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# Adult Witness Credibility: Evidence for a Two-Factor Model

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ADULT WITNESS CREDIBILITY: EVIDENCE FOR A TWO-FACTOR MODEL

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**Abstract**

Previous research in the areas of social, expert witness, and child witness psychology has found evidence for a multiple factor model of witness credibility. While a multiple factor model has not yet been tested with adult witnesses who are not experts, results from previous credibility research suggest that there may be at least two components of adult witness credibility: perceived cognitive accuracy and perceived honesty. The current study utilized a 3 x 3 (Perceived Cognitive Accuracy [neutral, medium, low] x Perceived Honesty [neutral, medium, low]) design to assess effects on witness credibility, verdicts, and likelihood of commission scores. Participants were 383 students from the University of Texas at El Paso. A confirmatory factor analysis showed two factors of credibility: perceived cognitive accuracy and perceived honesty. Based on these results, scales of cognitive accuracy and honesty for adult witnesses were developed. Inconsistent witnesses showed greater deficits on the cognitive accuracy scale, and witnesses with a prior criminal record showed greater deficits on the honesty scale. In addition, greater cognitive accuracy and honesty scores predicted more guilty verdicts. While further study is needed in order to generalize these findings across other trial scenarios and manipulations, the current study provides the field with a reliable and valid measure of the two central components of adult witness credibility.

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**Introduction**

Adult Witness Credibility: A Two-Factor Model

Eyewitness testimony plays a major role in criminal trials and a primary concern for lawyers is whether or not their witness appears credible to the jury. In order for jurors to put trust into a witness's statement, they must find the witness reliable or credible. In the case of Neil v. Biggers (1972), the Supreme Court identified five criteria that should be taken into consideration by the jury when deciding the reliability or credibility of a witness; these are: the witness's certainty in their identification, how well witnesses were able to view the suspect, how well witness's description of the suspect matched the appearance of the suspect, how much attention witnesses paid to the suspect, and how much time elapsed between witnessing the event and making an identification. Research in this area has focused on how the Biggers criteria, as well as additional factors, influence mock-juror credibility ratings and verdicts (e.g., Berman & Cutler, 1996; Berman, Narby, & Cutler, 1995; Pozzulo & Dempsey, 2009; Tenney, MacCoun, Spellman, & Hastie, 2007; Whitley & Greenberg, 1986).

Research in the area of eyewitness credibility was influenced by early source credibility studies (e.g., Hovland, Janis, & Kelley, 1953; Hovland & Weiss, 1951; Kelman & Hovland, 1953; McGinnies & Ward, 1980). Recognizing the need to expand these findings to additional sources, researchers began examining perceived credibility of eyewitnesses in the courtroom. The main goal of eyewitness credibility research has been to build a substantial body of studies that can inform the public, judges, and lawyers on how jurors make credibility decisions. To do this, research often examines criteria outlined in *Neil v. Biggers* (1972) and actual court cases and investigates their affect on credibility ratings and verdicts in a scientific, controlled manner. For example, certainty in identification, as defined by confidence, has been found to increase credibility ratings and result in more guilty verdicts (Whitley & Greenberg, 1986). Despite this,

confidence has not been found to be predictive of accuracy under most circumstances (Fisher &

Cutler, 1995). In addition to confidence, accuracy of witness's descriptions has not been shown

to be related to successful identification of the suspect (Pigott & Brigham, 1985). Rather,

reporting more details of the suspect's appearance has been linked to identification accuracy

(Sporer, 1996). Research on opportunity to view the suspect and amount of attention paid to the

suspect by witnesses suggests that these criteria may be related to accuracy, but because

witnesses tend to overestimate the amount of time they were able to view the crime (Loftus,

Schooler, Boone, & Kline, 1987), relying on these criteria may not be useful in predicting

accuracy. Finally, it has been established that the longer the retention interval between the time

of the witnessed event and the identification, the more likely it is for witnesses to be inaccurate

(Deffenbacher, Bornstein, McGorty, & Penrod, 2008). Other factors, such as inconsistencies

made during testimony, have also been shown to be negatively related to credibility ratings

(Berman & Cutler, 1996; Berman et al., 1995), but not predictive of actual witness accuracy

(Brewer, Potter, Fisher, Bond, & Lusczc, 1999).

   Overall, research suggests that most of the five *Biggers* criteria, and other factors such as

inconsistencies made during testimony, have only limited validity in predicting accuracy of

witness's identifications. Despite the limited validity of these factors, jurors still tend to rely on

witness characteristics, such as confidence and inconsistencies, when making credibility

judgments. Research is needed in order to establish which witness characteristics are most

important to jurors in making credibility judgments and how these characteristics ultimately

affect verdict decisions. Practically speaking, lawyers may also be interested in learning which

witness characteristics are more likely to lead to higher credibility and verdicts in their favor.

Although lawyers certainly have some notions on how jurors form credibility judgments, research is needed to substantiate these ideas.

In order to understand the juror decision making process behind perceived credibility, research is first needed to establish a valid scale with which credibility can be measured. One problem in the adult witness credibility area is that the methods used to measure perceived credibility vary widely. A valid and reliable scale of credibility has not yet been created or tested. Some studies have used only a one-item scale of "credibility" to measure credibility, and that may make it difficult to draw conclusions based on the findings. Further, evidence from social psychology, expert witness testimony, and child witness domains suggest that credibility consists of at least two components relating to cognitive ability and honesty (Berlo, Lemert, & Mertz, 1969; Brodsky, Griffin, & Cramer, 2010; Hovland et al., 1953; McCroskey, 1966; McCroskey & Jenson, 1975; Ross, Jurden, Lindsay, & Keeney, 2003; Singletary, 1976; Whitehead, 1968). Cognitive components often include items such as intelligence, memory, and accuracy, and honesty components often include items such as believability and trustworthiness. Studies have yet to examine whether credibility is similarly multidimensional for adult witnesses.

It would be beneficial to test the multiple factor model of credibility with adult witnesses in order to refine current credibility measures and to identify whether witness characteristics affect one or both of the credibility factors. The current study will attempt to examine whether a two-factor model of perceived credibility (henceforth, this will be referred to as credibility) is applicable to adult witnesses and will try to selectively influence each factor by manipulating witness characteristics related to perceived cognitive accuracy and perceived honesty (henceforth, these factors will be referred to as cognitive accuracy and honesty).

**Early Credibility Research**

Eyewitnesses in the courtroom are just one of the many different types of sources that can be studied in conjunction with credibility. Psychological research on source credibility began with Carl Hovland around the time of World War II (Severin & Tankard, 1997); eyewitness credibility is an extension of Hovland's early research with source credibility. For Hovland, source credibility was only a small part of an overarching theory of persuasion that was developed by himself and his colleagues in order to understand the power of war-time propaganda and attitude change. They believed that persuasion, or attitude change, occurred according to the rules of learning theory. In addition, they believed that there are three areas of importance to persuasion: the message, the audience, and the source. All three areas were key components to induce attitude change. As it pertains to the source, Hovland and colleagues believed that a credible source was needed in order to persuade the listener to change his or her opinion. Research continued in all three areas, and the current study will focus on the credibility of sources and the underlying components of credibility.

Early research on source credibility began within the Research Branch of the US Army. Hovland's team conducted experimental and evaluation studies on the success of film and print media meant to prepare and inspire US soldiers during World War II (Severin & Tankard, 1997). One of these evaluation studies focused on a radio personality who was able to garner pledges for $39 million worth of war bonds. Researchers believed that the radio personality's perceived credibility was crucial to her ability to bring in so many pledges. After evaluating the radio program, they concluded that her credibility included the components of perceived trustworthiness and sincerity. Rather than relying on an evaluation study of one source, Hovland and colleagues then began studying credibility through a series of experimental studies (for

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review, see Hovland et al., 1953). They eventually concluded that the two components of credibility most important to persuasion were expertise and trustworthiness. Hovland's research heavily influenced other areas of credibility research to include various types of sources, such as consumer (e.g., Goldsmith, Lafferty, & Newell, 2000; Ohanian, 1990) and media (e.g., Kiousis, 2001) research.

The components of trustworthiness and expertise were tested individually in source credibility research in order to ascertain which component has a larger impact on overall credibility decisions. Mixed results have been found; for example, McGinnies and Ward (1980) sampled cross-cultural participants and manipulated trustworthiness and expertise of a speaker. Results showed that across all samples a trustworthy individual was more likely to produce attitude change in the promoted direction compared to an untrustworthy individual, regardless of expertise. In contrast, other studies have found only an influence for sources that are considered both experts *and* trustworthy (Hovland & Weiss, 1951; Kelman & Hovland, 1953). It is important to note that these earlier studies did not include a reliable and validated scale to measure trustworthiness or expertise and this could have affected results; the current study will address this problem. In addition, it is also important to recognize that any effects or scales created for credibility of one source may not be applicable when examining a different type of source (McCroskey & Jenson, 1975). Therefore, it may be necessary to create unique measures or scales for a variety of sources; the current study will also address this potential problem.

Hovland's early research not only stimulated media and consumer research, but also credibility involving eyewitnesses in the courtroom. With so many court cases involving and even relying upon eyewitness testimony for a conviction, psychologists began investigating the factors that jurors use to decide credibility. As previously described, many characteristics were

found to affect credibility ratings; however, the actual measurement of adult witness credibility has not yet been addressed by researchers and still remains to be a problem.

**Witness Credibility Measures**

Previous research examining the credibility of adult witnesses has commonly measured credibility using only one item. Participants are simply asked if the witness or witness's testimony appeared credible or not, usually on a seven point Likert scale (e.g., Bollingmo, Wessel, Eilertsen, & Magnussen, 2008; Bollingmo, Wessel, Sandvold, Eilertsen, & Magnussen, 2009; Borckardt et al., 2003; Dahl et al., 2007; Kaufman, Drevland, Wessel, Overskeid, & Magnussen, 2003; Leippe & Romanczyk, 1989; Pozzulo & Dempsey, 2009). These studies have found that characteristics such as displaying emotions incongruent with the type of crime committed (Bollingmo et al., 2008; Bollingmo et al., 2009; Dahl et al., 2007; Kaufman et al., 2003), having more witness statements proven false by lawyers (Borckardt, Sprohge, & Nash, 2003), and being a child witness (Leippe & Romanczyk, 1989) or a child bystander witness (Pozzulo & Dempsey, 2009) reduced credibility ratings. While several studies have attempted to separate credibility into two components, by measuring both credibility of a witness and credibility of the witness's testimony (Bollingmo et al., 2008; Kaufman et al., 2003), again, a one-item scale was used to measure both. It is important to note that these studies may be limited in drawing conclusions about factors influencing credibility because of their reduction of the credibility measure to only one item. A one-item scale may not be accurate in measuring a complex construct such as credibility. A more nuanced measure of credibility may require more than one scale in order to better understand credibility and its underlying components.

Other studies have departed from a one-item scale by using multiple scales to measure credibility, including honesty, believability, trustworthiness, cognitive ability, and accuracy

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(Frumkin, 2007; Lindholm, 2008; Mueller-Johnson, Toglia, Sweeney, & Ceci, 2007; Newcombe & Bransgrove, 2007; Tenney et al., 2007); however, the main goals of these studies were not to examine factor components of credibility, so an average of the items was used as a credibility measure or each item was analyzed separately. Again, this is not the best method in order to understand the underlying the components of credibility. By averaging across items, researchers are essentially creating a scale of credibility. Research is first needed to establish the reliability and validity of scales before they are used to interpret results. If adult witness credibility is similar to other areas of credibility and is comprised of separate factors, it may be that witness characteristics affect factors differently. Without the proper analyses, the true effects of witness characteristics on credibility may be lost.

In fact, there is evidence that witness characteristics may affect credibility items differently. As previously mentioned, inconsistencies in testimony and their effect on credibility ratings have been one focus of adult credibility research. Often when witnesses are inconsistent, lawyers try to use this to discredit them during cross-examination. Some studies have shown that these inconsistencies negatively affect credibility scores (Berman & Cutler, 1996; Berman et al., 1995). Other studies have found no effect of inconsistency, but rather other variables such as having low confidence (Brewer & Burke, 2002) or being poorly-calibrated (e.g., exhibiting high confidence and having an error in testimony; Tenney et al., 2007) significantly decrease credibility ratings.

It is unclear how inconsistencies would affect credibility ratings if it were split into cognitive accuracy and honesty factors. Evidence that there may be a differential impact on cognitive accuracy and honesty items comes from Berman and colleagues (1995). They found that overall, inconsistencies during testimony decrease credibility ratings. The authors measured

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variables in addition to credibility such as accuracy and trustworthiness, but analyses were not done on separate items to determine whether or not ratings on items related to cognitive accuracy differed from ratings on items such as honesty or likability. When examining means for individual items, it appears as though inconsistencies in testimony affected the cognitive component of accuracy but had only a small effect on honesty and likability ratings. When a witness was consistent versus inconsistent, mean accuracy ratings dropped from $M = 3.08$ to $M = 0.88$ (on a seven-point scale), respectively; mean honesty ratings only dropped from $M = 3.44$ to $M = 2.48$, a much less striking decrease. This finding confirms the common belief held by jurors that inconsistent witnesses are less accurate (Brewer et al., 1999; Fisher & Cutler, 1995); however, it raises a question of whether or not credibility should be evaluated by averaging across both cognitive items and honesty items. As an illustration, if accuracy and honesty ratings were averaged, there would be a decrease in ratings from $M = 3.26$ to $M = 1.68$, when witnesses were consistent versus inconsistent. While this is a distinct decrease, it is skewed by the very low accuracy ratings for inconsistent witnesses. By averaging across items that are affected differently, potentially important effects may be lost.

In another example, ratings of the possible cognitive item of confidence decreased from $M = 4.04$ to $M = 2.52$ when a witness was consistent versus inconsistent, whereas likability ratings only decreased from $M = 4.12$ to $M = 3.24$ (Berman et al., 1995). It may be that inconsistencies only affect cognitive components being measured and have a markedly smaller effect on honesty components. If these two components are affected differently by inconsistencies in testimony, perhaps they should be analyzed as two separate components of credibility. It remains an empirical question as to how inconsistencies would influence overall verdict decisions if they only affect one aspect of credibility.

