



ELA/Literacy
Released Item 2018

Grade 11
Research Simulation Task
Factors Interfering With Memory Accuracy
II428729783

Today you will research scientific discoveries about how memory works. You will read the article “New Discoveries on Optimizing Memory Formation.” Then you will read the passage from “Tricks of Memory” and the article “Exceptional Memory Explained: How Some People Remember What They Had for Lunch 20 Years Ago.” As you review these sources, you will gather and synthesize information and answer questions about scientific concepts so you can write an analytical essay.

Read the article “New Discoveries on Optimizing Memory Formation.” Then answer the questions.

New Discoveries on Optimizing Memory Formation

by William R. Klemm

- 1** As each of us goes through life, we remember a little and forget a lot. The stockpile of what we remember contributes greatly to define us and our place in the world. Thus, it is important to remember and optimize the processes that make that possible.
- 2** People who compete in memory contests (“memory athletes”) have long known the value of associational cues (see my *Memory Power 101* book). Neuroscientists have known for a long time about memory consolidation (converting short-term memory to long-term form) and the value of associational cues. But now, important new understanding is arising from a research lab at Northwestern that links cueing to “re-consolidation” and reveals new possibilities for optimizing long-term memory formation.
- 3** The underlying research approach is based on such well-established memory principles as:
 1. When information is first acquired, it is tagged for its potential importance or value.
 2. Such tagging is influenced by multiple factors such as repetition, attention, emotion, or purpose.
 3. Valuable memories get preferentially rehearsed, either through conscious will or by covert (implicit) brain processes.

4. Rehearsal episodes reactivate the memory and enhance long-term remembering because each re-consolidation episode builds on prior ones and strengthens the neural circuits that store the memory.
 5. Effectiveness of recall during rehearsal is promoted by use of relevant cues, that is, information that was associated with the original learning material.
 6. Such cues are effective, even when delivered during sleep.
- 4** The study involved 60 people in their early 20s, screened for good memory ability. All subjects participated in a four-hour learning period beginning in late morning. The learning consisted of 72 images placed in specific locations on a tile-like screen and presented one at a time. As each image appeared a corresponding sound was associated, intended to serve as a learning cue. For example, a dog picture would be associated with barking, cat with meow sound, etc. To create a value bias, each image had a superimposed number representing how important it was to remember this item and its location upon later testing. Subjects were given financial reward for how well they remembered, and thus remembering high-value images was a priority. Half of the images had high value assignments, while the rest had low values.
- 5** Subjects were assigned to four groups:
1. Groups 1 and 2 were tested to see how well they could remember where each object had appeared during the learning phase. They then took a 90 min nap while their EEGs were recorded. Half of these subjects heard white noise while the other half was presented the original sound cues of low-value images during non-REM sleep at a level that did not cause awakening. At the end of the nap, recall was again tested.
 2. The procedure in two other groups was similar except that these subjects did not nap. One of these groups watched a movie during the 90 minutes after the learning session, while the other group listened to the low-value sound cues while performing a working memory task.
- 6** Not surprisingly, the studies revealed that high-value images were remembered better, irrespective of whether or not a nap was taken. The practical point is that we remember better the things we value and find to have positive reward value. This reminds me of the sage saying that T.

Boone Pickens repeated from his basketball coach, who told players after each game: “Don’t dwell on your mistakes. Think about what you did right and do more of that!”

- 7** In the study, half of the low-value associations were rescued by cueing during wakefulness and all of them were rescued by cueing during sleep, even though only half of the images were cued. Notably, the best effects occurred during the deepest stage of sleep. No explanation was given to explain the sleep benefit, but I suspect it is because the sleeping brain is not distracting itself with irrelevant thoughts. This is consistent with the finding that low-value memories were not rescued well during REM sleep, when the brain is busily engaged in dreaming. The REM-sleep finding is at variance with other studies that reported a memory consolidating benefit of REM sleep. Apparently, the test conditions make a difference and more research is needed here.
- 8** Low-value associations were preferentially forgotten in the group that was not allowed to nap. This likely signifies that a brain busily engaged with other thoughts is less able to selectively consolidate memories, and only high-value items are likely to survive. This accords with the long-held theory that distractions and multi-tasking interfere with memory consolidation.
- 9** In summary, memory optimization would seem to require one to:
1. Create associations that can serve as memory cues.
 2. Place a high value on the cues and their targets.
 3. Repeatedly present the cues and replay the initial information. When awake, present the cues in self-test mode. When asleep, even better results would be obtained if cues were presented at a level that does not cause awakening during the early night sleep when sleep is deepest and there is little dreaming.

“New Discoveries on Optimizing Memory Formation” by William R. Klemm from PSYCHOLOGY TODAY. © 2013. Used by permission of the author.

