

Knowledge of Factors Affecting Eyewitness Reliability

Breanna Curran

Department of Social Sciences, Florida Southern College

Dr. Chastity Blankenship and Dr. Deah Quinlivan

Introduction

Research has consistently shown that there are contributing factors to the unfair outcomes of the justice system. Many of these unfair outcomes are exemplified through wrongful convictions. The first to study wrongful convictions, Borchard found that the most prominent causes for error were mistaken identification, circumstantial evidence, and perjury (McMurtie, 2007). From there, research spiraled into investigating all types of factors and circumstances that could cause errors within the criminal justice system. One of these factors is mistaken eyewitness identification. Its effects can be detrimental and seen throughout a vast number of cases. Eyewitness unreliability and its impact can be shown firsthand in the U.S. Supreme Court Case, *State v. Cotton* (1990). In the *State v. Cotton* (1990) case, a rape victim, Jennifer Thompson, confidently identified Ronald Junior Cotton to be the man who raped her (Walsh, 2013). Ronald Junior Cotton was, in fact, innocent and ended up being wrongfully convicted and served more than ten years in prison. Ronald Junior Cotton was eventually exonerated through DNA evidence. The eyewitness, Jennifer Thompson, identified Ronald Junior Cotton in a photo array, lineup, and trial. The reinforcement of his identification only increased her confidence and altered her memory for him to take the place of her rapist. When she later saw her actual rapist, she did not even recognize him, showing the malleability of memory (Walsh, 2013). This is just one example of a wrongful conviction due to mistaken eyewitness identification.

According to the structural-functionalist perspective of criminology, it is the social institution's responsibility to adopt change to create a more integrated and fair society (Ziyanak & Williams, 2014). Structural functionalism holds that the criminal justice system is responsible for keeping society's members accountable for their crimes (Ziyanak & Williams, 2014). The criminal justice system is not meeting its purpose or function for society if so many mistakes are

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being made, such as wrongful conviction due to faulty eyewitness testimony. The criminal justice system needs to fulfill its role by making eyewitness identification guidelines. These parts all work together: research can inspire guidelines to cause change and keep society functioning most fairly and efficiently.

The criminal justice system has struggled with the reality of the inaccuracy of eyewitness testimony because it has been used for so long, through multiple stages of an investigation, and is one of the earliest forms of evidence (McMurtie, 2007). In other words, eyewitness testimony is prevalent, which means it may be challenging to change how it is used within the criminal justice system. However, inaccurate eyewitness testimony is a significant factor in many wrongful convictions. For example, of 375 wrongful convictions in the U.S., 69% of these, to date, were influenced by mistaken eyewitness identifications ("Eyewitness Identification Reform" 2021). People's memories are malleable and suggestible (McMurtie, 2007). Memory helps us function through everyday life, so we often conclude that it is always accurate (Wright & Loftus, 2008). Research has shown that memory errors are prevalent and often undetectable. Memory is not like a tape recorder and can be easily influenced (Wright & Loftus, 2008). Due to memory errors and the use of eyewitness testimony in court, it is important for the general public and legal community to understand and recognize the potential problems with their use of these forms of evidence.

Literature Review

One of the many studies that formed the basis of this research was done by Magnussen et al. (2010). The hypothesis for this specific study was that eyewitness knowledge would decrease in the order of judges, jurors, and the general public. This study took place in Norway and was made up of three groups of participants: members of a juror pool, adults without juror experience

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(considered the general public), and judges from a prior survey. The questionnaire was based on one developed by Wise and Safer (2004), consisting of 16 statements covering factors affecting eyewitnesses, participant opinions of professional knowledge, and the willingness to convict off eyewitness testimony (Magnussen et al., 2010). On average, jurors had 57.5% correct answers and judges had 65.7% correct. Results showed that judges have significantly more knowledge of eyewitness testimony compared to jurors. Although judges had the most knowledge, it was very limited and did not meet the “gold standard” of experts, which could reduce or eliminate trial errors due to eyewitness testimony (Magnussen et al., 2010). Additionally, Magnussen et al. (2010) found jurors were not skeptical of eyewitness testimony. In other words, they could be more willing to accept eyewitness testimony without questioning its accuracy. Lastly, Magnussen et al. (2010) found no significant difference between jurors and the general public’s knowledge about eyewitness testimony. These studies show there is a need for educating the public and legal experts regarding problems with eyewitness testimony. Restating this need and relevancy, results from a 12-year follow up conducted by Bjorndal et al. (2020) found very similar results from the original 2008 study conducted by Magnussen et al. (2008). Overall results from both these tests for knowledge of eyewitness factors and reliability found that judges do not have the adequate understanding and that education is still needed, even 12 years later.