In examining other studies in this area, it was not possible to determine whether cognitive components behaved differently than honesty components because means of items were not reported within the article (Tenney et al., 2007) or the effects being manipulated were not specific to cognitive accuracy or honesty components (e.g., effects of accent, ethnicity, age, or gender; Frumkin, 2007; Lindholm, 2008; Mueller-Johnson et al., 2007; Newcombe & Bransgrove, 2007).

In summary, because data suggest that inconsistencies appear to affect cognitive components and honesty components of credibility differentially (Berman et al., 1995), it may follow that expressions of cognitive weakness, such as a witness's poor memory, will only affect items that are related to cognitive abilities. It may also be that expressions of honesty, such as a witness's trustworthiness, may be shown to only affect items that are related to honesty characteristics. The current study will manipulate both perceived cognitive accuracy and perceived honesty components in order to test this hypothesis. Further, if components are affected differentially, this may suggest that adult witness credibility is comprised of at least two factors, a finding that has been supported in other areas of psychological research (Berlo et al., 1969; Brodsky et al., 2010; Hovland et al., 1953; McCroskey, 1966; McCroskey & Jenson, 1975; Ross et al., 2003; Singletary, 1976; Whitehead, 1968).

**Multiple Factor Models of Witness Credibility**

Support for an adult witness credibility model that contains more than one factor comes from several areas of psychological research. First, Hovland and colleagues (1953) developed one of the earliest models of source credibility based on evaluation and experimental studies. They identified two main components of credibility: expertise and trustworthiness. Following this, other researchers began to examine these components as well as additional underlying

components of source credibility through factor analyses. Several studies identified similar underlying components of credibility to those identified by Hovland et al. (1953). McCroskey and colleagues (1966; McCroskey & Jenson, 1975) conducted a series of experiments and factor analyses examining credibility across sources, including mass media and individual speakers with varying characteristics. They measured credibility using Likert-items as well as semantic differential-type scales (e.g., expert-inexpert, intellectual-narrow). They found two main components of credibility that they labeled authoritativeness and character. While these labels do not match those given by Hovland and colleagues (1953), the underlying components do appear to be similar. McCroskey and colleague's (1966; 1975) authoritativeness factor, with items such as reliable, informed, and intelligent, could also be described as expertise. In addition, their character factor, with items such as honest, pleasant, and virtuous could also be described as trustworthiness.

In contrast to a simple two-factor model, Whitehead (1968) conducted a factor analysis on 65 scale items of source credibility. He manipulated speakers' credibility by varying level of education achieved, accolades received, and biases present. Whitehead (1968) identified four underlying factors of credibility: trustworthiness (e.g., honest, sincere, moral), dynamism (e.g., energetic, aggressive, bold), professionalism (e.g., professional, experienced, authoritative), and objectivity (open-minded, objective, impartial). The trustworthiness factor is most similar to the component with the same name identified by Hovland et al. (1953) and the character factor identified by McCroskey and colleagues (1966; 1975). While the professionalism factor shares some similarity with an expertise component, dynamism and objectivity were not included in Hovland and colleagues' (1953) dimensions of credibility. Other studies on source credibility have included models for three-, or six-factors; however, trustworthiness and expertise are main

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components of their models as well (Berlo et al., 1969; Singletary 1976). It appears as if across a variety of mass media and other communication sources, trustworthiness and expertise are consistently found to be underlying components of credibility.

Second, in the legal psychology field, a multiple factor model of credibility has been tested using child witnesses (Ross et al., 2003), expert witnesses (Brodsky et al., 2010), and older, female witnesses (Kwong See, Hoffman, & Wood, 2001). Research focusing on child witnesses has often categorized credibility into two separate, independent constructs (Bottoms, 1993; Connolly, Price, & Gordon, 2010; Ross et al., 2003). Ross and colleagues (2003) tested this hypothesis. The authors had participants view a video of a trial in which a child victim/witness testified about an incident of sexual abuse that she experienced. Participants then rated the child witness on 14 items of credibility. Nine items were used to assess perceived cognitive ability and five were used to assess perceived honesty of the child witness. Items measuring cognitive ability included general and specific memory, intelligent, and consistency of testimony. Items measuring honesty included believability, truthfulness of testimony, fabrication of story, and suggestibility. In two studies conducting factor analyses, they showed that credibility could be separated into two, relatively independent factors: cognitive ability and honesty. In addition, they showed that honesty was a significantly better predictor of verdict. Their results are similar to those credibility components first reported by Hovland et al. (1953) as well as additional source credibility research (Berlo et al., 1969; McCroskey, 1966; McCroskey & Jenson, 1975; Singletary, 1976; Whitehead, 1968).

In addition to the child witness area of legal psychology, a multiple factor model consisting of four factors has also been proposed for expert witness testimony. Brodsky et al. (2010) had participants watch a video of expert witness testimony. Participants then rated expert

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witnesses on 41 items of credibility using semantic differential-type scales. After a factor analysis, the authors identified four factors of credibility, each consisting of five items: knowledgeable, likeability, trustworthiness, and confidence. While some factors may also be relevant for eyewitnesses, others may only apply to expert witnesses. It appears as though the factors of knowledgeable and confidence relate most to the expertise or cognitive ability factor identified by previous research (Hovland et al., 1953; Ross et al., 2003); items included informed, wise, self-assured, and confident. The item of informed, for example, asked participants to rate how informed the expert witnessed appeared to be on a scale of 1 (*uniformed*) to 10 (*informed*). Other items of the knowledgeable factor, including scientific, logical, and educated, may be specific to expert witnesses only. Expert witnesses are usually testifying because they have specialized, scientific knowledge in a certain field, whereas eyewitnesses are simply testifying because they witnessed a crime and are assumed to have no specialized, scientific skills. Therefore, items such as memory and accuracy may be more useful in measuring the cognitive component of credibility for eyewitnesses. It also appears as though the factor of trustworthiness corresponds most to the honesty/trustworthiness factor identified by previous research (Hovland et al., 1953; Ross et al., 2003); items included honesty, dependability, and reliability. The factor of likeability, with items such as well-mannered, pleasant, and kind, may only be applicable when participants are able view witnesses in person or by videotape and is not able to be measured through a trial transcript. In taking a closer look at the factors of credibility for expert witnesses, it seems as though the factor of trustworthiness and a combination of items within the knowledgeable and confidence factors would be most relevant to the measurement of adult eyewitness credibility.

Kwong See and colleagues (2001) also identified two factors of credibility for older, female witnesses. The authors were mainly interested in discovering if an age-related stereotype existed when participants were asked to evaluate the credibility of an older, female witness. A factor analysis was conducted to validate scales the authors used for measuring credibility, but was not the main focus of the study. Nonetheless, two factors of credibility were identified. It seems as if the first factor, labeled memory/competency, relates best to the cognitive ability factor found with child witnesses (Ross et al., 2003), with items of competency, accuracy, good memory, and reliability. It also seems as if the second factor, labeled honesty, corresponds to the factor of the same name with child witnesses (Ross et al., 2003), with items of honesty, sincerity, and trustworthiness.

There also exists evidence of a possible two-factor model of credibility in studies using adult witnesses. While not specifically assessing a multiple-factor model of witness credibility, Ruva and Bryant (2004) identified multiple factors from a 24-item credibility scale that included items such as confidence, accuracy, and honesty. The researchers investigated the effects of age, speech style, and question form on credibility and carried out a factor analysis on the 24 credibility items. Four factors were identified: witness credibility (including both cognitive accuracy and honesty items), prosecution misleading, prosecutor opinion, and defense misleading. While cognitive accuracy and honesty items were combined into one factor, there may be some problems with this grouping. Of the 24-items used to assess credibility, only two items assessed honesty. Further, when comparing loadings of items onto the witness credibility factor, honesty had a loading of only 0.45, while cognitive accuracy factors of accuracy and consistency had loadings of 0.74 and 0.79, respectively. This suggests that the component of

honesty could be measured with multiple items and should be re-assessed to see whether it forms a separate factor.

Finally, there also exists anecdotal evidence that credibility contains several components amongst professionals in the legal field. For example, lawyers and judges often refer to witness credibility as being influenced by cognitive factors that relate to witness's testimony, such as inconsistencies, as well as other factors related to the honesty of witnesses themselves, such as having prior criminal records or motivation to fabricate details of a crime (Kane, 2007). Further, lawyers are advised to attack a witness's credibility on several angles that relate to the two components of credibility identified by previous research (Hovland et al., 1953; Kwong See et al., 2001; Ross et al., 2003). For example, they are advised that pointing out inconsistent statements, as well as introducing any information that may damage the witness's character will reduce credibility (McElhaney, 1992; McElhaney, 2002). Judges also instruct jurors to incorporate information such as the ability to recall accurate details, motives, and gestures or expressions from witnesses into their credibility decisions and judgments (Kane, 2007; "Criminal Jury Instructions," n.d.). Based on this information, it appears as though lawyers believe that multiple components affect adult witness credibility, but the majority of current research in the field has not yet studied credibility in this manner.

The current line of research was also driven by a recently completed study by the current author. Moore and Scullin (2010) examined credibility ratings as a function of crime severity (i.e., violent or nonviolent), confidence, and inconsistencies in testimony. Credibility scores were created by averaging across ratings of believability, honesty, and trustworthiness. Upon further examination of the credibility items, it may have been problematic to simply average these three items together into one credibility rating. When analyses were replicated using each individual

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item as opposed to the average of the items, different findings emerged depending on which item was used in the analysis. In both the nonviolent and violent conditions, analyses on the individual items of trustworthiness and believability did not match the results when the three items were averaged together. Previous research (Ross et al., 2003) suggests believability, honesty, and trustworthiness may all be related to the honesty factor of witness credibility. Therefore, all three items should follow the same pattern of results. Perhaps the inclusion of multiple manipulations (i.e., crime severity, confidence, and inconsistencies) in Moore and Scullin (2010) also had an effect on the data or perhaps believability and trustworthiness items should not be included in the honesty component for adult witnesses. The current study will examine whether believability and trustworthiness are all related to the honesty factor of witness credibility. Further, ratings of cognitive accuracy such as memory and confidence were not included in Moore and Scullin's (2010) credibility measure and it is unknown how these items may correspond or differ from items measuring witness honesty. The current study will use these same items, as well as additional items relating to cognitive accuracy and honesty, to identify the underlying components of adult witness credibility.

**Current Study**

Because results from previous research suggest that witness factors (such as inconsistencies in testimony) differentially affect credibility items relating to cognitive accuracy and honesty, and multiple factor models of credibility have been found in other areas of psychology, a two-factor model of credibility may extend to adult witnesses as well. The current study attempted to identify whether cognitive accuracy and honesty form two separate components of witness credibility. Four main hypotheses were tested: 1) witness credibility would be able to be separated into at least two factors: perceived cognitive accuracy and

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perceived honesty; 2) an inconsistent witness would be rated significantly lower on scales relating to cognitive accuracy, but not on scales relating to honesty; 3) a witness with a prior criminal record would be rated significantly lower on scales relating to honesty, but not on scales relating to cognitive accuracy; and 4) both the cognitive accuracy and honesty components would significantly predict overall verdict decisions and would have an effect on likelihood of commission scores.

**Method**

Participants were 437 students enrolled in Introductory to Psychology courses at the University of Texas at El Paso (UTEP) that received course credit for their participation. Fifty-four participants were dropped due to various reasons. Participants completed the study online by reading a trial transcript and completed several questionnaires (described in detail below). Because it was an online survey, there was a concern that some participants may not have devoted enough time to fully read the transcript and only quickly answered the required questions to receive credit. Therefore, completion times were examined for each participant and those that took less than 13 minutes were excluded from analyses ($n = 32$). The remaining participants took between 14 and 66 minutes ($M = 30.19$, $SD = 10.38$). Participants were also asked to render a verdict after reading the trial transcript. Because verdicts were central to the study and later analyses, seven participants were excluded because they failed to render a verdict. Three participants were excluded because they failed to complete 33% or more of the post-verdict questionnaire. Finally, all participants were required to answer the following two questions about the transcript correctly: *What was one of the items reported stolen?* and *With what crime is the defendant being charged?* Twelve participants were excluded because they answered at least one question incorrectly. A total of 383 participants were included in the analyses. Participants ranged in age from 17 to 40 ($M = 20.10$, $SD = 4.00$) and most were female (61.4%) and Hispanic (82.0%).

**Design and Materials**

A 3 (Perceived Cognitive Accuracy [neutral, medium, low]) x 3 (Perceived Honesty [neutral, medium, low]) between-subjects design was used to assess differences in credibility ratings, verdicts, and likelihood of commission scores.

A voir dire form provided demographic information on each participant and their past involvement in the criminal justice system (see Appendix B). It also assessed how often participants read and watched media pertaining to the legal system.

Nine versions of a trial transcript were created based on the transcript used in Tenney et al. (2007; see Appendix C). A previous pilot study was conducted on a control version of the trial transcript with 47 UTEP students and achieved an approximate 50/50 verdict split with 59.6% guilty verdicts and 40.4% not guilty verdicts. In all transcripts the defendant was on trial for burglary of a habitation and there was one witness who reported seeing the defendant leave the crime scene. Witnesses were depicted as neutral, medium or low in cognitive accuracy and neutral, medium, or low in honesty. All trial transcripts contained a brief description of the crime, introducing the victim, eyewitness, and suspect. The nine transcripts contained the same instructions to participants as well as a statement from the judge describing the basis for a guilty or not guilty conviction. In addition, Karen Doty, J.D. edited the transcripts and made suggestions and comments in order to ensure that they were ecologically valid and as faithful as possible to courtroom procedure.

