

The Influence of Highlighter Color on College Student's Memory



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Introduction

- One of the most frequently used strategies for retaining information among college students is highlighting text material (Fowler & Barker, 1974). Research has shown that highlighting text material can be beneficial for cognitive abilities related to reading comprehension (Gier, Herring, Hudnell, Montoya & Kreiner, 2010).
- Highlighting may be an extra benefit to studying because it gives the brain additional assistance with encoding and retrieval, due to the color aspect (Hanna and Remington, 1996).
- Kuhbandner and Pekrun (2013) found that memory of colored words was better than black and white words. Not only could color be better for memory than black and white words, but certain colors could also be more beneficial. Yellow is near the point of maximum sensitivity for vision so does this mean that it could be more beneficial for retention compared to darker colored highlighters (Fowler & Barker, 1974)? Both of these studies are consistent with the aspect that color could be helpful for retaining information. So what if a certain color of highlighter made retaining information more effective for students? Then college students would know which color to highlight with and it would increase their retention of college material.
- Although studies have researched the impact of highlighting, there are no current studies that examine the impact of the highlighter color on retention.
- I hypothesized that a yellow highlighter would be the most beneficial for retention compared to darker colored highlighters. I also hypothesized that highlighting in general would be better for retention scores compared to no highlighting.

Methods

- This study had 25 students total. Originally 30 participants were recruited but 5 had to be removed. There were 10 participants in the no highlighting group, 6 in the yellow highlighting group and 9 participants in the blue highlighting group.
- There were 19 females and 6 males, and the age of participants ranged from 18 to 24 ($M=20.28$, $SD= 1.47$). Of these participants, there were 3 Freshman, 7 Sophomores, 9 Juniors and 6 Seniors (numbers before removed participants were taken out). Participation was voluntary but they were given incentive with 2 points extra credit for a psychology class.
- First, participants read through an article titled "Fear" by Michele Mitchell. The article was from chapter six of the text *Psychology in Context*.
- All participants read the same article but those in the yellow highlighting condition were given a yellow highlighter to use and those in the blue highlighting group were given a blue highlighter to use. The highlighters were Up and Up brand and narrow chisel. Participants were instructed to highlight material that may be important for the quiz. Those in the no highlighting group were simply asked to read the article and that they would take a quiz following reading the article.
- Then the participants answered 10 multiple-choice questions that contained information from the article.
- Answers were scored as incorrect or correct. The number of correct answers were added up and multiplied by 100. Therefore a 90 was 9/10 answers correct. Example questions are presented in Figure 1.

Results

- A one-way ANOVA was run to test the impact of highlighter color on retention. The test did not find a significant effect of color on retention scores, $F(2,22)=.256$, $p=.776$. There was no difference in quiz performance between those in the yellow condition ($M=90$, $SD=8.94$), the blue condition ($M=87.78$, $SD=13.94$), or the no highlighting condition ($M=86$, $SD=8.43$).
- A t-test was also run to test highlighting ($M=88.67$, $SD= 11.87$) versus no highlighting ($M=86$, $SD= 8.43$) and did not find a significant effect, $t(23)=.613$, $p=.204$. This means that whether the participants highlighted or did not highlight, did not impact their retention.

Discussion

- I hypothesized that the yellow highlighting condition would have higher retention scores compared to the blue highlighting and no highlighting conditions. I also hypothesized that highlighting in general would be more beneficial for retention compared to not highlighting at all. The results indicated that there were no significant results, which means that the highlighter color did not have an impact on retention scores. This also means that the act of highlighting did not improve retention scores compared to not highlighting.
- Some research studies have found highlighting to be beneficial for retention scores (Fowler & Barker, Gier et al.). Although this has been found, my research was not consistent with these research studies.
- There were a couple limitations to the study, such as a very small sample ($n=25$). There could have been error in the test questions, the highlighting that the participants did and the location of the research. The testing questions could have been poorly worded, unclear, too easy, and they were recognition, not recall. The highlighting that participants did could have been inappropriate, in which they did not highlight the appropriate text information for the quiz. The location could have impacted participants due to noise of people around and stress of being in a research room. The total number of participants in each group was also uneven which could have had an impact.
- Future research should gather a larger sample and evaluate many different highlighter colors or studying techniques. Future research should also look at recall instead of recognition and inappropriate highlighting that could have an impact on retention.