Wise and Safer (2010) created another variation of prior studies testing knowledge on the reliability of eyewitnesses, this time comparing judges and students. Results revealed that the knowledge that judges and undergraduate students had were not significantly different. Law students, on the other hand, proved to have more knowledge than both judges and undergraduate students (Wise & Safer, 2010). These results reiterate the need for education and that the

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application of it can make an impact, seen through the differences in knowledge between the two different levels of students.

Own-Race Bias

One gap in the existing research conducted by Wise and Safer (2004), Kassin et al. (2001), and Magnussen et al. (2010), is that they do not include how own-race bias can impact eyewitness testimony. Own-race bias is the phenomenon that people can better remember faces of their own race compared to those of other races (Meissner & Brigham, 2001). People have a harder time recognizing specific features of races that they are not constantly in contact with. Own race bias affects the eyewitness's memory, ability to recognize the perpetrator in a lineup, and identification accuracy which in turn manipulates the reliability of an eyewitness's identification (Wylie et al., 2015). In one meta-analysis covering over 30 years of research that included 5,000 participants, Meissner & Brigham (2001) found the amount of exposure a person has to different races than their own can also have an effect. If a person is not exposed to that race group, then own race bias would be stronger than if they were exposed to them more frequently. In Wylie et al.'s study (2015) using a white-only sample, they found participants had stronger discrimination accuracy for white lineups over black lineups. In other words, they were more accurate in distinguishing between white individuals compared to black individuals or others not in their own race group. More specifically, participants identifying a different race face were 1.56 times more likely to make a false identification over those identifying their own race (Meissner & Brigham 2001). Research has established that own race bias phenomenon is an influential factor in eyewitness reliability, therefore education on its impact is necessary for improving the criminal justice system.

Lineup Instructions

Lineup instructions and pre-admonition suggestion have been shown to affect eyewitnesses as well. For example, in a study conducted by Quinlivan et al. (2012), researchers investigated pre-admonition suggestion and lineup instructions and their effects on lineup selection. To clarify, pre-admonition suggestion could occur when a lineup administrator makes an off-hand comment that gives the eyewitness the idea that the perpetrator is present in the lineup, which may not be the case. In terms of lineup instructions, unbiased ones give the eyewitness an option to choose that they do not know if the perpetrator is present in the lineup or that the perpetrator is not present in the lineup. Whereas biased lineup instructions suggest that the perpetrator is present (Quinlivan et al., 2012).

As stated above, both lineup instructions and pre-admonition suggestion impact eyewitness identification (Quinlivan et al., 2012; Steblay 1997, 283-97). Overall, participants who are given biased lineup instructions are more likely to choose from the lineup, even though the “target” (perpetrator) is missing (Quinlivan et al., 2012; Steblay 1997, 283-97). In Quinlivan et al.’s study (2012) they also found participants who were given biased lineup instructions and a pre-admonition suggestion, were more likely to select an innocent individual from the lineup even though the target was missing. Due to the lineup being “target-absent” any participant who chose from the lineup would be considered incorrect and therefore they made an eyewitness misidentification. Results revealed that only 16% of those who received the unbiased lineup instructions and no pre-admonition suggestion chose from the lineup; this low number supports that unbiased lineup instructions help to reduce mistaken identifications of innocent lineup members (Quinlivan et al., 2012). Further, the purpose of unbiased lineup instructions is to help the eyewitness understand that they do not have to choose from the lineup. But, when pre-

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admonition suggestion is applied to the situation, the protective effects of unbiased lineup instructions are counteracted. So, fewer errors are made when there are no pre-admonition suggestions and instructions are made clear of the possibility to not choose. On the other hand, more identification errors are made when eyewitnesses receive outside comments, pre-admonition suggestions, and biased lineup instructions.