Because previous research suggests that inconsistencies in witness testimony may cause scores on cognitive accuracy items to decrease (Berman et al., 1995), the current study used errors to manipulate cognitive accuracy. To demonstrate neutral, medium, or low perceived cognitive accuracy, the witness made no errors, one error, or three errors during testimony. Prior to the current study, a pilot study was conducted to ensure that errors made during testimony resulted in lower ratings on select cognitive accuracy items. The pilot study included 16 UTEP students that read a short summary describing a defendant on trial for burglary of a habitation. The witness to the crime gave a description of the suspect during the trial that was inconsistent

with his statement prior to the trial. Participants rated the perceived memory, intelligence, honesty, and trustworthiness of the witness on a scale of 1 (*not at all*) to 10 (*completely*). Mean scores of honesty, trustworthiness, and intelligence were all equal to or greater than 4.50. The mean score of memory was 2.87. Because inconsistencies did result in lower memory scores, this manipulation was used for the current study.

In the neutral cognitive accuracy condition, the witness stated the man he saw had blonde hair in his original statement to the police and during testimony, demonstrating no inconsistencies. In the medium cognitive accuracy condition, the witness testified that he saw a man with blonde hair leaving the victim's dorm room. However, during cross examination the defense attorney pointed out that in the witness's original written statement to police he claimed the man had black hair. The attorney asked the witness: "So you only changed your story to say the man was blonde after you found out that my client has blonde hair, correct?" In the low cognitive accuracy condition, the witness made the same error described above in the medium condition, and made two additional errors about the height of the suspect and clothes the suspect was wearing.

In order to demonstrate medium and low honesty, the witness's past criminal record was stated during testimony. This manipulation was chosen because past research has shown that negative character evidence has a larger effect than positive character evidence (Lupfer, Cohen, Bernard, & Smalley, 1986; Tanford & Cox, 1988). Further, when jurors are given information about specific negative acts of a defendant, he was judged as significantly less trustworthy than when there was no character evidence given (Hunt & Budesheim, 2004).

Prior to the current study, pilot studies were conducted to identify crimes that may result in lower perceived honesty scores. Participants were 84 UTEP students that read a brief trial

summary describing defendants that were charged with one of the following crimes: perjury, fraud, theft, burglary, or identity theft. They then rated defendants on perceived cognitive functioning, intelligence, honesty, and trustworthiness on a scale of 1 (*not at all*) to 10 (*completely*). In order to be included in the current study, crimes that resulted in lower honesty and trustworthiness ratings were necessary. The crime of fraud resulted in means greater than 6.00 for all items, and therefore did not show lower honesty or trustworthiness scores. The crime of identity theft also resulted in means greater than 4.00 for all items. The crimes of burglary, theft, and perjury resulted in honesty and trustworthiness means less than 3.50 and were therefore included in the current study.

In the medium honesty condition, the defense attorney asked the witness during cross examination if it was true that he has a past criminal history of one count of perjury. The witness confirmed his past criminal act and acknowledged that he received a fine and jail time. In the low honesty condition, the defense attorney stated the same charge of perjury described above in the medium honesty condition and also mentioned two additional criminal charges of theft and burglary on the witness's record. In the neutral honesty condition, the witness's past criminal record was not brought up during testimony; no information on witness honesty was given.

A verdict form (see Appendix D) was used to assess guilty and not guilty verdicts, as well as participants' confidence in their verdicts on a scale from 1 (*not at all*) to 10 (*completely*). If guilty, a measure of sentence length in years and an optional fine were also obtained.

The post verdict questionnaire contained 30 questions and was used to measure witness credibility and likelihood of commission scores (see Appendix E). The 29 items used to measure witness credibility were: general memory, specific memory, memory for the suspect's appearance, consistency of testimony, intelligent, accuracy, accuracy of suspect description,

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confidence, competence, reliable, appearance of confusion, bias, cognitive functioning, ability to remember and answer questions, self-assured, well-spoken, poised, believability of testimony, honest, trustworthy, fabrication of story, moral, ethical, sincere, likable, suggestible, honorable, genuine, and testimony influence on jurors' opinions. For example the general memory question asked participants, "How accurate was the witness, Victor Guzman, in his account of the events of the crime?" Each item was rated on a scale of 1 (*not at all*) to 7 (*completely*). Some items used to measure credibility were developed based on previous research that found them to be related to one of the two predicted factors (Ross et al., 2003). For all but four of the items, higher scores reflected more positive ratings; the items of bias, suggestible, fabrication of story, and appearance of confusion were reverse-coded before being subjected to analysis in order to follow the same pattern of higher scores indicating more positive ratings.

Finally, a likelihood of commission score was obtained. Participants rated the likelihood that they thought the defendant committed the crime on a scale of 0 to 100%.

**Procedure**

All data were collected online. Participants were randomly assigned to read one of nine trial transcripts. They were instructed to take on the role of a juror in a criminal trial and were told that they would be reading a trial transcript and answering questions based upon it. Participants read and completed the following items in the order listed: the voir dire form, trial transcript, verdict form, and a post verdict questionnaire. Sona Systems, Ltd was used for all data collection. Participants also had the option to refuse to answer any questions. When participants completed all materials, they were thanked for their participation and awarded course credit.

# Results

For a confirmatory factor analysis, a sample size of 383 was adequate; a power analysis was conducted (Preacher & Coffman, 2006) and a sample size of 35[1] was needed in order to achieve power of 80% (df = 376; reject a null hypothesis of an RMSEA of .10). In addition, assuming communalities of approximately 0.5 (based on communalities found in Ross et al., 2003), MacCallum and colleagues (1999) recommend a sample size between 100 and 200.

## Missing Data

There were 57 (14.84%) cases of incomplete data for the 29 credibility scale items. Data were subjected to multiple imputation using SPSS software and a chained equation algorithm method. In order to maximize power, 20 imputations were created using a maximum of 200 iterations as suggested by Enders (2010). All further analyses were conducted using pooled estimates from the 20 imputed data sets.

Pooled parameter estimates were created by averaging across parameters from the 20 imputed data sets. Pooled standard errors were created by calculating a between-imputation variance (BIV), which takes into account sampling error due to missing data, and a within-imputation variance (WIV), which is the sampling error from the completed data (Enders, 2010). Between- and within-imputation variances were calculated using the formulas below:

$$\text{BIV} \quad = \quad \frac{\sum (\beta_t - \beta)^2}{m - 1}$$

$$\text{WIV} \quad = \quad \frac{\sum \text{SE}_t^2}{m}$$

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[1]Estimated sample size is calculated using degrees of freedom. Because the degrees of freedom were fairly high in the current study (df = 376), the estimated sample size is skewed.

A pooled standard error was then calculated using the formula below:

$$SE(\beta) = \sqrt{WIV + BIV + (BIV/m)}$$

Average parameter estimates were divided by pooled standard errors in order to create a test statistic. Test statistics were then compared to the appropriate thresholds in order to ascertain statistical significance ($p \leq .05$).

**Factor Analysis**

The first hypothesis predicted that credibility would be composed of two separate components of cognitive accuracy and honesty. The 29 items that made up the credibility questionnaire were analyzed using a confirmatory factor analysis. It was expected that the following 17 items would load onto the perceived cognitive accuracy factor: general memory, memory for the event, memory for the suspect's appearance, consistency of testimony, intelligent, accuracy, accuracy of suspect description, confidence, competence, reliable, appearance of confusion, bias, cognitive functioning, self-assured, well-spoken, poised, and ability to remember and answer questions. It was also expected that the following 12 items would load onto the perceived honesty factor: believability of testimony, honest, trustworthy, fabrication of story, moral, ethical, sincere, likable, suggestible, honorable, genuine, and testimony influence on jurors' opinions. Finally, it was expected that the cognitive accuracy and honesty factors would be positively correlated.

The model was over-identified with a total of 59 parameters estimated. Because loadings of items were a central part of the analysis, all loadings were included as parameter estimates and variances of each hypothesized factor were set to one. No error terms in the model were correlated.

The 29 items that made up the credibility questionnaire were assessed for multivariate violations of normality. For all items, skewness and kurtosis were violated, $\chi^2 > 18.394$, $p = .000$; therefore, the Robust Maximum Likelihood estimation with the Satora-Bentler $\chi^2$ was used for analyses.

A confirmatory factor analysis was conducted using LISREL Software (version 8.8). After conducting 20 imputations and pooling analyses, results showed all items loaded significantly onto their hypothesized factors except for one. The bias item failed to load onto the perceived cognitive accuracy scale with a pooled standard loading of 0.00. See Table 1 on the next page for the unstandardized and standardized pooled factor loadings.

Model fit was examined using Hu and Bentler's (1999) criteria of reporting multiple indices with good fit indicated by a non-significant chi-square value, CFI $\geq 0.95$, SRMR $\leq 0.08$, and RMSEA $\leq 0.06$. The current model had adequate fit with $\chi_{SB}^2$ ranging from 1813.83 to 1889.64, $p < .01$, CFI ranging from 0.972 to 0.974, SRMR ranging from 0.0591 to 0.0603, and RMSEA ranging from .101 to .103.

*Table 1: Two-Factor Model – Pooled Loadings*

| | Standardized Loadings | Unstandardized Loadings (SE) |
|---|---|---|
| **Factor 1: Perceived Cognitive Accuracy** | | |
| General Accuracy | .91 | 2.37 (0.08) |
| Ability to Remember and Answer Questions | .90 | 2.42 (0.08) |
| General Memory | .89 | 2.20 (0.08) |
| Memory for Appearance | .88 | 2.39 (0.08) |
| Memory for Crime | .88 | 2.35 (0.08) |
| Consistent | .85 | 2.46 (0.08) |
| Reliable | .85 | 2.14 (0.08) |
| Well-Spoken | .84 | 2.07 (0.08) |
| Cognitive Functioning | .84 | 1.94 (0.08) |
| Confident | .83 | 2.37 (0.09) |
| Self-Assured | .80 | 2.06 (0.09) |
| Intelligent | .78 | 1.67 (0.08) |
| Accuracy of Description | .77 | 1.81 (0.08) |
| Competent | .73 | 1.50 (0.09) |
| Poised | .64 | 1.39 (0.11) |
| Confused | .55 | 1.58 (0.14) |
| Bias | .00 | 0.00 (0.14) |
| **Factor 2: Perceived Honesty** | | |
| Trustworthy | .90 | 2.22 (0.08) |
| Genuine | .90 | 2.13 (0.07) |
| Honor | .88 | 2.15 (0.08) |
| Sincere | .87 | 2.16 (0.08) |
| Honest | .87 | 2.08 (0.08) |
| Likeable | .86 | 2.07 (0.08) |
| Ethical | .86 | 2.01 (0.08) |
| Believable | .85 | 2.15 (0.08) |
| Moral | .83 | 1.93 (0.08) |
| Suggestible | -.65 | -1.45 (0.10) |
| Falsification | .48 | 1.22 (0.12) |
| Influence | .26 | 0.67 (0.14) |

Because one item did not load significantly onto its hypothesized factor and several items were found to be problematic, a revised confirmatory factor analysis was conducted. The bias item was excluded from the revised model because it did not load significantly onto the perceived cognitive accuracy factor. A test was done to ascertain whether the bias item loaded, instead, onto the perceived honesty factor; results were non-significant and showed very low unstandardized (0.14) and standardized loadings (0.06).

In addition, the suggestible item was excluded because it was reverse-coded and loaded negatively onto the perceived honesty factor, indicating that more suggestible witnesses had higher honesty. Participants may have had difficulty understanding the definition of suggestibility, therefore it was excluded. The items of reliable and competence were excluded because it was reasoned that one could be reliable and competent in terms of both memory (i.e., cognitive accuracy) and honesty. Modification indices were also quite high (greater than 34 and 53, respectively) for both of these items, indicating they may load significantly onto the honesty factor as well as the cognitive accuracy factor. The items of poised, appearance of confusion, falsification, and testimony influence on jurors' opinions were excluded because they did not load as high on their hypothesized factors as other items in the model. Finally, the items of memory for the event, memory for the suspect's appearance, and accuracy of suspect description were excluded. Already included in the revised model were two items to described overall memory and accuracy, labeled general memory and general accuracy. Because the 'general' items loaded significantly onto the cognitive accuracy factor, specific items describing the memory and accuracy for the crime were excluded from the revised model to reduce redundancy. The remaining items had pooled standardized loadings of 0.78 or higher on their hypothesized factors in the original model.

The revised model hypothesized that the following nine items would load significantly onto the perceived cognitive accuracy factor: general memory, consistency of testimony, intelligent, accuracy, confidence, cognitive functioning, self-assured, well-spoken, and ability to remember and answer questions. It was also expected that the following nine items would load significantly onto the perceived honesty factor: believability of testimony, honest, trustworthy, moral, ethical, sincere, likable, honorable, and genuine. See Table 2 on the next page for items, their related questions on the post-verdict questionnaire, and their hypothesized factor. The cognitive accuracy and honesty factors were expected to be positively correlated.

The revised model was also over-identified with a total of 37 parameters estimated. Again, all loadings were included as parameter estimates and variances of each factor were set to one. No error terms in the model were correlated.

*Table 2: Cognitive Accuracy and Honesty Scale Items*

| Item | Corresponding Question |
|---|---|
| **Cognitive Accuracy Factor** | |
| General Memory | In general, how good is Victor Guzman's memory? |
| Consistency | How consistent was Victor Guzman's testimony? That is, did he always tell the same story while testifying? |
| Intelligent | In your opinion, how intelligent is the witness, Victor Guzman? |
| Accuracy | In general, did you find Victor Guzman to be accurate? |
| Confidence | In your opinion, how confident was Victor Guzman? |
| Cognitive Functioning | Does Victor Guzman have a high cognitive functioning ability? |
| Self-Assured | Did you find Victor Guzman to be self-assured during the trial? |
| Well-Spoken | Did you find Victor Guzman to be well-spoken during the trial? |
| Ability to Remember and Answer Questions | In general, how well did the witness, Victor Guzman, appear to be able to think, remember, and answer the questions the lawyer asked? |
| **Honesty Factor** | |
| Believability | How believable did you find Victor Guzman's testimony to be in this trial? |
| Honest | In your opinion, how honest is Victor Guzman? |
| Trustworthy | How trustworthy did you find the witness, Victor Guzman to be in this trial? |
| Moral | In general, does the witness, Victor Guzman have a strong sense of morality? |
| Ethical | In your opinion, how ethical is the witness, Victor Guzman? |
| Sincere | How sincere did you find Victor Guzman to be in this trial? |
| Likable | How likeable did you find the witness, Victor Guzman to be in this trial? |
| Honorable | In your opinion, is Victor Guzman honorable? |
| Genuine | How genuine did you find Victor Guzman to be in this trial? |

As described previously, analyses were conducted on the multiple imputed data sets and results were pooled. Results showed that all 18 items loaded significantly onto their hypothesized factors. See Table 3 below for the pooled standardized and unstandardized loadings. Model fit on the revised model was also examined using Hu and Bentler's (1999) criteria of reporting multiple indices. The current model had adequate fit with $\chi^2_{SB}$ ranging from 751.28 to 776.53, $p < .01$, CFI of .978, SRMR ranging from .0513 to .0523, and RMSEA ranging from .111 to .112. See Appendix A for tables depicting the covariances between items and means/standard deviations of each item.