Read the passage from "Tricks of Memory." Then answer the questions.

from "Tricks of Memory"

by Henry L. Roediger, III, and Kathleen B. McDermott

- 1** There are two fundamental errors of remembering: forgetting events that occurred previously and remembering those that did not occur (or remembering them differently from the way in which they occurred). The first error, forgetting, hardly needs documentation; the experience is embarrassingly familiar to everyone. The other major class of memory errors, errors of commission, strikes most people as a curious one: How could a memory that seems vivid and clear be anything but accurate?
- 2** This article focuses on these tricks of memory. Sources of error can arise at several stages in the encoding-storage-retrieval sequence. People can perceive (and therefore encode) events differently from the way they occur; stored memories can be influenced by intervening events; and conditions during the retrieval stage can lead to reports that bear little relation to the original occurrences.
- 3** We believe that distortions of memory provide a fertile ground for studying interesting and important psychological phenomena. The experimental techniques used to induce illusory memories have typically involved the presentation of complex material (e.g., prose or videotapes), the introduction of misleading information between the time when the material is first presented (the study phase) and the time when memory is tested (the test phase), and the use of long delays between study and test (see Roediger, 1996). The work described here provides a new procedure for inducing illusory memories. This procedure differs from typical ones used in false memory research in that it uses a standard list-learning paradigm, no misleading information, immediate testing, and warnings to subjects to be cautious and accurate. Despite these features, the illusory memories obtained are among the strongest ever reported in the literature on human memory.

AN ASSOCIATIVE MEMORY ILLUSION

- 4 In our first studies (Roediger & McDermott, 1995), we created illusory memories by adapting a procedure used by Deese (1959) for other purposes. In our typical experiment, subjects hear lists of 15 words presented at the rate of 1 word every 1.5 s. Each list consists of a set of words associated to a single word that is not itself presented. For example, subjects may hear *bed, rest, awake, tired, dream, wake, snooze, blanket, doze, slumber, snore, nap, peace, yawn, and drowsy*; immediately afterward, they are asked to recall the list. The subjects are instructed not to guess—to be certain that they recall only items that were actually on the list. In this example, the list words are all associates of *sleep*, which does not appear on the list. The results from one experiment (averaged over 24 such associative lists) are shown in Figure 1. The graph shows strong primacy and recency effects, or high probabilities of recall of words from the beginning and the end of the lists. However, the most striking finding is represented by the dashed line, which indicates the level of recall for the critical nonpresented words (e.g., *sleep*) from which the lists were derived. The probability of recall of these missing words was somewhat greater than the probability of recall of words that actually had been presented in the middle of the lists!
- 5 After subjects had studied and recalled numerous lists, they were given a recognition test in which studied items were mixed with two types of nonstudied words (often called lures or distractors): the critical items (e.g., *sleep*) and unrelated distractors (e.g., *spider*). Subjects classified each word as *old* (studied) or *new* (nonstudied). If they classified a test word as old, they made a further judgment: whether they remembered or just knew the item had been studied (Tulving, 1985). That is, if they could recollect something specific about the moment of occurrence of the word during list presentation, they were to assign a *remember* judgment to the test word. If they knew the word had been in the list but could not recollect its exact moment of occurrence, they were to assign a *know* judgment.
- 6 Results for the three types of items (studied, unrelated nonstudied, and critical nonstudied) are shown in Figure 2. Examining the two left-most bars reveals no surprises: About 80% of the studied words were recognized, and

most of these words were deemed to be remembered (the shaded part of the bar) rather than known (the white part). For unrelated lures, the false alarm rate (i.e., the frequency of recognizing them even though they were not presented) was low, and most of these falsely recognized words were deemed to be known, not remembered. This latter result makes intuitive sense in that there was no original event to be remembered. The right-most bar shows recognition of critical items like *sleep*; the false alarm rate for these words approximated the hit rate (i.e., rate of correct recognition) for studied items (i.e., about .80). In addition, subjects claimed to remember (i.e., to vividly recollect) the presentation of these words as frequently as they did items that had been studied! This procedure demonstrates robust false remembering because subjects are saying not simply that a critical word seems familiar, but that they actually remember some specific aspect about the moment of its occurrence.

Roediger III, H. L., McDermott, K. B. (2000) "Tricks of Memory." CURRENT DIRECTIONS IN PSYCHOLOGICAL SCIENCE Vol. 9(4) p. 123–127, Copyright 2000 by Association for Psychological Science. Reprinted by permission of SAGE Publications, Inc.

Read the 2011 article “Exceptional Memory Explained: How Some People Remember What They Had for Lunch 20 Years Ago.” Then answer the questions.

Exceptional Memory Explained: How Some People Remember What They Had for Lunch 20 Years Ago

by Gary Stix

- 1** Researchers from the University of California, Irvine, reported in 2006 on a woman named Jill Price who could remember in great detail what she did on a particular day decades earlier. James McGaugh, Larry Cahill and Elizabeth Parker put the woman through a battery of tests and ascertained that she was not using any of the memory tricks that have been known to mnemonists for millennia.
- 2** Word got out, the media descended and the lab now receives calls every day from people who say they have the same ability as Price. Of the hundreds of people interviewed, 22 appear to exhibit what the researchers call highly superior autobiographical memory (HSAM), the detailed recollection of events that occurred in the distant past.
- 3** A question that has persisted about this line of research is whether the brains of these people are distinct from the organs of others who can't remember yesterday's lunch, let alone trivial events from 20 years back. Preliminary research presented at SFN (Society for Neuroscience) 2011 by the Irvine investigators suggests that there may be real differences in the brain structures of these people. MRI studies of 11 study participants demonstrate that multiple areas in the temporal and the parietal lobes tied to autobiographical memory are significantly larger than the same regions in a control group. At the same time, another area, the lentiform nucleus, linked to obsessive-compulsive disorder, is also bigger. Some of the study participants, in fact, have a tendency to hoard things or avoid germs, though none have been diagnosed with OCD.
- 4** “There seems to be this extreme organizational capacity, kind of like the tricks that mnemonists use,” says Howard Eichenbaum, a Boston University professor who is editor of the journal *Hippocampus*. “But the brain is doing it

subversively under the radar so to speak. This process must interact with the hippocampus, which is taking these autobiographical memories and helping to sort things out the way that mnemonists sort out a long list of words.”

