# Investigation of Metamemory Judgments During Eyewitness Testimony

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## Introduction

Eyewitness memory (EM) refers to the episodic memory processes people experience regarding an emotional event. Ever since the well-known study of Elizabeth Loftus in the 1970s, different variables related to eyewitness memory, such as the type of questions to be asked to eyewitnesses, the way they are asked, who the questioner is, and unusual experiences, have also been of interest to cognitive psychologists. It was shown that even the smallest leading detail in eyewitness questions could hugely impact memory[1]. Furthermore, in the answers given, it was supported that there was a change according to the way the question was asked; the wrong information was generally accepted as correct by the witnesses, and they changed their decisions accordingly[2].

Metamemory judgments can be prospective (feeling of knowing [FOK]) or retrospective (judgment of learning [JOL]) regarding memory performance[3]. FOK is a metacognitive process which allows individuals to make predictions about their likelihood of remembering in the future any information they currently cannot recall, based on whether they feel like the information is stored in their memory. However, JOL are made after an item is acquired, but not yet needed to be recalled. Metamemory judgments are task sensitive. The relationship between metamemory judgments and EM is unknown. There is also evidence that certain factors, such as exposure to misinformation and feedback about the person's memory process, may impair the confidence-accuracy relationship[4-6].

In this study, we investigated the effects of the emotional content of the witnessed event on different metamemory judgments and accuracy, namely feeling of knowing and judgment of learning.

## Methods

It is an ongoing study. Seventy-five healthy university students participated (46 females, Mage = 21.89). The task consisted of four consecutive phases. First, participants were instructed to watch ten neutral (a man walking around on the street) and ten negative (robbery, traffic accident) events. Second, participants gave JOL judgments ("Can you remember the details in this video?"). Third, participants were instructed to answer five questions for each video and evaluated their confidence level (Yes: confident, No: not confident, or FOK: I do not remember the answer, but I can remember it in the future). Lastly, participants completed a recognition test for the questions they gave FOK responses. The procedure was conducted separately for each video.

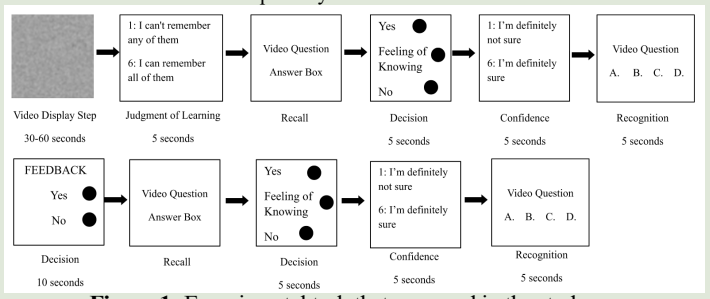


**Figure 1:** Experimental task that was used in the study.

## References

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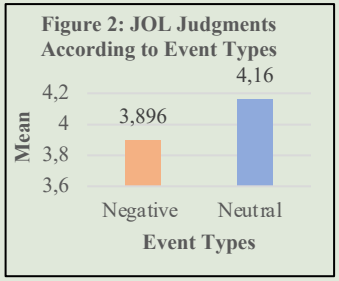
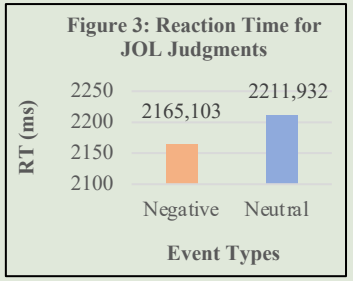
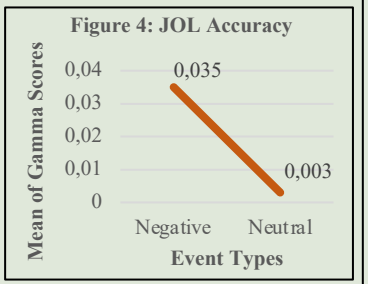
## Results

Only JOL and FOK phases were analyzed for this poster. JOL and FOK judgments and their accuracy (Gamma correlation) scores were analyzed using repeated measures ANOVA.

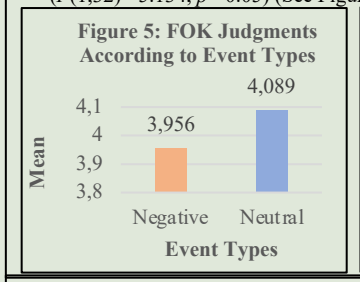
- JOL judgments were significantly lower for negative events ($M$=3.90) than neutral ($M$=4.16) ($F$(1,74)= 51,493, $p$ <0.001) (See Figure 2). Similarly, JOL reactions times for negative events (M=2165.10) were lower than the JOL reaction times for neutral events ($M$=2211.93) ($p$>0.05) (See Figure 3).
- JOL accuracy scores regarding negative stimuli ($M$=0.04) were higher than the neutral stimuli ($M$=0.003) but the difference was insignificant ($p$>0.05) (See Figure 4).

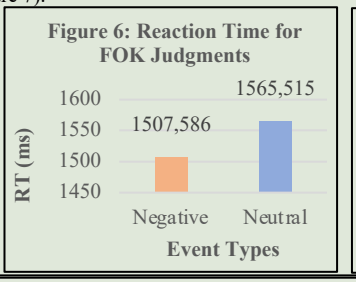


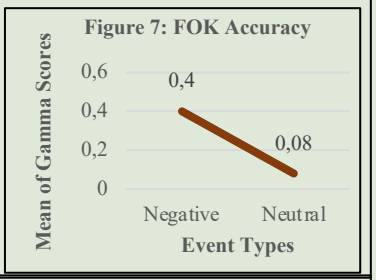




- FOK judgements were lower for negative stimuli ($M$=3.96) compared to neutral stimuli ($M$=4.09), however the difference was insignificant ($p$>0.05) (See Figure 5). Similarly, FOK reactions times for negative events ($M$=1507.59) were lower than the FOK reaction times for neutral events ($M$=1565.52) (p>0.05) (See Figure 6).
- FOK accuracy regarding negative events ($M$ = 0.40) was significantly higher than the neutral ($M$=0.08) ($F$(1,32) =5.134, $p$< 0.05) (See Figure 7).




## Discussion

Our initial results showed that metamemory judgments and accuracy during eyewitness memory were affected by the emotional content of the event.

- It was observed that events JOL and FOK judgments for negative events were lower than neutral events. However, this difference was significant for JOL judgments only. Although JOL and FOK judgments for neutral events were higher than negative events, their accuracy scores were higher for negative events than neutral.
- Overall, participants had higher FOK accuracies than JOL accuracies. FOK judgments were more accurate for negative events. This indicates that participants had lower confidence regarding their own memories when compared to their judgments after being exposed to stimuli.
- These results were consistent with previous studies that showed that people "remember" the details of negative events, whereas they are more likely to "know" positive events occurred without remembering the details (e.g., [7-9]) and people remember visual detail for negative events than positive events[10].

We concluded that metamemory judgments should be tested to increase eyewitness testimony reliability.