*Table 3: Revised Two-Factor Model – Pooled Loadings*

| | Standardized Loadings | Unstandardized Loadings (SE) |
|---|---|---|
| **Factor 1: Perceived Cognitive Accuracy** | | |
| General Accuracy | .90 | 2.35 (0.08) |
| Ability to Remember and Answer Questions | .89 | 2.38 (0.08) |
| General Memory | .87 | 2.17 (0.08) |
| Confident | .85 | 2.41 (0.08) |
| Well-Spoken | .85 | 2.10 (0.08) |
| Cognitive Functioning | .85 | 1.96 (0.08) |
| Consistent | .84 | 2.43 (0.09) |
| Self-Assured | .82 | 2.10 (0.09) |
| Intelligent | .79 | 1.71 (0.08) |
| **Factor 2: Perceived Honesty** | | |
| Trustworthy | .90 | 2.22 (0.08) |
| Genuine | .90 | 2.13 (0.07) |
| Honor | .88 | 2.15 (0.08) |
| Sincere | .87 | 2.17 (0.08) |
| Honest | .87 | 2.08 (0.08) |
| Likeable | .86 | 2.07 (0.08) |
| Ethical | .86 | 2.01 (0.08) |
| Believable | .85 | 2.15 (0.08) |
| Moral | .84 | 1.93 (0.08) |

Squared multiple correlations for the items can be used as an effect size indicator. The cognitive accuracy factor is accounting for a large amount of variance in the nine items that load onto it, with squared multiple correlations ranging from .631 to .816. Similarly, the honesty factor is accounting for a large amount of variance in the nine items that load onto it, with squared multiple correlations ranging from .680 to .810.

Based on previous research (Kwong See et al., 2001; Ross et al., 2003), the cognitive accuracy and honesty factors were predicted to be positively correlated. Results showed the two factors to be highly positively correlated, $r = .89$.

Because the two factors were so highly correlated, a one-factor model was also tested. All 18 items included in the revised model were modeled to load onto a single factor of credibility. Model fit was assessed using Hu and Bentler's (1999) criteria of reporting multiple indices. The one-factor model had adequate fit with $\chi_{SB}^2$ ranging from 1471.48 to 1517.01, $p < .01$, CFI ranging from .952 to .953, SRMR ranging from .0583 to .0585, and RMSEA ranging from .162 to .164. However, because all model fit indices showed better fit and previous research shows more support for a multiple factor model of credibility (Brodsky et al., 2010; Hovland et al., 1953; McCroskey, 1966; McCroskey & Jenson, 1975; Ross et al., 2003; Whitehead, 1968), a two-factor model was accepted for the current study.

**Perceived Cognitive Accuracy and Perceived Honesty Scales**

Cognitive accuracy and honesty scales were then created based on the revised model discussed above. See Table 2 on page 29 for a description of the items on each scale. Measures of reliability for the perceived cognitive accuracy and honesty scales were calculated on each of the 20 imputed data sets. Cronbach's alpha for the cognitive accuracy scale ranged from .958 to .959. For the honesty scale, Cronbach's alpha ranged from .965 to .966. As an additional

measure of reliability, McDonald's Omega (McDonald, 1999) was calculated on each of the imputed data sets. For the cognitive accuracy scale, McDonald's Omega was .96. For the honesty scale, McDonald's Omega was .97. Both measures indicate the scales are highly reliable.

Inter-correlations were calculated between the items on each scale. See Table 4 on the next page for the pooled correlations among items. See Appendix A, Table 8 for inter-correlations of items between scales. For the cognitive accuracy scale items, correlations ranged from .586 to .844 and all were significant at $p < .01$. For the honesty scale items, correlations ranged from .654 to .830 and all were also significant at $p < .01$.

*Table 4: Inter-correlations of Scale Items*

| Factor 1: Cognitive Accuracy | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | General Accuracy | Ability to Remember and Answer Questions | General Memory | Confi-dent | Well-Spoken | Cognitive Functioning | Consis-tent | Self-Assured | Intelli-gent |
| General Accuracy | 1 | | | | | | | | |
| Ability to Remember and Answer Questions | .803 | 1 | | | | | | | |
| General Memory | .827 | .766 | 1 | | | | | | |
| Confident | .749 | .750 | .730 | 1 | | | | | |
| Well-Spoken | .749 | .765 | .713 | .724 | 1 | | | | |
| Cognitive Functioning | .767 | .754 | .729 | .690 | .770 | 1 | | | |
| Consistent | .721 | .844 | .727 | .725 | .687 | .682 | 1 | | |
| Self-Assured | .720 | .753 | .682 | .805 | .751 | .700 | .712 | 1 | |
| Intelligent | .690 | .617 | .758 | .672 | .685 | .705 | .619 | .586 | 1 |

| Factor 2: Honesty | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Trust-worthy | Genuine | Honor | Sin-cere | Honest | Likeable | Ethical | Believ-able | Moral |
| Trustworthy | 1 | | | | | | | | |
| Genuine | .786 | 1 | | | | | | | |
| Honor | .750 | .830 | 1 | | | | | | |
| Sincere | .734 | .802 | .802 | 1 | | | | | |
| Honest | .809 | .756 | .791 | .757 | 1 | | | | |
| Likeable | .793 | .792 | .721 | .743 | .733 | 1 | | | |
| Ethical | .769 | .778 | .760 | .776 | .735 | .730 | 1 | | |
| Believable | .828 | .724 | .691 | .724 | .798 | .750 | .698 | 1 | |
| Moral | .694 | .771 | .805 | .802 | .748 | .671 | .759 | .654 | 1 |

*Note:* All correlations are significant at $p < .01$.

The second and third hypotheses predicted that an inconsistent witness would only show deficits on the cognitive accuracy scale and a witness with a prior criminal record would only show deficits on the honesty scale. LISREL software was used to construct a Multiple Indicators Multiple Causes (MIMIC) model to test for latent mean differences in perceived cognitive accuracy and perceived honesty scales by neutral, medium, and low cognitive accuracy and honesty manipulations[2]. The MIMIC model allows for analysis of a single covariance matrix whereby latent factors are regressed on dummy coded variables. Direct effects of dummy coded variables on latent variables can be measured, allowing one to examine group differences on the latent variable mean. This is a more powerful test than simply comparing group means with an analysis of variance. By testing for latent mean differences rather than observed mean differences (ANOVA test), error is removed from the measures and one is able to examine true group differences (Aiken, Stein, & Bentler, 1994).

For the current study, the three levels of each independent variable were dummy coded with the medium condition acting as the referent condition. It was expected that cognitive accuracy manipulations would only affect the cognitive accuracy factor and that honesty manipulations would only affect the honesty factor. For both manipulations, it was expected that neutral conditions would have higher scores than medium conditions and that medium conditions would have higher scores than low conditions. Again, all analyses reflect pooled results from the 20 multiple imputations.

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[2]Two 3 x 3 (Perceived Cognitive Accuracy x Perceived Honesty) analyses of variances were also conducted to test this hypothesis. Results mirrored those found with the MIMIC model.

For the cognitive accuracy conditions, results were in the expected direction, however, both the cognitive accuracy and honesty scales showed latent mean differences (see Table 5 on next page). As expected, results showed that latent mean cognitive accuracy scale scores (measured on a scale of 1 to 7) incrementally increased as the conditions moved from low, to medium, to neutral.

Latent mean cognitive accuracy scale scores were 1.36 greater in the neutral cognitive accuracy condition, holding all else constant, than in the medium cognitive accuracy condition. Latent mean cognitive accuracy scale scores were 0.41 lower in the low cognitive accuracy condition, holding all else constant, than in the medium cognitive accuracy condition. Results also showed that latent mean honesty scale scores (measured on a scale of 1 to 7) incrementally increased as the conditions moved from low, to medium, to neutral. Latent mean honesty scale scores were 0.71 greater in the neutral cognitive accuracy condition, holding all else constant, than in the medium cognitive accuracy condition. Latent mean honesty scale scores were 0.32 lower in the low cognitive accuracy condition, holding all else constant, than in the medium cognitive accuracy condition. LISREL provides a t-statistic to test whether the change is significantly different from zero; all above reported increases or decreases are significantly different from zero.

*Table 5: MIMIC Model – Pooled Loadings of Cognitive Accuracy Conditions*

| | Standardized Loading | Unstandardized Loading (SE) | t-test Value |
|---|---|---|---|
| **Cognitive Accuracy (CA)** | | | |
| **Scale Scores** | | | |
| Neutral CA | 0.78 | 1.36 (0.06) | 22.69 |
| Low CA | -0.23 | -.41 (0.03) | -12.86 |
| **Honesty Scale Scores** | | | |
| Neutral CA | 0.52 | 0.71 (0.04) | 18.94 |
| Low CA | -.21 | -0.32 (0.03) | -11.09 |

*Note:* t-tests above 2.00 are significant at $p < .05$

For the honesty conditions, most results were also in the expected direction, and again, both the latent mean cognitive accuracy and honesty scale scores were affected by the honesty manipulation (see Table 6 below). Results showed that latent mean cognitive accuracy scale scores (measured on a scale of 1 to 7) incrementally increased only between the medium and neutral honesty conditions. Latent mean cognitive accuracy scale scores were 0.24 greater in the neutral honesty condition, holding all else constant, than in the medium honesty condition. Unexpectedly, latent mean cognitive accuracy scale scores were 0.08 greater in the low honesty condition, holding all else constant, than in the medium honesty condition. As expected, results showed that latent mean honesty scale scores (measured on a scale of 1 to 7) incrementally increased as the conditions moved from low, to medium, to neutral. Latent mean honesty scale scores were 0.47 greater in the neutral honesty condition, holding all else constant, than in the medium honesty condition. Latent mean honesty scale scores were 0.16 lower in the low honesty condition, holding all else constant, than in the medium honesty condition. Again, all above reported increases or decreases are significantly different from zero.

*Table 6: MIMIC Model - Pooled Loadings of Honesty Conditions*

| | Standardized Loading | Unstandardized Loading (SE) | t-test Value |
|---|---|---|---|
| **Cognitive Accuracy Scale Scores** | | | |
| Neutral Honesty | 0.13 | 0.24 (0.03) | 8.75 |
| Low Honesty | 0.04 | 0.08 (0.03) | 3.05 |
| **Honesty Scale Scores** | | | |
| Neutral Honesty | 0.32 | 0.47 (0.03) | 14.91 |
| Low Honesty | -0.12 | -0.16 (0.03) | -6.23 |

*Note:* t-tests above 2.00 are significant at $p < .05$

See Figures 1 (below) and 2 (on the next page) for graphs of the cognitive accuracy and honesty scale observed means between conditions. In examining the change in observed means, the same pattern as reported in the MIMIC model still holds true. For inconsistent witnesses, mean cognitive accuracy scale scores continually decreased from 6.57 in the neutral condition to 3.53 in the low condition. For witnesses with a prior criminal record, mean honesty scale scores continually decreased from 5.49 in the neutral condition to 4.36 in the low condition.
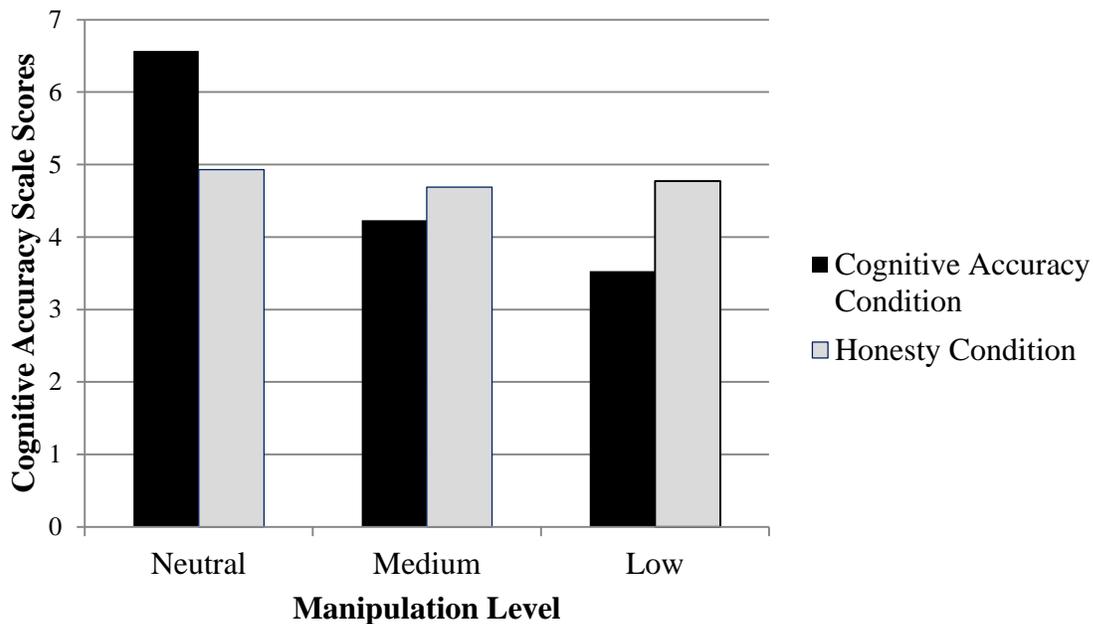