- 5 Superior autobiographical memory is not a “genius” trait and those in the study do not exhibit better cognition in other realms nor do they count Nobelists among their ranks—one is an actress (Marilyn Henner), another is a radio reporter, to name just two. They are not even natural card counters. They perform no better than a control group on tests of short-term memory skills—rote memorization of a string of numbers, for instance.
- 6 The advantages of a capacious autobiographical memory are not as obvious as they might seem. Most of the HSAM group relishes its special ability, but many wrestle with how they can use it in their daily lives. “The number one question from people who call us is what can I do with my memory,” says Aurora Leport, a graduate student from Cahill’s lab who is presenting the research at SFN on Tuesday. The callers want to know how they can use the skill “in a positive way” or simply how they can use it to make money. “I don’t really know how to answer that,” Leport says. “It’s shocking to me that they can’t use it better. It isn’t really a superpower. It’s not a key that allows them to do amazing things.”
- 7 Extraordinary memory can become an overwhelming burden, the ultimate in information overload, as witnessed by the case of Solomon Shereshevsky, profiled by the renowned psychologist Alexander Luria (1902–1977) in *The Mind of a Mnemonist*. A photographic memory like Shereshevsky’s captures and retains the most minute details of a text or image. Like memorizing the phone book. HSAM, by contrast, allows the recollection of your life as a fifteen-year-old as if it were only yesterday, but not at high resolution: You may remember that you ate cereal for breakfast on Feb. 15, 1989, but not every ingredient on the box.
- 8 Although they are emotionally well adjusted, some of the superior memory group has to continually come to terms with the vividness with which they recall negative memories from 10, 20, 30 years before. “When I ask them about a bad memory, they say it comes back to them with the same amount

of detail," Leport says, "but it also comes back to them with the amount of emotion at the time of the event so they have to deal with that."

- 9 The discovery of HSAM could provide a new direction for researchers. The famous patient Henry Molaison, better known as HM, was unable to form new long-term memories because of surgical damage to the medial temporal lobe, which includes the hippocampus. But study of his case greatly deepened the understanding of how memory works. Superior autobiographical memory could, in theory, give neuroscientists insights from the opposite pole. "We have a new tool in which we can look at memory when it's functioning at a higher level," LePort says. These studies might also furnish a new appreciation of the critical balancing act between remembering and forgetting to keep from getting overpowered by thought and emotion.

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Anchor Set A1 – A10

With Annotations

In Henry L. Roediger and Kathleen B. McDermott's "Tricks of Memory", the errors of memory are analyzed and explained. While it is understood that most people forget, it is not yet completely understood what leads to false memory. In this passage, however, an answer is attempted. Specifically, they explain that intervening events can have the most damage on securing accurate memory. Our brains are complex and constantly sorting through old information and taking in new information. As a result, the ability for people to remember things clearly is difficult. For example, after an event occurs, a similar event may occur a year later, and instead of separating these experiences, the brain confuses and synthesizes them. Two separate vacations to Florida, for example, could be misremembered, and the events on one trip are suddenly remembered as the events of another trip. Another factor that can intervene in memory was demonstrated when subjects heard a list of 15 similar words and asked to recall these words. The most obvious word that was not included in the list was often still recalled as being on the list, thus showing a tendency to assume a memory rather than recall true fact. Knowing this, the fortitude of human memory begins to come into question.

The strength of memory is further tested in the article "New Discoveries on Optimizing Memory Formation" by William R. Klemm. In this article, the reasons for accurate memory are explored. Ultimately, Klemm concludes that more valuable memories which have been recalled several times since the event will be more accurately remembered. He also highlights the significance of having cues associated with memories. A cue could include, for example, the sight of a large dog barking when remembering a dog attack. Understanding the events that are more or less valuable in an individual's memory can therefore reveal more about the the flaws in the way he/she remembers.

Expanding on the limits of memory, Gary Stix explains in "Exceptional Memory Explained: How Some People Remember What They Had for Lunch 20 Years Ago", the extraordinary capabilities of people with HSAM. Highly Superior Autobiographical Memory refers to the ability of some to accurately recollect events from the distant past. In contrast to the previous articles, Stix does not analyze the flaws of humans' memories but rather the extent to which they can successfully function. He also looks more at internal factors and the structure of the brain, instead of the external cues and intervening events that are discussed in the previous articles. This suggests that while an intervening event may falsify a memory, or an external cue may force an event to be remembered, the ultimate factor in an individual's memory is the structure of their brain. Specifically, the lentiform nucleus, which is linked to obsessive behavior, is often bigger, thus allowing smaller details to be accurately recalled.