Methods

The purpose of the current study is to expand the existing research on factors that influence eyewitness testimony reliability and to better understand current public knowledge regarding this topic. Using a modified version of the survey developed by Wise and Safer (2004), we include a statement assessing knowledge of how own-race bias can impact eyewitness testimony. More specifically, the current study uses a modified version of Wise and Safer's (2004) questionnaire with the addition of, "It is significantly harder for a witness to recognize and remember a perpetrator of a different race." Another modification to the original Wise and Safer (2004) questionnaire includes a statement about biased/unbiased lineup instructions "When eyewitnesses are told that the suspect may or may not be in the lineup, this can affect their choosing rate."

Overall, the survey used in the current study includes factors that could affect eyewitness reliability, including but not limited to, details during the crime (e.g., hat, weapon focus), conducting lineups, confidence (e.g., accuracy, malleability), and memory (e.g. forgetting curve, post-event information). A component of the survey included statements regarding expected knowledge of attorneys, jurors, and whether jurors can distinguish between accurate/inaccurate eyewitnesses. Respondents were asked to indicate their level of agreement with each statement using the following Likert scale: agree, neither agree or disagree, and disagree. Depending on

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statement wording, another Likert scale was used consisting of generally true, generally false, and don't know. The last six questions of the survey asked participants for the student's major, course experience, gender, exposure to eyewitness research, confidence in their own information accuracy, and familial involvement with the criminal justice system (i.e. employed).

Overall, the dependent variable in the current study measured participants' knowledge of eyewitness reliability factors, which is referred to as the "eyewitness scale." The participant's answers were scored using the correct responses deemed by eyewitness experts for each statement/question (Bjorndal et al., 2020). The "eyewitness scale" was created from 17 items, which assessed student's knowledge of issues related to eyewitness testimony. Scores range from 0 (missed every question) to 17 (every question correct). In other words, higher scores indicate the student was more knowledgeable. The mean score for all students in the sample was a 10.20.

The participant sample came from a small private college in the southeast. After distributing the questionnaire discussed above, the final sample included 294 students from a variety of majors, including psychology, criminology, communications, business, computer science, engineering, political science, and many others. Four independent variables, including college major, course history (i.e. Psychology of Law), exposure to eyewitness testimony research, and having a family member employed in the criminal justice system, were used to predict students' knowledge of the issues involving eyewitness testimony.

Results

Table 1 displays the sample characteristics. As shown below, a majority of the sample were from majors other than criminology and psychology. Additionally, most students self-reported that they had not taken a course that covered information related to eyewitness

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testimony and had no research experience related to that topic. Around 26% of students reported having a family member involved (i.e. employed) in the criminal justice system. In sum, most reported having a background that would indicate little knowledge of eyewitness testimony.

Table 1:

Demographic Variables

	<i>n</i>	<i>%</i>
<i>Courses</i>		
Yes	65	22.5
No	223	77.2
<i>Research</i>		
Yes	51	17.4
No	240	81.9
<i>Involvement</i>		
Yes	76	25.9
No	218	74.1
<i>Major</i>		
Non-major	171	58.4
Psychology	69	23.5
Criminology	42	14.3
Both	11	3.8
<i>Gender</i>		
Male	78	26.9
Female	206	71.0
Other	6	2.1
Total	294	

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In terms of examining each individual statement within the questionnaire, a few noticeable results emerged. The statement students were most accurate in answering was “an eyewitness’s confidence can be influenced by factors that are unrelated to identification accuracy.” The results show 83% of students correctly answered this question. In contrast, the statement students were most inaccurate in answering regarding factors that influence eyewitness reliability was “a witness’s ability to recall minor details about a crime is a good indicator of the accuracy of the witness’s identification of the perpetrator of the crime” (32.9% correct). Another statement students were inaccurate in answering was “attorneys know how most eyewitness factors affect eyewitness accuracy” (18% correct). Lastly, students were most likely to select that they “didn’t know” for the statement “witnesses are more likely to misidentify someone in a culprit-absent line-up when it is presented in a simultaneous (members of a line-up are present at the same time) as opposed to a sequential procedure (members of a line-up are presented individually.” (46.8% “didn’t know”).