*Figure 1.* Mean cognitive accuracy scores by cognitive accuracy and honesty conditions.
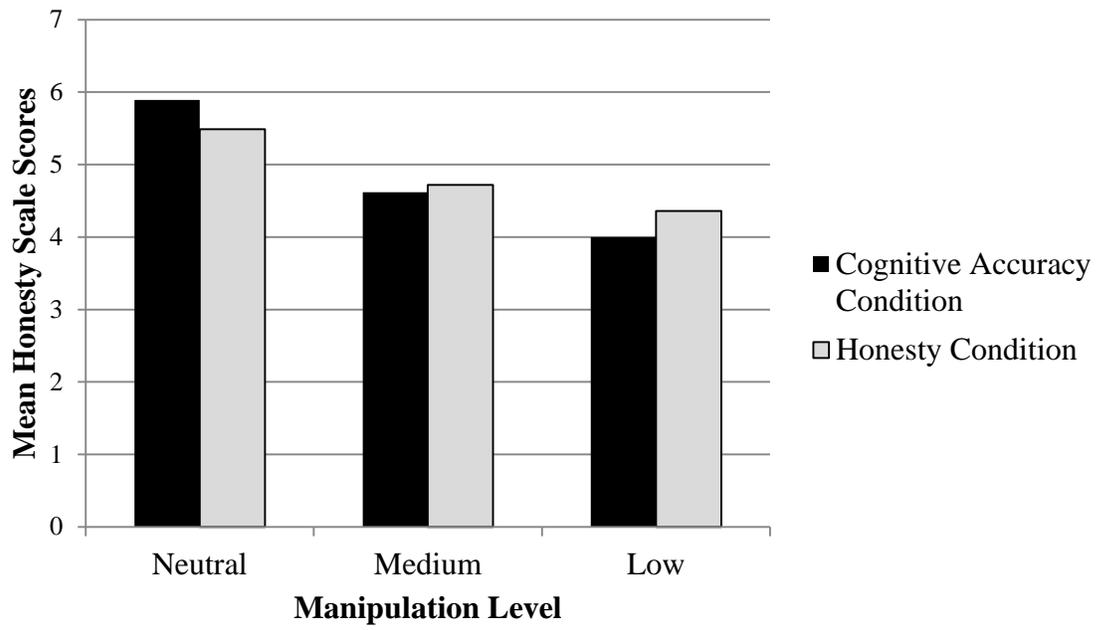
*Figure 2.* Mean honesty scale scores by cognitive accuracy and honesty conditions.

**Verdicts**

A binary logistic regression was used to analyze verdict decisions. The cognitive accuracy scale, honesty scale, and interaction terms were standardized and entered as predictors into the regression analysis. The dichotomous guilty and not guilty verdicts were the dependent variable. It was expected that higher cognitive accuracy scale scores and higher honesty scale scores would predict more guilty verdicts. Results supported the hypothesis, with both cognitive accuracy and honesty scores predicting more guilty verdicts, cognitive accuracy: $\beta = 0.56$, odds ratio = 1.75, 95% CI [1.11, 2.76], $p = .016$ and honesty: $\beta = 0.89$, odds ratio = 2.43, 95% CI [1.53, 3.88], $p = .000$, respectively. The interaction was non-significant, $\beta = -0.01$, odds ratio = 0.99, 95% CI [0.73, 1.36], $p = .957$.

**Likelihood of Commission Scores**

As an additional measure of culpability, participants rated how likely it was they thought the defendant committed the crime. First, likelihood of commission scores were analyzed using a linear regression. The cognitive accuracy scale, honesty scale, and the interaction term were entered as predictors and likelihood of commission scores acted as the dependent variable. It was expected that higher scores on both scales would predict higher likelihood of commission scores. Results showed that higher cognitive accuracy scale scores significantly predicted more guilty verdicts, $.288 < \beta > .272$, $t(379) = 2.29$, 95% CI [0.01, 0.06], $p = .022$. Higher honesty scale scores also significantly predicted more guilty verdicts, $.378 < \beta > .361$, $t(379) = 3.11$, 95% CI [0.02, 0.07], $p = .002$. The interaction was non-significant, $.023 < \beta > .009$ , $t(379) = 0.08$, 95% CI [-0.00, 0.00], $p = .933$.

Next, likelihood of commission scores were also analyzed using a 3 x 3 (Perceived Cognitive Accuracy x Perceived Honesty) analysis of variance and two significant main effects

of cognitive accuracy and honesty were predicted. Instead, results showed only a significant main effect of cognitive accuracy, $F(2, 374) = 16.26$, $p = .000$, partial $\eta^2 = .08$. See Figure 3 on below for a graph of the results. In order to test for differences between the three levels of cognitive accuracy, a post-hoc Tukey HSD test showed the neutral condition was significantly greater than the medium and low conditions at $p = .000$. The medium condition was not significantly different than the low condition at $p = .335$.
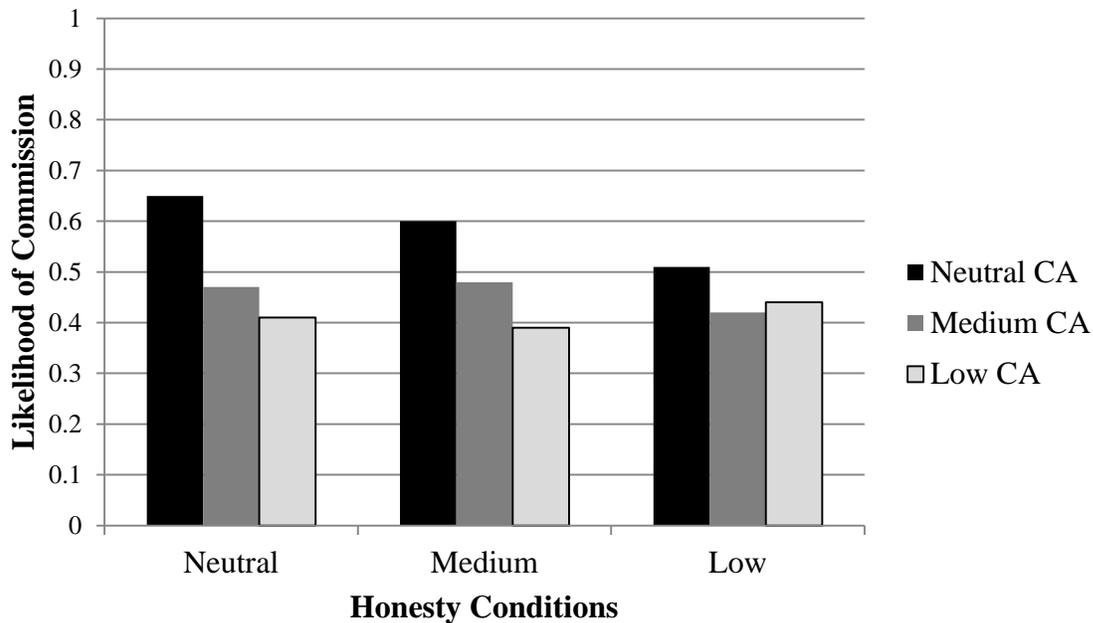


*Figure 3.* Mean likelihood of commission scores between Perceived Honesty and Perceived Cognitive Accuracy (CA) conditions.

Two one-way analysis of variance tests were also conducted. See Figure 4 on the next page for a graph of the results. The first analysis of variance showed significant differences between the neutral cognitive accuracy condition and the medium cognitive accuracy condition, $F(1, 257) = 16.87$, $p = .000$, partial $\eta^2 = .06$. Participants in the neutral cognitive accuracy

condition thought the defendant was more culpable ($M = 0.58$, $SD = 0.25$) compared to the medium cognitive accuracy condition ($M = 0.46$, $SD = 0.25$). The second analysis of variance showed no significant differences between the medium cognitive accuracy condition and the low cognitive accuracy condition, $F(1, 257) = 1.97$, $p = .162$, partial $\eta^2 = .01$.
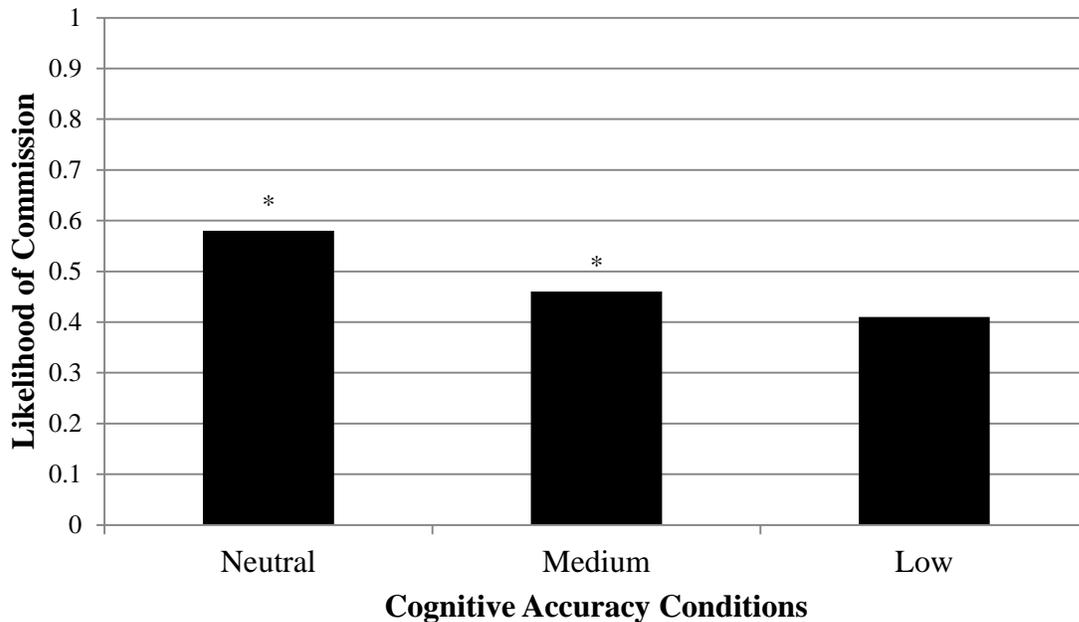


*Figure 4*. Mean likelihood of commission scores for the neutral, medium, and low cognitive accuracy conditions.

Two planned comparisons were also conducted between conditions to test for significant differences. First, a one-way analysis of variance was computed between the neutral cognitive accuracy, neutral honesty and the medium cognitive accuracy, medium honesty condition. It was expected that there would be significantly higher likelihood of commission scores in the neutral cognitive accuracy, neutral honesty condition. Results supported the hypothesis, $F(1, 78) = 7.49$, $p = .008$, partial $\eta^2 = .09$. Participants in the neutral cognitive accuracy, neutral honesty condition reported higher likelihood of commission scores ($M = 0.65$, $SD = 0.26$) compared to the medium cognitive accuracy, medium honesty condition ($M = 0.48$, $SD = 0.27$).

A second one-way analysis of variance compared likelihood of commission scores in the medium cognitive accuracy, medium honesty condition to the low cognitive accuracy, low honesty condition. It was expected that there would be significantly higher likelihood of commission scores in the medium cognitive accuracy, medium honesty condition. Results did not show support for this hypothesis and instead indicated no significant differences between groups, $F(1, 80) = 0.47$, $p = .494$, partial $\eta^2 = .00$.

## Inter-correlations of Dependent Variables

Dependent variables included credibility ratings, as measured by cognitive accuracy and honesty scale scores, verdicts, and likelihood of commission scores. All dependent variables were correlated and were found to be highly positively correlated. See Table 7 below for correlations.

*Table 7: Inter-correlations of Dependent Variables*

|  | Verdict | Cognitive Accuracy Scale | Honesty Scale | Likelihood of Commission |
|---|---|---|---|---|
| Verdict | 1 |  |  |  |
| Cognitive Accuracy Scale | .497** | 1 |  |  |
| Honesty Scale | .520** | .852** | 1 |  |
| Likelihood of Commission | .745** | .598** | .608** | 1 |

*Note*: All correlations significant at $p < .01$.

**Discussion**

The current study successfully identified two factors of adult witness credibility: perceived cognitive accuracy and perceived honesty. Based on factor analytic results, two scales were developed to measure the factors, with nine items on each scale. Cognitive accuracy items included: general memory, consistency of testimony, intelligent, accuracy, confident, cognitive functioning, self-assured, well-spoken, and ability to remember and answer questions. Honesty items included: believability of testimony, honest, trustworthy, moral, ethical, sincere, likable, honorable, and genuine. The factors identified in the current study are similar to those found in previous credibility studies with child witnesses (Ross et al., 2003) and other areas of social psychology (Berlo et al., 1969; Brodsky et al., 2010; Hovland et al., 1953; McCroskey, 1966; McCroskey & Jenson, 1975; Singletary, 1976; Whitehead, 1968).

Ross and colleagues (2003) also found that items of honest, believable, and trustworthy indicated an honesty factor and the items general memory, ability to remember and answer questions, consistent, and intelligent indicated a cognitive ability factor. In addition, the authors reported highly correlated factors ($r = .85$) which is similar to results of the current study ($r = .89$; Ross et al., 2003). Results also mirror the two factors of memory/competence and honesty found with older, female witnesses (Kwong See et al., 2001). The current study extended this line of research by further defining adult witness credibility and identifying additional items that significantly loaded onto each factor.

When comparing the results of the current study to results with expert witnesses, more differences exist. Brodsky et al. (2010) identified four factors of credibility, while the current study only identified two. The items of self-assured, well-spoken, and confident were included in the current study in order to parallel items loading onto the confidence factor identified by Brodsky et al. (2010). The current study, however, found that these items loaded strongly onto

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the perceived cognitive accuracy component, eliminating the need for a stand-alone confidence factor. The trustworthy factor (Brodsky et al., 2010) was similar to the factor of perceived honesty in the current study. As mentioned previously, the factor of knowledgeable is more likely to only pertain to expert witnesses rather than lay witnesses, with items such as logical and scientific; this factor was not included in the current study. Brodsky et al. (2010) identified a fourth factor of likable. There is limited research on likeability of eyewitnesses, but there is some evidence that results of likability ratings follow the same pattern as honesty ratings (Tenney, Spellman, & MacCoun, 2008) and should not be considered a separate factor. This area of research, however, is limited by only one-item scales to measure instances of credibility and likeability. Future research could examine eyewitness likeability and its affect on credibility ratings. This may be done best by using video-taped mock trials rather than trial transcripts. If likeability manipulations are found to cause changes in credibility, it would then be useful to examine it as a factor of credibility.