Throughout all of these articles, the limit and accuracy of memory is tested. The external factors explored include cues that prompt memories, intervening memories that get consolidated with old memories, and associations that cause inaccurate recollection. Through the word test in "Tricks of Memory", associations between words are shown to negatively influence recollection. Cueing was tested in "New Discoveries of Optimizing Memory Formation" and showed just how in tune brains are with the outside world and how one cue can prompt a vivid memory. The internal factors were explored in "Exceptional Memory Explained", and the development of the brain was shown to be highly significant in the ability of an individual to recall small details from the past. Ultimately, while these passages explore the influence of different factors on memory, it should be concluded that they all function together to create memory, whether it is accurate or flawed.

Annotation

Anchor Paper 1

Reading Comprehension and Written Expression

Score Point 4

The response demonstrates full comprehension of ideas in the stimulus materials through accurate analysis that is effectively and comprehensively developed with clear reasoning, and is supported by relevant text-based evidence and examples from all passages. The prompt is fully addressed by analyzing multiple external and internal factors that affect memory (*The external factors explored include cues that prompt memories, intervening memories that get consolidated with old memories, and associations that cause inaccurate recollection. Through the word test in "Tricks of Memory", associations between words are shown to negatively influence recollection. Cueing was tested in "New Discoveries of Optimizing Memory Formation" and showed just how in tune brains are with the outside world and how one cue can prompt a vivid memory*). Internal factors discussed in the third passage were analyzed to demonstrate how brain size and structure can affect one's ability to recall small details from the past. Effective organization results in clear and coherent writing, with separate paragraphs for each passage, clear transitions leading from one idea to the next, and the presentation of specific examples for each factor (including successive vacations in different years, a barking dog, lists of related words, and comparative sizes of the brain's lentiform nucleus). An effective writing style is also demonstrated and maintained through sentence variety in the development of this analysis, leading to a final concluding statement (*Ultimately, while these passages explore the influence of different factors on memory, it should be concluded that they all function together to create memory, whether it is accurate or flawed*).

Multiple factors, both internal and external, can interfere and affect the accuracy of an individual's memory. For example, cues associated with an item or event that is to be remembered can positively affect our remembrance of them. However, our memory may also be faulty and remember things that did not occur, especially if our mind closely associates it with what did happen. Another factor that may affect the accuracy and extent of our memory is the size of the parts of the brain that influence memory; the minds of people with incredibly accurate and extensive memories, according to "Exceptional Memory Explained," have larger areas of the brain than average people.

Associational cues can trigger memories and help us remember things that happened, but they can also cause us to 'remember' things that didn't occur at all. In a study described in "New Discoveries on Optimizing Memory Formation," people were asked to remember the position of a picture tile, and as they were shown the picture, they also heard a sound associated with the picture. There were also values associated with each picture. Ninety minutes later, they were tested for the position of the pictures; different groups either received only the low-value sound cues during sleep, during a work period or didn't receive the sound at all. Those who received the sounds were able to recall those pictures better, but every test subject recalled the high value pictures best, showing that those positive associations with those pictures helped them to remember. However, our mind may associate an item that didn't happen in reality, creating faulty memory: in a test described in "Tricks of Memory," many people thought they heard the word "sleep" in a list of sleep-related words, but the word "sleep" was not actually on the list. Our memory is largely dependent upon associations with other things.

Another factor that can affect memory is the physical structure of the brain, as described in "Exceptional Memory Explained." People with extraordinary memories- that don't use any "memory tricks" (paragraph 1, Exceptional Memory Explained)- were subject to MRI studies. These MRI's demonstrated differences in their brain structure, especially in areas of the brain relating to memory: "multiple areas in the temporal and the parietal lobes tied to autobiographical memory are significantly larger than the same regions in a control group... the lentiform nucleus, linked to obsessive-compulsive disorder, is also bigger." (paragraph 3, Exceptional Memory Explained) The opposite side of this is that people with damaged brains can have trouble with memory, as shown in the case of Henry Molaison, who couldn't "form new long-term memories because of surgical damage to the medial temporal lobe." (Paragraph 9, Exceptional Memory Explained) Good memory is not only dependent upon associational cues or memory-building strategies, but also is dependent upon the actual physical structure of the brain.

Annotation

Anchor Paper 2

Reading Comprehension and Written Expression

Score Point 4

This response presents an accurate analysis of external and internal factors that influence memory, through effective and comprehensive development of the various laboratory experiments conducted in the passages. First, the response presents ideas about external factors (*Associational cues can trigger memories and help us remember things that happened, but they can also cause us to 'remember' things that didn't occur at all. . . . Our memory is largely dependent upon associations with other things*). Then the response provides an explanation for an internal factor from the third passage (*Good memory is not only dependent upon associational cues or memory-building strategies, but also is dependent upon the actual physical structure of the brain*). The reasoning for each factor is supported with clear reasoning and relevant text-based evidence. Effective organization results in clear and coherent writing, with separate paragraphs for each type of factor, external and internal. Clear transitions lead from one idea to the next, and there are specific examples for each factor presented. A comprehensive introduction clearly sets out the ideas for discussion. Separate concluding statements for each of the two types of factors unify the respective discussions. An effective writing style is also demonstrated and maintained through sentence variety in the development of this analysis.