After examining sample characteristics and distribution, a multiple linear regression test was conducted, as shown in Table 2, to see if college major, course history, exposure to eyewitness testimony research, and having a family member employed in the criminal justice system were significant factors in predicting student knowledge of eyewitness testimony issues. A significant regression equation was found, $F(250.53, 1772.25) = 9.61, p < .001$. The current regression model was able to explain 11% of the variance. All four independent variables significantly predicted knowledge of eyewitness testimony. More specifically, the best predictor of student knowledge was if the student had been exposed to eyewitness research ($\beta = -.213$). In other words, students who self-reported being exposed to eyewitness testimony research had significantly higher scores compared to those who had not been exposed to this type of research,

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controlling for all other variables in the model. Additionally, the second best predictor was students who reported taking a class that covered eyewitness testimony ($\beta = -.213$).

Table 2:

Multiple Linear Regression Results for Student Knowledge of Eyewitness Testimony

Predictor Variable	<i>b</i>	<i>SE</i>	β
Constant	9.02	.40**	
College Major	.62	.31	.11*
Coursework	1.36	.37	.21*
Research	-.86	.23	-.21*
Family Employed in CJ System	.81	.35	.13*

Note: $p < .001 = **$; $p < .05 = *$

More specifically investigating each individual independent variable and the hypotheses, as shown in Table 3, a one-way ANOVA was conducted for participants' majors, and results showed a statistically significant difference between groups ($F(3, 279) = 4.78, p = .003$). A Tukey posthoc test revealed that those who were both psychology and criminology majors had significantly more knowledge ($M = 6, SD = 3.38$) than those who are not psychology or criminology majors ($M = 10.58, SD = 4.57$). The Tukey posthoc test also revealed that psychology majors had significantly less knowledge ($M = 9.69, SD = 3.50$) in comparison to those who are both psychology and criminology majors ($M = 6.00, SD = 3.38$).

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Table 3:

One-way ANOVA Analysis of Variance of Question Accuracy by Major

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between groups	3	245.99	81.997	4.775	.003
Within groups	279	4790.583	17.171		
Total	282	5036.572			

As shown in Table 4, a t-test was conducted comparing knowledge of the participant by their course history. Results revealed that there is a significant difference between students who have taken a course covering eyewitness reliability and those who have not, $t(276) = -2.72$, $p = .007$. Those who have taken a course covering eyewitness reliability had a significantly higher amount of knowledge ($M = 8.79$, $SD = 3.69$) in comparison to those who haven't ($M = 10.43$, $SD = 4.33$).

Table 4:

T-test Analysis of Question Accuracy by Course

	Course that covers eyewitness reliability						95% Confidence Interval for Mean Difference	<i>t</i>	<i>df</i>
	Yes			No					
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>			
Question Accuracy	8.79	3.69	63	10.43	4.33	215	-2.82, -.45	-2.72**	276

Note: * $p < .05$ ** $p < .01$

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As shown in Table 5, a t-test was conducted comparing knowledge of the participant by their exposure to eyewitness research. Results revealed a significant difference between students exposed to eyewitness research compared to those who have not, $t(91.51) = -7.31, p < .001$. Those exposed to eyewitness research had a significantly higher amount of knowledge ($M = 6.96, SD = 3.03$) compared to those who haven't ($M = 10.72, SD = 4.20$).

Table 5:

T-test Analysis of Question Accuracy by Exposure

	Exposure to Eyewitness Research						95% Confidence Interval for Mean Difference	t	df
	Yes			No					
	M	SD	N	M	SD	N			
Question Accuracy	6.96	3.03	49	10.72	4.20	232	-4.78, -2.74	-7.31**	91.51

Note: * $p < .05$ ** $p < .01$

As shown in Table 6, a t-test was conducted comparing knowledge of the participant by familial involvement with the criminal justice system. Results revealed no significant difference in knowledge between those who have family involved in the criminal justice system and those who do not, $t(282) = .935, p = .351$.