The current study also provides two validated and internally consistent scales of cognitive accuracy and honesty that can be used to measure overall witness credibility. Previous research in this area has used a variety of scales to measure credibility, ranging from one-item scales to multiple-item scales. This may have led to the many different results regarding the effects of witness characteristics, such as confidence, on perceived credibility by jurors. The current study was a first step in identifying the important components of credibility and developing scales that can be used to measure it across a wide variety of witness characteristics.

The current study was also the first to examine how witness characteristics affect credibility scales differentially. It was predicted that the cognitive accuracy and honesty scales would only be influenced by inconsistencies in testimony or negative character evidence,

respectively. This was not the case. Instead, inconsistencies and character evidence caused fluctuations in both cognitive accuracy and honesty scales. Because the two factors were found to be highly correlated, this may explain why cognitive accuracy and honesty manipulations led to changes in both scales. It is important to note, however, that inconsistencies in testimony caused greater change in the cognitive accuracy scale and negative character evidence caused greater change in the honesty scale. Most fluctuations were also in the expected direction, with neutral conditions reflecting the highest cognitive accuracy and honesty scores and low conditions reflecting the lowest scores for the two scales. There was one exception: having three errors during testimony caused latent mean honesty scores to increase, rather than the expected decrease. While the increase was significantly different from zero, it was minimal (.08) and may not be meaningful.

Another important finding from the current study was that having multiple, negative witness characteristics decreased credibility ratings more so than displaying only one negative characteristic. Previous research has only examined the impact of witness characteristics such as inconsistencies and negative character evidence in the singular form (Berman & Cutler, 1996; Berman et al., 1995; Lupfer et al., 1986). For the current study, multiple inconsistencies during testimony were found to hurt credibility judgments more so than having only one instance of an error during testimony. In addition, having multiple past arrests led to lower honesty ratings compared to only having one prior arrest. These findings may suggest that jurors judge credibility incrementally; in other words, the more instances of negative characteristics, the lower the credibility scores. A second explanation could be that jurors were simply more likely to notice or recall three inconsistencies or prior arrests compared to only one inconsistency or prior arrest. Because it may be easier to recall multiple instances of negative character evidence,

credibility scores for these witnesses were lower. However, there is evidence from the current study that most jurors did notice and recall even one instance of an inconsistency or negative character evidence because credibility scores were lower in this condition (labeled the 'medium' condition in the current study) compared to conditions where no inconsistencies occurred or negative character information was given (labeled the 'neutral' condition in the current study). Based on the findings in the current study, incremental judgments of credibility hold true especially for manipulations on each unique scale of credibility. For example, the cognitive accuracy manipulation caused incremental decreases in the cognitive accuracy scale from neutral, to medium, to low conditions; however, the cognitive accuracy manipulation only caused decreases in the honesty scale from the neutral to medium conditions.

The current study also provides more evidence that there is a widespread belief among jurors that an inconsistent witness is inaccurate (Brewer et al., 1999; Fisher & Cutler, 1995). As witnesses increased the number of inconsistencies during testimony, jurors found them to be less credible and found the defendant to be less culpable. Previous research suggests that it is actually quite common for witnesses to make errors or to be inconsistent during their recount of a crime (Brewer et al., 1999). Research has also found that inconsistencies do not correlate well with overall witness identification accuracy (Fisher & Cutler, 1995). Therefore, it is not the best practice for jurors to discount witnesses because they have been inconsistent. Despite this, jurors continue to use inconsistencies against witnesses and this in turn leads to fewer guilty verdict decisions.

It was notable that credibility ratings in both the neutral cognitive accuracy and honesty conditions were fairly high. When no information about cognitive accuracy was given to jurors, witnesses received an average cognitive accuracy credibility rating of 6.57 (on a scale of 1 to 7).

When no information about honesty was given to jurors, witnesses received an average honesty credibility rating of 5.49 (on a scale of 1 to 7). It appears as if jurors are more likely to assume witnesses are cognitively competent and honest unless they are given evidence that suggests otherwise. This finding is also in line with research examining character evidence. Studies have found negative character evidence greatly impacted credibility ratings whereas positive character evidence had no effect (Lupfer et al., 1986; Tanford & Cox, 1988). It may be that positive character evidence has no effect because credibility is at a ceiling limit from the beginning – the only direction to go is down. Based on previous findings and the current study, introducing positive witness characteristics during a trial is likely to have no impact on judgments of credibility by jurors. Instead witnesses and lawyers should focus on minimizing negative characteristics that may be introduced during a trial.

In addition to credibility manipulations, the current study predicted that the cognitive accuracy and honesty scales would also influence culpability measures. Culpability was measured using dichotomous verdicts and continuous likelihood of commission scores. Both cognitive accuracy and honesty scales affected culpability ratings. Higher cognitive accuracy and honesty scores predicted more guilty verdicts, supporting the original hypothesis. In other words, the more credible the witnesses, the more likely jurors were to render guilty verdicts. Finding that both scales influenced verdicts is in contrast to previous research with child witnesses. Ross et al. (2003) found that only honesty influenced verdicts, with higher honesty scores predicting more guilty verdicts. It may be that jurors hold child and adult witnesses to different standards. Children may only be expected to be honest because jurors are aware that their memory, accuracy, and other cognitive abilities are not fully developed. Adults, on the other hand, may be expected to be honest *and* have high-functioning cognitive abilities. It is important to note that in

examining the beta weights in the current study, honesty was found to have a greater influence on verdicts compared to cognitive accuracy. For both adults and child witnesses, honesty appears to be the most influential factor in deciding verdicts. It appears to be important for jurors to know that the witness does not have a history of being dishonest, possibly because it gives them more faith that the witness's current testimony (whether it is inconsistent or not) is the truth. Results using the continuous culpability measure of likelihood of commission scores mirrored results using verdicts. Higher cognitive accuracy scores and higher honesty scale scores predicted more guilty verdicts.

In contrast, when examining results of the manipulations of cognitive accuracy and honesty, only cognitive accuracy was found to have an effect on likelihood of commission scores. Differences existed only between scores in the neutral cognitive accuracy condition and scores in the medium condition. It may be that the degree of change between having one inconsistency on the stand versus three inconsistencies was negligible; jurors may already perceive one inconsistency as enough to lower their confidence in the witness's testimony and thus find the defendant less culpable. Further, unlike verdicts, jurors did not take into account prior criminal history when deciding likelihood of commission scores. When examining average likelihood of commission scores of the honesty conditions, there was a decrease in scores as jurors are given evidence that the witness has one or three prior criminal convictions; however, the decrease was not large enough to reach statistical significance.

**Future Research**

The current study was a first step in defining adult witness credibility. Future research is needed in order to expand this definition as needed. It may be beneficial to examine additional factors that help explain adult witness credibility. For example, research on source credibility

sometimes finds bias to be a relevant factor of credibility. In research on journalism credibility, balance/fairness/bias was found to be one of the significant factors resulting from a factor analysis examining newspaper, television, and online news sources (Abdulla, Garrison, Salwen, Driscoll, & Casey, 2005). Scale items of the bias factor included reporting the whole story, fair, bias, and objective. In addition, Whitehead (1968) also identified a factor that he labeled objectivity; items included: open-minded, objective and impartial. The current study did include an item of bias, but it did not load at all onto its hypothesized factor of cognitive accuracy and a second test showed it also did not load onto the honesty factor. It may be that this item loads onto a third factor that was not measured in the current study. Additional bias items were not included in factor analyses of child or expert witness credibility (Brodsky et al., 2010; Ross et al., 2003); however, instructions to juries on how to evaluate witness credibility do include a note on considering any biases that might unduly influence the truthfulness of witness's statements ("Criminal Jury Instructions," n.d.). Future research should examine this factor as it relates to witness credibility. More items mirroring those mentioned above could be added to an experimental credibility scale and another factor analysis could be conducted to test for a third factor of bias.

In order to further validate the scales found in the current study, future research should examine other manipulations of cognitive accuracy and honesty. In hindsight, the current study may have confounded its manipulation of cognitive accuracy. In the trial transcript, the witness made an error during testimony and the lawyer accused the witness of changing his story after seeing the defendant's appearance. Rather than pointing out a cognitive deficit such as the witness's memory, the lawyer's dialogue may have been too focused on the witness's honesty. Perhaps a better manipulation of cognitive accuracy may be to focus on the witness's lack of an

accurate memory or lack of intelligence. Cognitive accuracy could also be manipulated to reflect witnesses that are high or low in confidence. High witness confidence has been found to increase jurors' credibility judgments (Penrod & Cutler, 1995; Whitley & Greenberg, 1986); in one case, confidence was even found to be more influential than inconsistencies when jurors were making credibility judgments (Brewer & Burke, 2002). Therefore, manipulating cognitive accuracy through witness confidence may lead to results similar to those found in the current study. Intelligence, on the other hand, has not been studied as it relates to witness credibility. While it has been included as an item on credibility scales or factor analyses (Brodsky et al., 2010; Ruva & Bryant, 2004), effects of intelligence manipulations on credibility ratings have not yet been examined. It may be hypothesized that jurors believe intelligence is linked to memory and other cognitive functions and consequently, high intelligence will lead to higher cognitive accuracy scores. Intelligence could be manipulated by introducing academic or career achievements or lack thereof.

It would also be beneficial to explore additional manipulations of the honesty component. Honesty could be manipulated to reflect witnesses that have a history of lying but have not received a criminal conviction, such as unfaithfulness in a relationship or lying to further one's career. While still expected to have an effect on the honesty scale, dishonest witnesses without criminal convictions may produce smaller deficits on the scale compared to those with criminal convictions.

More research is also needed in order to determine whether the definition of credibility found here extends to other types of crimes. The current study focused on eyewitness testimony during a criminal trial of a defendant charged with burglary of a habitation. While two factors of witness credibility were successfully identified and scales for each factor were created, it would

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be beneficial to test these scales across a variety of criminal and civil trial transcripts. There may be unique cases of criminal trials in which the witness credibility factor structure may differ, or one factor has a greater influence on verdicts than the other. For example, cases involving sexual assault in which the witness is also the victim may lead jurors to alter their judgments of credibility. Ross et al. (2003) examined child witnesses/victims testifying about an incident of sexual assault they experienced. The authors found the cognitive component of credibility had little impact on verdicts. Jurors hearing about adult witnesses/victims that experienced a sexual assault may be influenced only by honesty when deciding verdicts. Civil trials are also an under-studied area in legal psychology and it would be interesting to examine witness credibility from this angle.

Finally, as previously mentioned, the current study was designed based on contradictory findings from Moore and Scullin (2010). In that study, witness credibility was measured by averaging ratings of believability, honesty, and trustworthiness. This was problematic because when analyses were conducting using each item as the dependent variable, results were different compared to using the average of the items as the dependent variable. Based on the results of the current study, the problem may have been both the manipulation of credibility and the scale of credibility. Moore and Scullin (2010) manipulated witness confidence and inconsistencies in testimony. The current study showed that witness credibility has two factors and inconsistencies in testimony have a greater effect on the cognitive component of witness credibility. It can also be hypothesized that confidence may have a greater effect on the cognitive component of credibility as well. Therefore, Moore and Scullin (2010) manipulated cognitive components of credibility, but only measured honesty components. This may explain the contradictory results when individual scale items versus the average of the scale items were used as the dependent

variable. The study should be replicated using the current study's credibility scales. More sophisticated analyses of latent variable means can then be conducted to examine changes in credibility ratings based on inconsistencies and confidence.

**Practical Application**

The main goal in identifying factors of credibility was to provide researchers with a valid, internally reliable measure of credibility that can be consistently used across studies. If credibility is consistently measured, researchers can better identify witness characteristics that cause changes in credibility. Because credibility is currently measured with so many different, un-validated scales, it is difficult to interpret results between studies. While one study may find confidence to be influential to credibility judgments (Whitley & Greenberg, 1986), others find inconsistencies to be more influential (Berman & Cutler, 1996; Berman et al., 1995). By creating a validated and reliable scale of adult credibility, it will be easier to compare studies across researchers and labs and to pinpoint witness characteristics that have the greatest effect on credibility judgments.

With validated credibility scales, researchers will also be able to compare credibility across witness groups. For example, credibility between children and adult eyewitnesses can be examined for important differences; credibility between adult witnesses and jailhouse informants could also be compared. The current study has already indentified one important difference between child and adult witnesses – cognitive competence is more valued in adult witnesses than in child witnesses. More differences may be found when comparing adult witnesses to jailhouse informants. Research has found that even though jurors rate informants as less trustworthy than traditional witnesses, this discrepancy does not translate to a decrease in convictions for defendants that informants are testifying against (Neuschatz, Lawson, Swanner, Meissner, &

Neuschatz, 2008). When looking at these results from a credibility and factor analysis standpoint, one might hypothesize that while honesty may be a factor of informant credibility, it does not influence verdicts. In this case, it would be especially interesting to examine a possible third factor of bias and analyze its influence on verdicts. Regardless, jurors appear to judge credibility differently depending on the type of witness heard during the trial. It is important to examine factors and scales of credibility across all type of witnesses in order to pinpoint the key differences.

A second goal of the current study was to inform lawyers about components of credibility based on statistical evidence. As mentioned previously, there seems to be anecdotal evidence amongst lawyers that credibility has several components relating to cognitive ability and honesty (Kane, 2007; McElhaney, 1992; McElhaney, 2002). The current study provides statistical evidence that this is indeed the case. Further, jurors appear to be most influenced by negative rather than positive character traits, with dishonesty having more of an effect than a lack of cognitive accuracy. Multiple instances of negative traits also have a cumulative negative effect on credibility judgments. In order for their witnesses to be viewed as most credible in the jury's eyes, lawyers should minimize negative honesty traits that may be introduced and minimize the number of inconsistencies in testimony witnesses may have during the trial.

