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Collaborating on Recall Enhances Accuracy for Auditorily-Experienced, but Not Visually-Experienced Witnessed Events

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Abstract: The present study was designed to assess the effect of format of recall and type of stimuli on an individual's ability to recall accurate information about a witnessed event. To assess this a 2x2 between subject design was used. 72 undergraduates from a private, midwestern institution participated with a mean age of 19.04. Participants viewed or listened to a clip of a minor crime and subsequently engaged in either collaborative or individual recall in randomly assigned triads. A 2x2 between subjects ANOVA with format of recall and type of stimuli as the independent variables was utilized. The results demonstrate that, on average, those in collaborative groups significantly outperformed their individual group counterparts. Additionally, those with a visual witnessed event created significantly more accurate testimonies than those who encountered the auditory witnessed event. Finally, a significant relationship was found between format of recall and type of stimuli. These findings may have implications for future eyewitness testimony as well as providing insight as to the accuracy of eyewitness testimonies when the event was witnessed either visually only or auditorily only

The Effect of Format of Recall and Type of Sensorial Stimuli on Witness Accounts of an Event

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Intro

In the past, eyewitness testimony research has been conducted on individual and collaborative recall in regards to the way a testimony is collected.

- The results of previous research indicate that although collaborative groups recall a higher quantity of details, individual groups have an overall more accurate recall (Barber et al., 2017).

Although significant amount of research has been done to distinguish the benefits of individual recall over collaborative recall, these studies differ in the type of stimuli utilized.

- Visual and auditory combined stimuli are frequent
  - The results of studies using this variety of stimuli further conclude that those in individual conditions have overall higher net accuracy scores than their collaborative counterparts (Wessel et al., 2014).
- A solely visual stimuli in recall studies is much less frequent
  - Using a solely visual stimuli typically takes the form of word or definition lists or images.
  - According to previous research, the use of a visual stimulus typically yields accurate recall (Zhang et al., 2017).
- A solely auditory stimulus is not used in eyewitness testimony research.
  - Solely auditory stimuli are used for learning and language acquisition rather than recall (Fuhrmeister et al. 2020).

Current Study:

Although studies have been done with combined auditory and visual stimuli as mentioned earlier, there has yet to be a study to assess these components of a witnessed event independently. Further, as of yet, no studies have been conducted to comparatively look at auditory and visual stimuli in regards to type of recall. A realistic witnessed event may not engage all of the senses, so a study directly comparing these isolated stimuli is imperative. To address these questions, the present study examines both visual and auditory stimuli separately in order to understand their relationship with various types of recall, individual or collaborative.

Hypotheses:

- It is hypothesized that individual recall groups will provide an overall more accurate depiction of the witnessed event than collaborative recall groups.
- It is hypothesized that witnessing the visual stimuli will lead to more accurate details than auditory stimuli.
- No interaction between type of recall and type of witnessed stimuli is expected.

Methods

Participants: 72 undergraduate students of a small midwestern college in which the mean age of participants was 19 and the majority of participants in this study were white women.

Design:

- 2x2 between subjects design
- Independent variables: Format of recall and Type of stimulus presented.
  - Conditions: Individual-Visual, Individual-Auditory, Collaborative-Visual, or Collaborative-Auditory.
- Dependent variable: Recall accuracy of crime presented

Procedure:

- Participants are told that they will watch a short video/ hear audio that is approximately 1 min and 15 s long and to pay attention as they will be assessed later on recall accuracy.
- Participants are shown the audio or visual of a woman getting her purse stolen in a park by another women in which two men were present.
- After witnessing the event, Participants were instructed to complete a sudoku puzzle for 10 min which acted as a distractor task.
- Participants were then instructed to write a testimony of the witnessed event within 15 min and were debriefed once that time concluded.
  - The collaborative conditions were randomly assigned to groups of three and taken into separate rooms