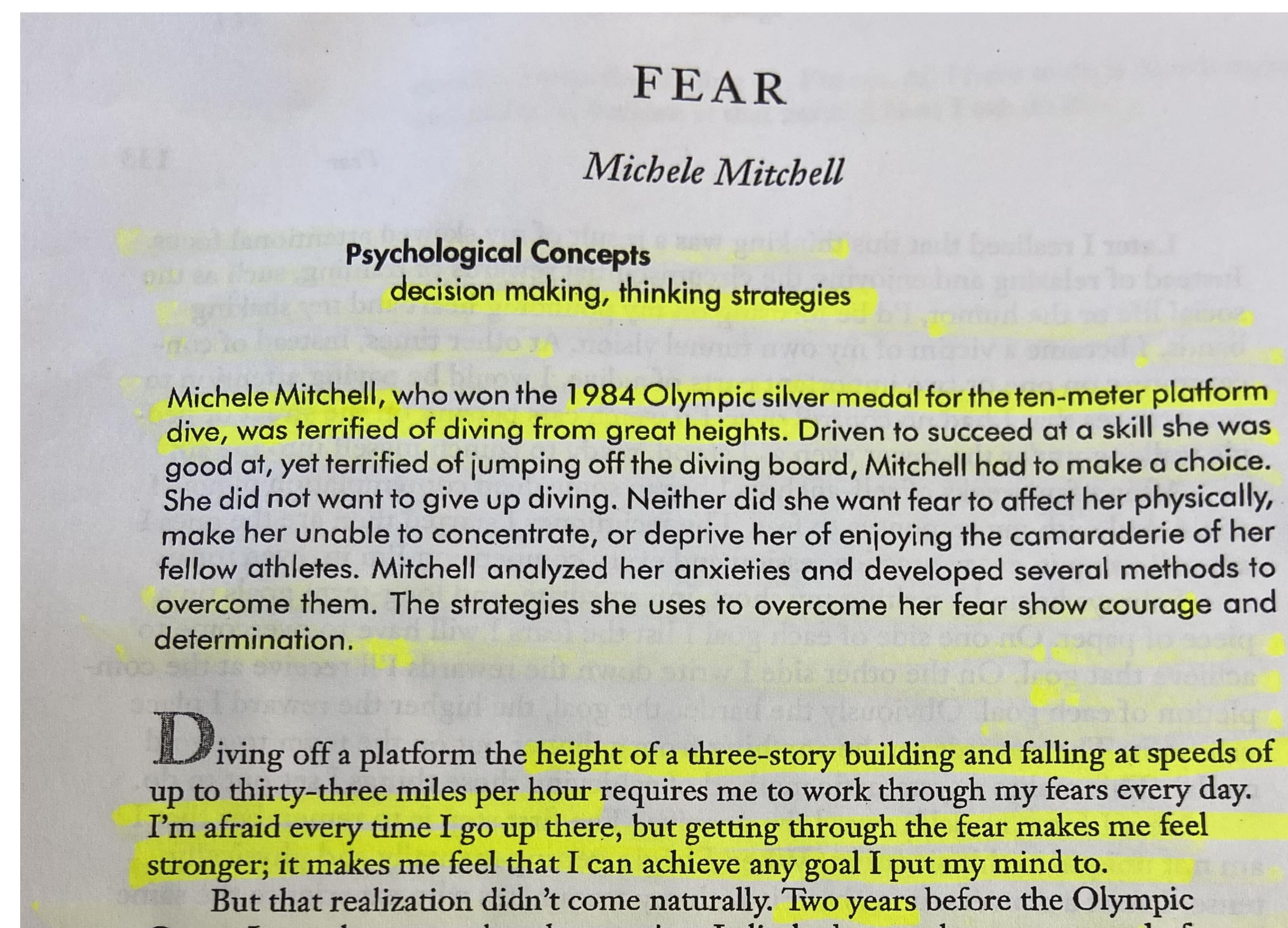
Figure 1

1. Michele Mitchell won the Olympic silver in the ten-meter platform dive in what year?

| | |
|---------|---------|
| A. 1994 | C. 1984 |
| B. 1980 | D. 1983 |
2. How does Michele Mitchell start each practice or competition?
 - A. By jogging a few laps to warm up her muscles
 - B. By drinking water and having a snack
 - C. By writing her short, intermediate and long-term goals on a piece of paper
 - D. By listening to the same song over and over again
3. On competition days or tough practices Michele would _____ her eyes?

| | |
|----------|----------|
| A. Focus | C. Close |
| B. Blink | D. Cover |
4. Michele Mitchell is afraid of....

| | |
|-----------|-------------------------------|
| A. Snakes | B. Jumping off a diving board |
| B. Water | D. The dark |



References

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