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# Appendix A: Additional Tables

*Table 8: Inter-correlation between Scale Items*

|  | General Accuracy | Ability to Remember and Answer Questions | General Memory | Confi-dent | Well-Spoken | Cognitive Functioning | Consis-tent | Self-Assured | Intelli-gent |
|---|---|---|---|---|---|---|---|---|---|
| Trustworthy | .851 | .727 | .816 | .726 | .682 | .717 | .695 | .651 | .757 |
| Genuine | .762 | .681 | .687 | .647 | .701 | .705 | .660 | .637 | .727 |
| Honor | .705 | .622 | .637 | .565 | .616 | .640 | .609 | .505 | .695 |
| Sincere | .713 | .619 | .615 | .607 | .672 | .650 | .609 | .559 | .682 |
| Honest | .708 | .592 | .667 | .609 | .596 | .628 | .605 | .515 | .752 |
| Likeable | .776 | .675 | .699 | .669 | .703 | .700 | .637 | .647 | .741 |
| Ethical | .728 | .647 | .653 | .609 | .654 | .651 | .611 | .564 | .708 |
| Believable | .801 | .681 | .748 | .690 | .643 | .688 | .656 | .615 | .778 |
| Moral | .651 | .582 | .543 | .530 | .588 | .605 | .580 | .460 | .650 |

*Table 9: Covariances of Items in the Revised Model*

| | General Accuracy | Ability to Remember and Answer Questions | General Memory | Confi-dent | Well-Spoken | Cognitive Functioning | Consis-tent | Self-Assured | Intelli-gent |
|---|---|---|---|---|---|---|---|---|---|
| General Accuracy | 6.75 | | | | | | | | |
| Ability to Remember and Answer Questions | 5.60 | 7.22 | | | | | | | |
| General Memory | 5.36 | 5.14 | 6.17 | | | | | | |
| Confident | 5.57 | 5.72 | 5.21 | 8.12 | | | | | |
| Well-Spoken | 4.83 | 5.10 | 4.39 | 5.13 | 6.11 | | | | |
| Cognitive Functioning | 4.59 | 4.66 | 4.16 | 4.49 | 4.38 | 5.31 | | | |
| Consistent | 5.41 | 6.60 | 5.23 | 5.96 | 4.94 | 4.58 | 8.42 | | |
| Self-Assured | 4.76 | 5.14 | 4.37 | 5.85 | 4.73 | 4.08 | 5.26 | 6.50 | |
| Intelligent | 3.87 | 3.53 | 4.05 | 4.15 | 3.68 | 3.50 | 3.82 | 3.26 | 4.63 |

| | General Accuracy | Ability to Remember and Answer Questions | General Memory | Confi-dent | Well-Spoken | Cognitive Functioning | Consis-tent | Self-Assured | Intelli-gent |
|---|---|---|---|---|---|---|---|---|---|
| Trustworthy | 5.48 | 4.83 | 5.03 | 5.12 | 4.18 | 4.06 | 4.96 | 4.10 | 4.03 |
| Genuine | 4.69 | 4.33 | 4.10 | 4.39 | 4.12 | 3.84 | 4.54 | 3.88 | 3.73 |
| Honor | 4.54 | 4.10 | 3.94 | 4.00 | 3.78 | 3.66 | 4.35 | 3.20 | 3.72 |
| Sincere | 4.56 | 4.11 | 3.81 | 4.23 | 4.11 | 3.72 | 4.33 | 3.53 | 3.62 |
| Honest | 4.36 | 3.72 | 3.99 | 4.12 | 3.49 | 3.45 | 4.09 | 3.12 | 3.85 |
| Likeable | 4.87 | 4.34 | 4.21 | 4.60 | 4.20 | 3.86 | 4.38 | 3.99 | 3.86 |
| Ethical | 4.42 | 4.07 | 3.79 | 4.07 | 3.79 | 3.50 | 4.10 | 3.38 | 3.55 |
| Believable | 5.27 | 4.62 | 4.71 | 4.98 | 4.03 | 4.03 | 4.81 | 3.98 | 4.24 |
| Moral | 3.92 | 3.60 | 3.14 | 3.47 | 3.36 | 3.21 | 3.86 | 2.66 | 3.20 |

*Table 9 Cont'd: Covariances of Items in the Revised Model*

| | Trustworthy | Genuine | Honor | Sincere | Honest | Likeable | Ethical | Believable | Moral |
|---|---|---|---|---|---|---|---|---|---|
| Trustworthy | 6.13 | | | | | | | | |
| Genuine | 4.62 | 5.62 | | | | | | | |
| Honor | 4.60 | 4.90 | 6.08 | | | | | | |
| Sincere | 4.48 | 4.72 | 4.91 | 6.12 | | | | | |
| Honest | 4.75 | 4.24 | 4.64 | 4.40 | 5.66 | | | | |
| Likeable | 4.75 | 4.53 | 4.29 | 4.43 | 4.20 | 5.81 | | | |
| Ethical | 4.46 | 4.32 | 4.39 | 4.50 | 4.08 | 4.12 | 5.47 | | |
| Believable | 5.19 | 4.34 | 4.34 | 4.47 | 4.80 | 4.59 | 4.14 | 6.40 | |
| Moral | 4.00 | 4.23 | 4.60 | 4.54 | 4.10 | 3.74 | 4.11 | 3.83 | 5.34 |

*Note: Covariances reported above were computed on the original data set that contained missing data.

*Table 10: Item Means and Standard Deviations*

| Item | Mean (SD) |
|---|---|
| General Accuracy | 4.33 (2.60) |
| Ability to Remember and Answer Questions | 4.92 (2.69) |
| General Memory | 4.27 (2.48) |
| Confident | 5.08 (2.85) |
| Well-Spoken | 5.02 (2.47) |
| Cognitive Functioning | 4.78 (2.30) |
| Consistent | 4.85 (2.90) |
| Self-Assured | 4.97 (2.55) |
| Intelligent | 5.06 (2.15) |
| Trustworthy | 4.31 (2.48) |
| Genuine | 4.99 (2.37) |
| Honor | 4.73 (2.47) |
| Sincere | 5.15 (2.47) |
| Honest | 5.10 (2.38) |
| Likeable | 4.61 (2.41) |
| Ethical | 4.83 (2.34) |
| Believable | 4.77 (2.53) |
| Moral | 5.24 (2.31) |

*Note: Means and standard deviations reported above were computed on the original data set that contained missing data.

**Appendix B: Voir Dire Questionnaire**

Demographic Information:

Age: _____     Gender: _____     Ethnicity: _____

Years Lived in El Paso: _____

Licensed Driver: Yes _____ No _____

Registered Voter: Yes _____ No _____

Marital Status: Married___ Never Married___ Divorced____ Widowed ____

If Married: Years Married _____

If You Have Children: Number of Children: _____

Your Occupation and Employer: _____

Name of Last School or College Attended, Grade Completed, or Degree Received:

_____

What is (was) the principal profession or vocation of your parents?

Father: _____     Mother: _____

Your religious preference (if any): _____

Experiences with the Legal System:

In this section, you will be asked some general questions about your personal experiences with the legal system. Please answer these questions honestly. Again, please remember that these answers are completely anonymous.

Have you served on a jury before? Yes _____ No _____

    If yes, how many times? _____

    Was it Civil _____; Criminal _____; Grand Jury _____?

    Was a verdict rendered? Yes _____ No _____

Are you now or have you ever been a law enforcement officer? Yes _____ No ____

    If yes, state what type and when: _____

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Do you have a close friend or relative who is now or ever has been a law enforcement officer?

Yes ____ No ____

>   If yes, state the nature of the relationship, type of law enforcement officer, and when the individual was (is) a law enforcement officer: _____

Have you ever been a victim of a crime?  Yes ____ No ____

>   If yes, state the nature of the crime and when it occurred: _____

Has any close friend or relative ever been the victim of a crime?  Yes ____ No ____

>   If yes, state the nature of the crime and when it occurred: _____

Have you ever been a witness in a criminal case?  Yes ____ No ____

>   If yes, state the type of case and when it occurred: _____

Do you have a close friend or relative who is now or ever has been an attorney?

Yes ____ No ____

>   If yes, state the nature of the relationship, type of attorney, and when the individual was (is) practicing law: _____

Overall, how do you feel about police officers?  (Circle one)

| -3 | -2 | -1 | 0 | 1 | 2 | 3 |
|----|----|----|---|---|---|---|
| Very Negative | | | Neutral | | | Very Positive |

Have you ever spoken with a police officer? Yes ____ No ____

>   If yes, how many times?
>
>   _____        Once or twice
>
>   _____        A few times
>
>   _____        Several times
>
>   _____        Many times

If yes, in what contexts? (check all that apply)

_____       Speeding ticket / traffic accident

_____       Answering questions about something I had seen

_____       Answering questions about something I may have done

_____       Answering questions about something that happened to me

_____       Talking about general issues or concerns such as safety

_____       In a social context

_____       Other (please explain) _____

Have you ever reported a crime to the police? Yes ____ No ____

Overall, how do you feel about lawyers? (Circle one)\

| -3 | -2 | -1 | 0 | 1 | 2 | 3 |
|----|----|----|---|---|---|---|
| Very Negative | | | Neutral | | | Very Positive |

Have you ever spoken with a lawyer?  Yes ____ No ____

If yes, how many times?

_____       Once or twice

_____       A few times

_____       Several times

_____       Many times

If yes, in what contexts? (check all that apply)

_____       Answering questions about something I had seen

_____       Getting advice on a civil matter, such as a divorce, will, or lawsuit

_____       Getting advice on a criminal matter

_____       Lawyer called me to offer services

_____       In a social context

_____       Other (please explain) _____

Please mark an "X" beside the statement that best describes your behavior.

a.      I read the newspaper.

       _____ Never              _____ 1-3 times per week

       _____ Less than once per month     _____ 4-6 times per week

       _____ Less than once per week      _____ Everyday

b.      I watch television news.

       _____ Never              _____ 1-3 times per week

       _____ Less than once per month     _____ 4-6 times per week

       _____ Less than once per week      _____ Everyday

c.      I watch television shows about the police or legal system.

       _____ Never              _____ 1-3 times per week

       _____ Less than once per month     _____ 4-6 times per week

       _____ Less than once per week      _____ Everyday

d.      I read books about the police or legal system.

       _____ Never              _____ 5-6 times per year

       _____ 1-2 times per year       _____ 1 time per month

       _____ 3-4 times per year       _____ 2 or more times per month

e.      I see movies about the police or legal system.

       _____ Never              _____ 5-6 times per year

       _____ 1-2 times per year       _____ 1 time per month

       _____ 3-4 times per year       _____ 2 or more times per month

**Appendix C: Trial Transcript**


PEOPLE v. MIGUEL KLOB


Thank you for participating in this research project. We are interested in examining how jurors evaluate evidence and make judgments about legal cases. We would like you to serve as a juror and make decisions about a legal case involving the burglary of a dorm room of a college student at Williams College, a private liberal arts college in Texas. Below you will find a brief description of the incident and a summary of some of the crucial elements of the trial. Only material which is redundant or superficial has been omitted. Please read this transcript carefully and when you are done, place it in the folder and move on to the next worksheet. Ask the experimenter for clarification if you have any questions.


THE INCIDENT:

At approximately 9:30pm on Wednesday, March 4th, 2011, Eduardo Lopez, sophomore at Williams College, returned to his dormitory after meeting with an economics study group. As he approached his room, he was surprised to discover that his door was ajar. He rushed into the room and found he'd been burglarized. The place was in complete disarray; his dresser drawers had been ransacked, crates and boxes were overturned, and clothing, books, and papers were scattered all over the floor. A frantic inventory revealed that several valuable possessions had been stolen.

After a brief tantrum, Eduardo regained his composure and called the college's Department of Public Safety to notify them that his dorm room had been burglarized. The DPS officers arrived at about 9:50pm, searched the room, but were not able to find clear fingerprints or other clues to the suspect's identity. The DPS officers then surveyed the dorm residents to determine if any of the might have witnessed the burglary. One student, Victor Guzman, reported seeing a Hispanic male in his mid 20's **[Low Cognitive Ability: about 5 feet 5 inches tall]** leaving Lopez's dorm room earlier that evening carrying a laptop. Guzman claimed that the man had **[Neutral Cognitive Ability: blonde hair/Medium and Low Cognitive Ability: black hair]** and was wearing a **[Neutral and Medium Cognitive Ability: dark jacket/Low Cognitive ability: white t-shirt]**.

Minutes later, DPS officers found a tall, blonde-haired man wearing a blue denim jacket in a parking lot on campus. The man, Miguel Reyes, age 24, was holding an iPod, which was one of the items that Lopez reported at stolen. Reyes was not a student at the college; he claimed that he was trying to visit a friend but wasn't able to find him, and that he had found the iPod on the ground in the parking lot. The DPS officers arrested him on charges of burglary of a habitation.

The next morning, DPS arranged a lineup. In the lineup were Reyes and five other Hispanic men of approximately the same age and height. Guzman examined the lineup briefly and then indicated that Reyes was the man he had seen leaving Lopez's room. As a result, Miguel Reyes was charged with burglary of a habitation.

THE TRIAL:

Reyes was tried in Texas District Court for the charges of burglary of a habitation, after he pled "not guilty." In his opening statement, the prosecutor said that the evidence would reveal that Miguel Reyes broke into Lopez's room, and stole over $2,000 worth of personal property – property that Lopez had worked long and hard to earn by holding down two summer jobs. The prosecution would demonstrate that Reyes was identified by an eyewitness in a fair police lineup, and that Reyes was unable to provide a verifiable alibi.

