that infants do so for shorter lengths of time unless the behavior is reinforced. In operant response, it only takes a brief period of time to learn a new behavior. memory dramatically (Berk, 2014, p. 163). 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 13-week child for about 18 months (Rovee-Collier & Cuevas, 2006, p. 124). Infants learn about the environment implicitly and retain information about the environment. Infants learn upon the age of the infant and the environment.

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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 contextual cues. Another aspect of the Hitchcock and Rovee-Collier experiment was changing the context of the reactivation, in which the infants were not able to retain the learning as the remembering was in a different context.

However, Hitchcock and Rovee-Collier (1996) found that learning did return once it was generalized or able to be seen in multiple contexts and was not context-

dependent. Hitchcock and Rovee-Collier explained

generalized the memory was. For infants, their memories

they learn a behavior in one context, they will only

they learn it again in a new one. This is also true with extinction, the forgetting of a learned

behavior. Extinction can only occur in the same context that the learning first occurred (Rovee-

Collier & Cuevas, 2006, p. 127). With this, the original learning is permanent (Rovee-Collier &

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).

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

contexts, infants and toddlers can

e-Collier, 1996). These

which is crucial to much of

is, the generalized memories

is not limited by age (Hitchcock et

al., 1996, p. 398). Despite having a contextual limit on learning, the nature of generalizing

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

memory ability is present in infants and toddlers and is

partly limited in the length of said learning and

the aspects of memory memories 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).

not present (p. 164). By the second half of the first year, Berk stated that this improved with age, as one-year-old’s can remember up to 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 of age.

A phenomenon called infantile amnesia. It is not

autobiographical memory. According to Berk

one-time events from both recent and distant past

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 explicit memory

whereas infants and toddlers use nonverbal recall

(Berk, 2014, p. 164). This would explain why

memories. Once language begins to be acquired

One theory, by Rovee-Collier and K. Cuevas

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).

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).

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 limit exists on how long after an event a forgotten memory can be reactivated.

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).

...ve the memory due to lack of recall ability as well

Despite the restrictions, the infant memory shows

...d, "fearfully and wonderfully made," which has

...rough development (*English Standard Version,*

2020, Psalms 139:14).

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 in 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

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

8

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.

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alphabetically, double-spaced, and use a
½" hanging indent.

"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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