Memory is a fickle thing- it abandons us when we most need it and reminds us of things we would prefer to forget. When memory makes up most of our identities, it is concerning and scary to think that it is faulty and can often be inaccurate. Each different source, "New Discoveries on Optimizing Memory Formation", "Tricks of Memory", and "Exceptional Memory Explained" discuss how multiple factors interfere with the accuracy of an individual's memory.

"New Discoveries" discusses the idea of memory cues or prompts- the idea that corroboration is the best way to remember things, as the information is tagged by value, importance, and corroboration. For example, the experiment mentioned in this passage explains that when each image was corroborated with some sound related to that object, and the group was allowed to sleep in deep sleep (not REM), with sounds that would further corroborate the images seen in the test, their memory of both high value and low value items tended to be better than those in other groups. This allows this source to support the idea that with corroboration and cues, memory recording happens much more efficiently.

In "Tricks of Memory" the very trustworthiness of the memory is called into question with the idea of errors of commission wherein someone remembers something that never happened (this is especially important in the criminal justice system, where eyewitnesses are the highest form of proof). In this experiment, where people are given a list of words associated with one, more overarching topic, the topic is better remembered than the words associated with it (which actually goes back to memory cues). In this case, external factors such as illusory and complex material trick the brain into associating certain words with a false memory. In this case, the memory is entirely inaccurate in its associations.

In "Exceptional Memory Explained", the incredible capacity of the memory is explained when the article discusses the few people who have HSAM memory, or highly sophisticated autobiographical memory- these people can remember almost anything about their own lives at any given point in time. Whereas the previous two articles dealt with external influences, this article discusses internal influences on the memory that boost its capacity; specifically genetic abilities that are passed down. These internal factors improve accuracy of memory for these people.

These kinds of studies help us improve our understanding of the human brain and its most fundamental power- memory. Without memory, there is no identity as most people will agree that humans are the sum of their experiences. Memory documents those experiences for us, and so it is important to understand it as best as we can.

Annotation

Anchor Paper 3

Reading Comprehension and Written Expression

Score Point 3

This response provides mostly accurate analysis of the stimulus source materials and mostly effective development of the topic. The primary support for the analysis and reasoning about the third passage, "Exceptional Memory Explained," comes from information not contained in the passage (*Whereas the previous two articles dealt with external influences, this article discusses internal influences on the memory that boost its capacity; specifically genetic abilities that are passed down. These internal factors improve accuracy of memory for these people*). None of the stimulus materials discusses genetic influence as a force which interferes with or enhances memory accuracy. Mostly effective organization results in mostly clear and coherent writing, with separate paragraphs for each type of factor, external and internal. Mostly clear transitions lead from one idea to the next. An introduction sets out the ideas for discussion. A mostly effective writing style is also demonstrated and maintained through sentence variety in the development of this analysis.

The multiple factors, internal and external, can interfere with the accuracy of an individual's memory are its importance or value, intervening events, and distinct features in the brain or thought and emotion. Each passage gives details and information on how we remember and forget things. These different factors can interfere with our memory in different ways.

In the passage "New Discoveries on Optimizing Memory Formation" it states that memories are established by its importance or value. The factors that influence a memory's value are repetition, emotion, attention, and purpose. On paragraph 6 it states that, "The practical point is that we remember better the things we value and find to have positive reward value." Subjects were put through a series of tests to study their memory ability. High-value images were remembered better than low-value images. The importance and value of something can interfere with our memory.

The passage "Tricks for Memory" says sources of error can come from our several stages in our encoding-storage-retrieval sequence. People can perceive events differently from the way they occurred, memories can be influenced, and our retrieval process can lead to little relation to original occurrences. On paragraph 2 it states, "Sources of error can arise at several stages in the encoding-storage-retrieval sequence. People can perceive (and therefore encode) events differently from the way they occur; stored memories can be influenced by intervening events; and conditions during the retrieval stage can lead to reports that bear little relation to the original occurrences." Subjects were given a list of words to hear and study then recall them. The set of words were associated to a single word that was not presented itself. They were also given misleading information. The studies show that having a moment of occurrence and misleading information can interfere with memory accuracy.

The passage "Exceptional Memory Explained" suggests that our memory is affected by thought and emotion and the structure of our brain. Our memories are influenced by thoughts and emotion. On paragraph 9 it says, "These studies between remembering and forgetting to keep from getting overpowered by thought and emotion." They have done a series of tests and MRI scans to see how our memories are influenced. When remembering something bad it will come back with same emotion and detail. Our brains are structured differently and can be a result of people having HSAM. This doesn't necessarily interfere but it's why some people can remember what they did 20 years ago while others can't. In conclusion Thoughts and emotion, importance and value, and finally intervening events can play a part in the accuracy of our memory.

Annotation

Anchor Paper 4

Reading Comprehension and Written Expression

Score Point 3

This response provides mostly accurate analysis of the stimulus source materials and mostly effective development of the topic. However, for the third passage, development of ideas is uneven, and some of the supporting text-based evidence is inaccurate or not linked correctly to the analysis and reasoning (*They have done a series of tests and MRI scans to see how our memories are influenced. When remembering something bad it will come back with same emotion and detail*). The purpose of MRI scans was to measure the size of brain structures, not to explore the relationship between memory and emotion. Mostly effective organization results in mostly clear and coherent writing, with separate paragraphs for each type of factor, external and internal. Mostly clear transitions lead from one idea to the next. An introduction sets out the ideas for discussion. A mostly effective writing style is also demonstrated and maintained through sentence variety in the development of this analysis.