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Table 6:

T-test Analysis of Question Accuracy by Family Involvement

	Family Members Involved in the Criminal Justice System						95% Confidence Interval for Mean Difference	t	df
	Yes			No					
	M	SD	N	M	SD	N			
Question Accuracy	10.46	4.64	74	9.92	4.09	210	-.59, 1.66	.935	282

Discussion

Overall, the hypotheses were partially supported. Non-criminology and psychology majors did not have as much knowledge as those studying in those majors. Interestingly, double majors had greater question accuracy than just psychology majors. Future research could address what causes this difference in the two curriculums. The next hypothesis was relatively accurate in that those with exposure to eyewitness research did have significantly more knowledge, on the other hand, those with familial involvement in the criminal justice system showed no difference which was not in line with the hypothesis. This could have been due to the broadness of the question and future research could go more into depth on the type of familial involvement and its effects on knowledge of the field. The last hypothesis was fully supported in confirming that those who took a course covering eyewitness reliability had more knowledge than those who didn't. These results support that education does make a difference in the knowledge that people have on eyewitness reliability and therefore it will make a difference in future endeavors where eyewitness testimony may come into play.

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Although the study produced significant results, there are many limitations that could have affected these results. The independent variables tested were major, course experience, exposure, and involvement, all of which have their own constraints. Pertaining to major, the year that students are in the major could have significantly affected the results. Although many students identified being a part of the psychology or criminology majors, if they are in their first year of the major, they most likely have not been exposed to eyewitness reliability curriculum because that is often addressed in later courses. Regarding exposure to eyewitness reliability research, I believe some students may have misinterpreted the question due to a lack of "yes" responses. There were fewer "yes" responses for eyewitness research exposure over being in a course that covers eyewitness reliability, which does not make complete sense because if you covered it in a course, you should have also been exposed to research on the subject. Lastly, just because a participant answered "yes" to family members being involved in the criminal justice system does not mean that they passed on any knowledge about eyewitnesses. Also, just because they are involved in the criminal justice system does not mean their occupation would benefit from being knowledgeable on eyewitnesses. For example, a property lawyer would most likely not have eyewitnesses involved in their cases. But having a family member involved in the criminal justice system and a lack of knowledge of eyewitnesses could also show that those involved may not have the proper education to be knowledgeable on eyewitnesses within their field.

The information gathered by research will continue to expand, and as the psychology and criminal justice worlds discover more influences and factors on eyewitnesses, their reliability will continue to fluctuate and so will the knowledge that people have on the topic. By completing this research, advancements within the psychology and law field as well as the criminal justice

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system can be achievable. The proper guidelines can be made to improve knowledge. Education can become a requirement due to the continuous emphasis that there is a lack of knowledge about eyewitness reliability, contributing to the creation of mistakes and unfairness within the criminal justice system. Education can include experts in court and required courses for those professionals exposed to eyewitnesses. Once people are educated on the most researched factors, the questionnaire used can keep evolving to evaluate more relevant and less known factors to keep knowledge at an increasing rate. It can also test for how effective the education being implemented is or if guidelines made in response to these issues are known/used.

As shown by the multitude of questionnaires/surveys and similar eyewitness reliability research all over the world, this highlights that eyewitness reliability knowledge is not just a problem in one place, but it is worldwide, everyone is benefitting from this research. Numerous researchers in different countries, with various experience and education types, and an endless number of demographic differences within the studies, validate the research topic's importance. Not only are the topic and results essential, but the number of replications and attention brought to the issue shows the urgency and emphasis for its purpose and beneficial outcomes that can be accomplished. Research is just one way to inspire action, influence reforms, and continue to stimulate interest. The increased knowledge of anyone who could be involved in the criminal justice system, including college students, could contribute to the ultimate goal of significantly reducing wrongful convictions and working to create an even more just and fair system. Basic hypotheses, exemplified by the study at hand: that students without psychology and criminology majors will have less knowledge, those with some type of eyewitness exposure will have more knowledge, and those who have taken specific courses covering eyewitness reliability will have

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the increased knowledge, could be the beginning of reforming education to meet the needs of our society.

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