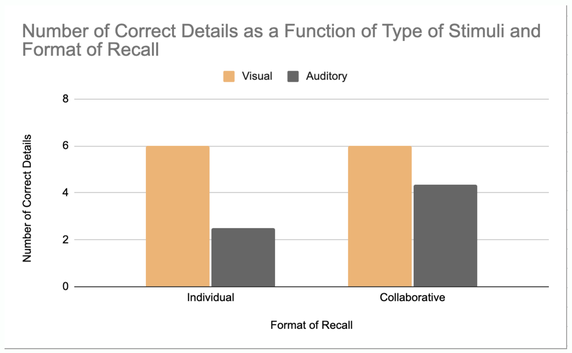
Results

- A 2x2 Between subject Anova test was used in order to analyze the data that was collected for this experiment
- **Type of Recall on Accuracy**
  - There was a main effect that showed that there was a significant difference between Collaborative and individual Groups. $F(1,68)= 251.338$, $p < .001$, $\eta^2 =.787$
  - **Type of Sensorial Stimuli on Accuracy**
    - There was a main effect that supported our hypothesis and showed that visual was better than auditory. $F(1,68)= 31.646$, $p < .001$, $\eta 2 =.318$
- **Type of Recall and Sensorial Stimuli on Accuracy**
  - There was an interaction between the IV's which was not what we hypothesized. The data showed that when in the audio only condition collaborative recall resulted in significantly more numbers of details recalled then in the Individual condition. However there was no difference in the number of details recalled that occurred in the visual conditions. $F(1,68)= 31.646$, $p < .001$, $\eta 2 =.318$

Table 1
Mean Number of Accurate Details and Standard Deviations as a Function of Format of Recall and Type of Stimuli Utilized

	Format of Recall	
Type of Stimuli	Individual	Collaborative
Visual	6.00 (.00)	6.00 (.59)
Auditory	2.50 (.99)	4.33 (.77)

Note. Predetermined list of details consisted of 8 details, standard deviations are in parentheses.



Discussion

Contrary to our hypothesis, the collaborative condition had a significantly higher number of accurate details than the individual condition.

- Past research in which individual testimonies contained more accurate details of the crime compared to collaborative testimonies utilized a different methodology (Paterson et al., 2011; Valentine & Maras, 2011)
  - Future research should examine how co-witness collaboration prior to individual ear/eyewitness cross examination affects recall accuracy compared to co-witness collaboration on a written testimony .
- The current study only assessed the number of correct details while past research assessed the number of both accuracies and errors.

The visual condition recalling more accurate details compared to the auditory condition supports the second hypothesis

- Complements previous research which has demonstrated that the accuracy of earwitnesses is quite poor compared to eyewitnesses (Hope at al., 2019; Olsson et al., 1998).
- Prospective studies should examine how collaboration between earwitnesses and eyewitnesses affect recall accuracy.

Opposite to our hypothesis, there was an interaction between format of recall and type of sensorial stimuli

- Auditory-collaborative condition remembered a significantly higher number of accurate details compared to the auditory-individual condition whereas no difference in number of details across format of recall occurred for the visual conditions.
  - These findings suggests that collaborative discussion between earwitnesses aides auditory recognition of previous stimuli which increases the amount of accurate details an earwitness is able to recall.

References

Barber, S. J., Castrellon, J. J., Opitz, P., & Mather, M. (2017). Younger and older adults' collaborative recall of shared and unshared emotional pictures. *Memory & Cognition*, *45*(5), 716–730. https://doi.org/10.3758/s13421-017-0694-3

Fuhrmeister, P., Schlemmer, B., & Myers, E. B. (2020). Adults show initial advantages over children in learning difficult nonnative speech sounds. *Journal of Speech, Language, and Hearing Research*, *63*(8), 2667–

Hope, L., Gabbert, F., Kinninger, M., Kontogianni, F., Bracey, A., & Hanger, A. (2019). Who said what and when? A timeline approach to eliciting information and Intelligence about conversations, plots, and plans. *Law and Human Behavior*, *43*(3), 263–277. https://doi.org/10.1037/lhb0000329

Paterson, H. M., Kemp, R. I., & Ng, J. R. (2011). Combating co-witness contamination: Attempting to decrease the negative effects of discussion on eyewitness memory. *Applied Cognitive Psychology*, *25*(1), 43–52. https://doi.org/10.1002/acp.1640

Valentine, T., & Maras, K. (2011). The effect of cross-examination on the accuracy of adult eyewitness testimony. *Applied Cognitive Psychology*, *25*(4), 554–561. https://doi.org/10.1002/acp.1768

Wessel, I., Zandstra, A. R., Hengeveld, H. M., & Moulds, M. L. (2014). Collaborative recall of details of an emotional film. *Memory*, *23*(3), 437–444. https://doi.org/10.1080/09658211.2014.895384

Zhang, H., Zhang, X., He, Y., & Shi, J. (2017). Clustering strategy in intellectually gifted children. *Gifted Child Quarterly*, *61*(2), 133–142. https://doi.org/10.1177/0016986216687825

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