When a person has to memorize it's hard to remember after hours pass by. Our memory tends to work after years and years to remember what we did back in 9th grade while that person in their forties. In the passages "New Discoveries on Optimizing Memory Formation" by William R. Klemm, he explains that they have conducted studies and experiments about memory. He talks about how a person goes through life to remember little about it and then to forget. What we can remember is greatly defined in our world or place. Which he claims to be important to remember and optimize the processes.

In the passage "Tricks of Memory" by Henry L. Roediger, III, and Kathleen B. McDermott, they talk about the fundamental of remembering. They discuss the errors of forgetting events that might have occurred awhile ago instead of remembering instead what did not occur in their life time event. In their passages they talk about how the mind can trick someone to forget something what did happen and replace it what didn't happen in their life. "People can perceive events differently from the way they occur; stored memories can be influenced events; and conditions during the retrieval stage can lead to reports that bear little relation to the original occurrences." The authors talks about how our brain works when and when it want to work at times or place.

In the passage "Exceptional Memory Explained" by Gary stix, he talks about researchers from the University of California reported about a woman who can remember great details on what she did years ago. Eventually they made many labs and experiments to observe how memory work. In each tests they made subjects memorie a list of words and then a second list. Eventually they give them a test in order for them to remember what words were on what list.

Each of these authors explains or claims what goes in a human mind. They each take their own guesses at how our memory works and how it can perceive others. Memory is an amazing thing that God has gifted us because one individual can forget what happened momentarily but they can remember what happened years and years ago. That is what the authors talk about in their passages.

Annotation

Anchor Paper 5

Reading Comprehension and Written Expression

Score Point 2

This response demonstrates basic understanding of the passages and task through a generally accurate analysis. Analysis of the first passage is unclear and circular (*What we can remember is greatly defined in our world or place. Which he claims to be important to remember and optimize the processes*). Although the response provides information about the author's experiments, it provides few specifics and details about those experiments (*he explains that they have conducted studies and experiments about memory. He talks about how a person goes through life to remember little about it and then to forget*). The response provides more text-based evidence to support the development of the second passage (*They discuss the errors of forgetting events that might have occurred awhile ago instead of remembering instead what did not occur in their life time event. In their passages they talk about how the mind can trick someone to forget something what did happen and replace it what didn't happen in their life. "People can perceive events differently from the way they occur; stored memories can be influenced events; and conditions during the retrieval stage can lead to reports that bear little relation to the original occurrences."*). The response provides a specific example from the third passage (*he talks about researchers from the University of California reported about a woman who can remember great details on what she did years ago*). The response finally provides a general summary of all passages (*Each of these authors explains or claims what goes in a human mind*). Overall, this response provides some development and reasoning about how memory works by providing general summaries of the factors that influence memory accuracy, and by providing broad, general summary descriptions (*They discuss, he talks about*). Some organization and coherency is provided by separate paragraphs for each passage. Writing style is somewhat effective with some attempts at sentence variety; however, many sentences are unclear or incomplete (*They discuss the errors of forgetting events that might have occurred awhile ago instead of remembering instead what did not occur in their life time event*).

Internal and external factors can interfere with with the accuracy of an individual's memory. In the article "New Discoveries on Optimizing Memory Foundation" they talk about studying the patients and what they see. This is an example of internal because they are judging on what they see and hear. Based on the numbers they see which one is more important or not. Another example is when they went to sleep, the nap did not really affect what they remembered.

Internal factors and memory also have to do with the little things you remember. In the article "Tricks of Memory" people mix up memories with what really happened. This is what makes people remember things differently or things never happened at all. The people were remembering words and some words that were not in the vocabulary but related to it.

Most memory is influenced by internal happenings. The article about the HSAM shows

How much people remember from years ago so clearly. These people were not special in any way or had different brain structures.

These people were just remembering. The cause of this was because they had their emotions well adjusted. The influence of this was strong because they had not much to worry about and had a strong hold on their emotions.

In conclusion both internal and external factors have influence on your memory. All based on what you do and how you keep yourself stable.

Annotation

Anchor Paper 6

Reading Comprehension and Written Expression

Score Point 2

This response demonstrates basic understanding of the passages and task through a generally accurate analysis, although much of the analysis is summarized with general conclusions (*Another example [from the first passage] is when they went to sleep, the nap did not really affect what they remembered*). Additional analysis from the first passage is vague and broad (*This is an example of internal because they are judging on what they see and hear. Based on the numbers they see which one is more important or not*). Some development is more specific (*people mix up memories with what really happened. . . . The people were remembering words and some words that were not in the vocabulay but related to it*). Other analysis from the third passage is also more specific (*The article about the HSAM shows how much people remember from years ago so clearly. . . . The cause of this was because they had their emotions well adjusted*). Some related reasoning, however, is inaccurate (*These people were not special in any way or had different brain structures [the passage indicates that brain structures were different]*). Some organization and coherency are provided by an introduction, a conclusion, and separate paragraphs; however, coherency is interrupted by the absence of effective transitions to link ideas. Writing style is somewhat effective with some attempts at sentence variety.

According to the three sources they all support the idea that multiple factors, both internal and external, can interfere with the accuracy of an individual's memory. In the first source "*New discoveries on optimizing memory formation*" it explains how there are new ways of keeping your memory up to date. It also explains the steps on how the brain works on keeping memory and how it forgets. In the second source it explains the reasons of why we can remember and why we forget. "There are two fundamental errors of remembering: forgetting events that occurred previously and remembering those that did not occur." (Henry L. Roediger, III, and Kathleen B. McDermott 1)

Annotation

Anchor Paper 7

Reading Comprehension and Written Expression

Score Point 1

This response demonstrates limited comprehension of the source materials. The first sentence restates the prompt. The next section regarding the first passage is too broad to demonstrate analysis or reasoning (*it explains how there are new ways of keeping your memory up to date* [but does not explain those ways]. *It also explains the steps on how the brain works on keeping memory and how it forgets* [but does not explain those steps]). The second section provides minimal development and limited reasoning for the second passage (*it explains the reasons of why we can remeber and why we forget. "There are two fundamental errors of remembering: forgetting events thhat occurred previously and remembering those that did not occur"*). No analysis, reasoning, or development is provided for the third passage. This one-paragraph response demonstrates limited organization and coherence. It omits an introduction and conclusion. Its brevity demonstrates a writing style that it minimally effective.

In each passage, they demonstrate the importance of memory. They each indicate various methodologies to enhance our experience. They also inform us about some misconceptions, as well as benefits to certain forms of memory conditions and natural occurrences.

The first instance, *Optimizing Memory Formation*, instructs you on how to formally address multiple aspects of memory. It teaches you how to remember things properly as well as teaches you some reasons for distorted memory.

In conclusion, the other instances discuss the abilities people are born with to aid their memory. They enable them to have a more broad neurological pathway in their brain. This entails that they are able to almost re-juvenate their memory through their electric impulses.

Annotation

Anchor Paper 8

Reading Comprehension and Written Expression

Score Point 1

This response demonstrates limited comprehension of the source materials. It introduces an allusion to the third passage with the minimal idea that the brain structures of some people allow them to have extraordinary memories (*the abilities people are born with to aid their memory. They enable them to have a more broad nureological pathway in their brain. These entails that they are able to almost re-juvinate their memory through their electric impulses*). Although the remaining response is too broad and vague, this portion of the response provides a minimal allusion to a factor that enhances memory accuracy, a factor sufficient to achieve the score point one level. Additionally, limited organization and coherence is achieved by an introduction and conclusion.

With all 3 readings, they all talk about how the memory works. Or how can it remember things from the past. I think that the memory can do that is because the stuff we remember may be something fun, sad, or important. There are lots of stuff we can remember. Its just not the important things.

Annotation

Anchor Paper 9

Reading Comprehension and Written Expression

Score Point 0

This response does not demonstrate comprehension because it omits analysis and supporting text-based evidence of the stimulus materials. It consists of random ideas. It contains vague, general statements (*they all talk about how the memory works. . . . There are lots of stuff we can remember*). The response provides a lack of organization and, with the repetition of "things" and "stuff," an inappropriate style.

Internal and external factors interfere with the accuracy of an individual's memory, by changing the way the memory is. They make the person's memory have a different reasoning. If you let that happen then a memory can have a different meaning to you.

Annotation

Anchor Paper 10

Reading Comprehension and Written Expression

Score Point 0

This response does not demonstrate comprehension because it omits analysis and supporting text-based evidence of the stimulus materials. It consists of random ideas. It contains vague, general statements (*They make the peroson's memory have a different reasoning*). This brief response provides a lack of organization and style.

Practice Set
P101 - P105

No Annotations Included

There are two ways that you can be affected through memory, internal and external. Some ways that an internal source could affect you is by your brain thinking about other things in common with what you are currently trying to remember. Also an outside experience or memory could effect the memory or the current thought. A few ways the external sources can effect your memory is by an object or word being seen more than the other causing you to remember the object seen more and forget the other less seen object. Also people or how a person acts or speaks could cause you to remember it more than any other characteristics of that person.

Internal and external factors can interfere with the accuracy of an individual's memory. "New Discoveries on Optimizing Memory Formation" by William R. Klemm, "Tricks of Memory" by Henry L. Roediger, III and Kathleen B. McDermott, "Exceptional Memory Explained: How Some People Remember What They Had for Lunch 20 Years Ago" by Gary Stix all prove this in their research and articles.

In the most concrete way, Gary Stix explains that people with highly superior autobiographical memory (HSAM), have areas in the temporal and parietal lobes that are larger than an average person. These areas of the brain are related to autobiographical memory. These same people also have a higher chance of having obsessive-compulsive disorder, not that this is anymore good or bad, but it is a significant contrast from the control group in this specific experiment.

In "Tricks From Memory," test subjects were arranged to view certain images with different calibers of importance, the purpose was the remember the images and the location of them on the presentation. Following the viewing, a portion of the subjects were arranged to take a nap, while others did not. The participants that did sleep, remembered the images more clearly and remembered the images with the most value and importance. This shows how people internally associate value and importance with memory, and also that shutting down the brain can positively affect memory. The test subjects were not distracted by their own thoughts or outer factors in which would make them forget the information they had been trying to remember.

Lastly, in "New Discoveries on Optimizing Memory Formation" William R. Klemm most clearly explains the huge effect of external factors when it comes to remembering or forgetting. "The stockpile of what we remember contributes greatly to define us and our place in the world (New Discoveries on Optimizing Memory Formation)." The memories we remember can be selective, naturally or intentionally. Events that occur in our lives can be tied to a positive or negative emotional feeling, therefore affecting whether our brains choose to vividly remember that memory.

In many ways, our physical and mental being, along with our world of people, events, and places affect the way us humans store information in the mysterious brain.

A generally accepted factual psychological statement about memory goes as follows: multiple factors both internal and external factors can interfere with the accuracy of an individual's memory. Each point source passage supports this idea.

"New Discoveries on Optimizing Memory Formation," supports the idea that external factors can interfere with your memory. In this case, they provided information to positively reinforce memory remembrance. According to the passage, memory is stored based on the level of importance associated with our lives. We remember what we deem significant to us or what we believe has potential importance or value. In other words, our external judgement of the information's value is the interference of whether we remember the information or not.

In the passage "Tricks of Memory," they introduce the facts that memory encoding and retrieval can be deterred by intervening events such as unlikely conditions during the retrieval stage which can lead to false memories or inaccurate ones that prior thoughts believed to be valid. Distorted memories also occur when an unwanted or disruptive occurrence takes place between the time in which you've been presented with material, till the time comes when you are tested on it.

Lastly, the article "Exceptional Memory Explained" dives into the internal factors that can interfere with the accuracy of our memory. In the cases of the individuals documented in the article, their memory capabilities were a result of their brain composition. MRI studies of 11 participants demonstrated that their temporal and parietal lobes were substantially larger than an average control group. This information without a doubt is an underlying factor to their highly superior autobiographical memory, or HSAM for short.

An individual's capability of recalling information accurately is an incredibly important skill in one's life. Although we rely on our memory everyday there is still a lot of information that is unknown about the way our memory functions. Many scientists are working on experiments to be understand the way our brain works. In "New Discoveries on Optimizing Memory Formation," by William R. Klemm, "Tricks of Memory," by Henry L. Roediger, III, and Kathleen B. McDermott, and in "Exceptional Memory Explained: How Some People Remember What They Had for Lunch 20 Years Ago," the authors go into depth about the impact internal and external facts can have in the accuracy of an individual's memory.

In "New Discoveries on Optimizing Memory Formation" by William R. Klemm promotes the idea that external factors can interfere with the accuracy of an individual's memory. In the third paragraph Klemm states, "Effectiveness of recall during rehearsal is promoted by use of relevant cues, that is, information that was associated with the original learning material." Klemm's memory principle is proved correct in his experiment where listening to certain cues that are associated to the target help the individual more often remember what they had learned a while back. In order for a person to remember things clearly and frequently they need to associate it with certain cues. On the other hand those cues can also cause the individual to associate a certain object with an incorrect thing.

In "Tricks of Memory," by Henry L. Roediger, III, and Kathleen B. McDermott, the concept that an individual's memory is dependent on one's external surroundings. On the second paragraph of the passage, the passage states, "People can perceive (and therefore encode) events differently from the way they occur; stored memories can be influenced by intervening events; and conditions during the retrieval stage can lead to reports that bear little relation to the original occurrences." People may think that as long as you continue to repeat something to themselves, they will be able to recall the exact event. However, in reality an individual's memory does not only depend on the brain, but it is also influenced by certain things around us. It can include celebrities, information, or personal feelings. In the end a person's memory is changed constantly by other things around it.

In "Exceptional Memory Explained: How Some People Remember What They Had for Lunch 20 Years Ago," by Gary Stix, the affect internal factors have on an individual's memory is depicted. "MRI studies of 11 study participants demonstrate that multiple areas in the temporal and the parital lobes tied to autobiographical memory are significantly larger than the same regions in a control group." Stix explains that an individuals's capacity to memorize is also affected by the structure of our brains. People with larger temporal and parietal lobes are associated with having highly superior autobiographical memory (HSAM). Not only does the world around us affect a person's memory, but our organs also have an impact in how effective our memory storage is.

The concept of memory and how to make it more effective is still an area that many scientist know little about and have a lot more to learn. As of now it is known that both internal and external factors have an impact on the accuracy of one's memory. The people surrounding us, our sleeping pattern, emotions, and even the way our brain is built affect how memory is stored and how accurately it can be recalled. Although neurology has found some answers about our memory, there are still far more questions that need to be answered.

internal and external can interfere with the accuracy of someone's memory because when some people know and understand what someone is talking about they usually remember it because they understand what they were talking about and know what they meant, some people if they don't get an explanation they probably won't remember everything that was talked about but if they got details it's possible they can remember what they understand.

Practice Set

(Order of Scores: Reading Comprehension and Written Expression, Conventions)

Paper	Score
P101	1,1
P102	3,3
P103	2,2
P104	4,3
P105	0,0