Next, Reyes's defense attorney approached the jury and stated that he would convince them that his client was an innocent victim of circumstance. He informed the jury that Reyes was an ordinary young man who held a part-time job while taking classes at a local community college. He acknowledged that his client was on the Williams College campus on the night of the incident, but that Reyes was simply visiting the college to look up an old high school friend. Unfortunately, his friend wasn't around that evening, and while walking to his car, Reyes was mistaken for the burglar, even though he'd never entered Eduardo Lopez's dormitory. Finally, the defense attorney stated that the prosecution's eyewitness, though well-meaning, had mistakenly identified Reyes as the perpetrator in the crime, allowing the true culprit to run free.

The prosecutor called Eduardo Lopez, the victim of the theft. Lopez was sworn in, and was asked for some factual information about himself. Then the prosecutor asked him:

PROSECUTOR:    Mr. Lopez, could you tell us where you went on the evening of Wednesday, March 4$^{th}$?

EDUARDO LOPEZ:    Well, I was in my dorm room after dinner, but then I had to go to Lassiter Hall to attend a study group for my Economics class. Well, my meeting started at 9pm, and I left maybe fifteen minutes early at about 8:45pm. I had to come back because I forgot my notes, and that was around 9:15. That's when I noticed everything was gone.

Q.    And what happened next?

A.    I found my door partially opened, so I ran in and found that I'd been ripped off. The place was a mess. So I called DPS.

Q.    Could you tell us exactly what was stolen?

A.    About $150 in cash, an iPod, and my laptop.

[At this point, the Prosecutor presented receipts for the stolen goods which were admitted as evidence.]

Q.     Mr. Lopez, when you left your dorm room, did you lock your door?

A.     Yes, of course. I always do. But those dorm locks are worthless. Some guys who've locked themselves out of their room have broken back in again using a credit card.

Q.     Thank you, Mr. Lopez.

       The prosecutor called Victor Guzman to the stand. Guzman was sworn in and asked to tell the jury some factual information about himself. Then the prosecutor asked him:

Q.      Victor, where were you on the night of Wednesday, March 4th?

A.      I was visiting a friend, Adan Chavez, in the dormitory. I got to Adan's dorm room at about 6pm and left around 9pm.

Q.     Do you live in the same dorm as Chavez?

A.     No, sir. I live about a mile from campus. When I left at 9, I was heading back home.

Q.     And did you see anything unusual in the dormitory as you were leaving?

A.     Well, as I got out of the elevator and was walking to the exit, I saw a man with black hair and a dark jacket leaving Eduardo Lopez's room with a laptop in his arms. At the time, I thought it was a little fishy, but I don't really know anyone else in the dorm very well so I figured it was probably a friend of someone's borrowing or buying the stuff, or maybe just someone playing a prank.

Q.     And then what happened?

A.     I drove back to my house and watched TV until the DPS officers knocked on my door and asked me if I'd seen anyone prowling around the dorm building. Adan told them I would have been leaving the building about the time the stuff was stolen. So I told them what I saw and later they called me back and asked me to come to the police lineup the following morning.

Q.      And was the man you saw leaving Lopez's room in the police lineup?

A.     Yes, he was.

Q.     And can you identify that same man in the courtroom today?

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A.      Yes, sir. (Points across courtroom at Reyes.)

Q.      Your Honor, may the record show that Mr. Guzman is pointing at the defendant, Mr. Miguel Reyes? I have no further questions for this witness, Your Honor.

At this point, the defense attorney cross-examined the witness:

DEFENSE ATTORNEY:      Mr. Guzman, can you describe exactly what you saw?

VICTOR GUZMAN:      A guy was coming out of the dorm room. He was in his early twenties, with blonde hair, about 6 feet tall, and he was wearing a dark jacket and jeans.

Q.      **[Medium and Low Cognitive Ability: You say that you saw a man with blonde hair leaving Mr. Lopez's dorm room, correct?**

A.      **Yes, sir.**

Q:      **And on the night of the robbery, you gave a written statement to police, and you said the man had black hair, correct?**

A:      **I don't know, now I'm confused.**

Q.      **[Low Cognitive Ability: A few moments ago you also said the man was wearing a dark jacket and was 6 feet tall, correct?**

A.      **Yes, that's correct.**

Q.      **But in your written statement to police on the night of the robbery, you said the man was only wearing a t-shirt and was 5 feet 5 inches tall, correct?**

A.      **I'm not sure. I think so.]**

Q:      **Were you accurate in your description of the man in your written statement to the police?**

A;      **Yes, sir.**

Q:      **Is it fair to say that your recollection of the events and what you saw that night was better at that time than it is now?**

**A:**      I'm not sure.

**Q:**      Mr. Guzman, would you say that, in general, you have a poor memory? That you're not very good at recollecting details of events?

**A:**      Yes, sir. I often have trouble remember specific things that happen.

**Q:**      If that is the case, how can we be sure that your description of the suspect is accurate?

**A:**      I think my original description of the suspect to the police was probably more accurate.

**Q:**      And when you spoke with the police you were accurate because you wanted the police to catch whoever burglarized that dorm room?

**A;**      Yes, sir.

**Q:**      And you wanted the victim to be able to recover his property that was stolen by whomever burglarized that dorm room?

**A:**      Well, yes that would be nice. I'd like it if that was what had happened to me.

**Q:**      And you wouldn't want to the police to arrest the wrong person, is that correct?

**A:**      Well, of course not.

**Q.**      So in that statement you gave the police, you told them that the man you saw had black hair [Low Cognitive Ability: was 5 feet 5 inches tall and was wearing a t-shirt], correct?

**A.**      I don't remember saying that.

**Q.**      Do you recognize this document as the written statement you gave police?

**A.**      Yes, this is the statement.

**Q.**      And doesn't your written statement say that the man had black hair [Low Cognitive Ability: was 5 feet 5 inches tall and was wearing a t-shirt]?

**A.** Yes, sir.

**Q.** So you only changed your story to say the man was blonde [Low Cognitive Ability: 6 feet tall, and wearing a jacket] after you found out that my client has blonde hair [Low Cognitive Ability: and is 6 feet tall], correct?

**A.** No, that's not true.]

Q. [Medium and Low Honesty: Have you ever been a criminal witness in a trial before?

**A.** Yes, sir.

**Q.** When was this?

**A.** About three years ago.

**Q.** And during this trial, you claimed you saw a man burglarizing a convenience store. After the trial was over, were you charged with a crime?

**A.** Yes, sir.

**Q.** And after you were an eyewitness in that trial, also for burglary, you were charged with lying under oath or perjury, isn't that correct?

**A.** Yes, sir. But I was unfairly treated. I didn't lie.

**Q.** You were given jail time and a $5,000 fine for lying under oath, correct?

**A.** Yes, sir. But I still don't agree with the charge.]

**Q.** [Low Honesty: Isn't it also true that you were arrested two separate times and found guilty of theft and burglary two years ago?

**A.** I was, but again, I was unfairly treated.

**Q.** You were also given jail times for these crimes as well, correct?

**A.** Yes, sir.]

Q.     Okay Mr. Guzman, was there anything particularly unusual about the physical appearance of the man you saw? Any especially distinct physical characteristics that would make him stand out in a crowd?

A.     Well, no, not really. Not anything really unusual.

Q.     Aren't there many men at Williams College and in the town that could be described as being "in their early twenties, blonde, about 6 feet tall, with a dark jacket and jeans"?

A.     Yes, sir, but I recognize his face.

Q.     I have no further questions, Your Honor.

Next, the prosecutor called the Department of Public Safety Officer Daniel Holland to the stand.

PROSECUTOR:     Officer Holland, according to Mr. Lopez, the locks on the dormitory room doors can be opened with a credit card. Based on your experience, is that true?

OFFICER HOLLAND:     Yes, unfortunately, it's true. We've been urging the college administrators to replace the locks for several years. Perhaps now they will. We try to keep an eye on all the dorm rooms at night, but we're understaffed.

Q.     Based on your training and experience, would a person need to be a professional thief to burglarize a room like Mr. Lopez's?

A.     No, anyone who wanted to badly enough could probably do it.

[The prosecutor then asked Officer Holland about the events that occurred on the night of the theft from the moment Lopez notified DPS.]

Q.     Can you tell us where you found Miguel Reyes, the defendant?

A.     Yes, we found him in the parking lot on the north side of the campus, unlocking his car door.

Q.     Why did you suspect the defendant?

A.     Well, Victor Guzman described seeing a Hispanic man, about 6 feet tall, with blonde hair and a dark jacket. Miguel Reyes is 5'11", has blonde hair and was wearing a blue denim

jacket. And he was holding an iPod, and we knew that such an item was stolen. So I started asking him questions, and then my partner found the stolen goods nearby. And he wasn't from the school and couldn't find anyone to provide an alibi for him.

Q.     And where did you find the stolen goods?

A.     They were in a large trash bag stuffed under a garbage dumpster behind the Student Union building.

Q.     And how far away was the defendant's parked car from the garbage dumpster, in your estimation?

A.     Oh, about 90 feet away, around the corner of the building.

Q.     Thank you. No further questions, Your Honor.

       Next the defense attorney cross-examined Officer Holland:

DEFENSE ATTORNEY:     Officer Holland, did you search for fingerprints in and around Eduardo Lopez's dorm room?

OFFICER HOLLAND:     Yes, sir, we did.

Q.     Did you find Miguel Reyes's fingerprints anywhere?

A.     Well, no, we weren't able to find his prints , but there were some partial prints that weren't clear enough for identification.

Q.     Do these partial prints indicate in any way that Miguel Reyes was in Eduardo Lopez's room?

A.     No, sir.

Q.     And did you find any prints on the stolen goods?

A.     We only found Eduardo Lopez's prints on the stolen goods – but we believe that the suspect probably wore gloves to avoid leaving fingerprints.

Q.     Thank you. No further questions.

At this point, the defense attorney called the defendant, Miguel Reyes, to the stand. The defense attorney asked him several questions about his family, his job, and his girlfriend. Examination proceeded as follows:

DEFENSE ATTORNEY:     Miguel, could you tell us what happened on the night of March 4th?

MIGUEL REYES:     Yes sir. I decided I wanted to see how my old high school friend, Richard Torres, was doing because we had kind of lost touch in the past few years – you know, just doing different things and everything. So I drove over to campus and stopped by his dorm room but he wasn't in. I waited for a little while in case he had just stepped out for a minute. And then I headed back to the parking lot. As I was walking to my car, I saw an iPod on the ground by a garbage dumpster, so I picked it up. I thought maybe someone had thrown it away because it was broken, so I brought it over to my car to look at it in the light and see how badly broken it was and if there was a name on it or something. And then all of a sudden the police officers come over and tell me that I'm under arrest for a robbery that I didn't have anything to do with.

Q.     Thank you, Mr. Reyes.

Then the prosecutor cross-examined the defendant:

PROSECUTOR:     Mr. Reyes, you say that you were on the college campus to visit an old friend. Did your friend know you were coming to visit?

MIGUEL REYES:     No, sir. It was going to be kind of a surprise.

Q.     I see. When you arrived on campus, how did you know where his dorm room was located?

A.     I looked it up in a campus phone book in the Student Union building.

Q.     And is there anyone who can testify that you were in the Union looking up your friend's address?

A.     No, sir, there wasn't anyone around at the time. It was pretty quick.

Q.     And was there anyone in his dorm that can testify that you were knocking on his door?

A.     No, sir, I guess everyone was in their rooms at the time.

Q.      Thank you, Mr. Reyes. I have no further questions, Your Honor.

Next, the defense attorney called Richard Torres to the stand.

DEFENSE ATTORNEY:    Mr. Torres, you are currently a senior at Williams College and you live on campus, is that correct?

RICHARD TORRES:    Yes sir.

Q.      Do you know the defendant, Miguel Reyes?

A.      Yes, I do. We went to high school together. He was a senior when I was a freshman, and we played on the wrestling team together for a year.

Q.      I see. Were you on campus the night of March 4th?

A.      No, sir. I was in Houston that evening, for a rock concert, and then I spent the night at a friend's apartment in the city.

Q.      Would you say that Miguel Reyes was the kind of friend that might just drop by for a visit without calling first?

A.      Well, I guess so. We're both pretty informal about things like that. He doesn't live that far from campus so it'd be no big deal.

Q.      Have you ever known Miguel Reyes to be the kind of person who might commit a crime?

A.      No he's not the kind of person, not at all.

Q.      Thank you, Mr. Torres.

The prosecution then cross-examined the witness:

PROSECUTOR:    Mr. Torres, has Miguel Reyes ever visited you on campus before?

RICHARD TORRES:    No, sir.

Q.      And when was the last time that you saw him?

A.      Well, I guess it was awhile ago – during the spring of my first year of college.

Q. And where did you see him?

A. In town, at a party.

Q. So you really had no reason to expect a visit from Mr. Reyes this spring, did you?

A. Well, no, but he knows he'd always be welcome to – we've both just been real busy with work and school and girlfriends and things.

Q. Thank you Mr. Torres. I think that will be all.

After the close of evidence at trial, each attorney made a closing statement. The prosecution argued that the eyewitness testimony clearly established that Miguel Reyes was the person who committed the crime. Reyes was on campus during the crime, he met the description given by the eyewitness, he had the stolen iPod in his possession, and he emphasized the fact that Reyes was unable to corroborate his alibi and that it seemed suspicious that Reyes would suddenly drop in on his acquaintance unannounced after a two year lapse.

The defense attorney argued that Miguel Reyes was an innocent man who was simply in the wrong place at the wrong time, and he asked the jury to consider the possibility that the eyewitness was mistaken. He pointed out that most people would pick up an iPod if they saw it lying on the road near a dumpster. He also reminded the jury that the DPS officers were unable to identify Reyes using fingerprint analyses, and that many young men would meet the same physical description as Reyes.

Finally, the judge instructed the jury. Portions of his instructions follow:

"Members of the jury, it is now my function to instruct you on the law that you must apply to the facts that you find in this case. Under our system, a defendant is presumed to be innocent until his guilt is proven. No inference against a defendant may be drawn from the fact that he has been arrested and placed on trial. Proof beyond a reasonable doubt is proof that leaves you with an firm belief that the charge is true. The evidence need not eliminate all possible doubt because everything in life is open to some possible or imaginary doubt. Now in this case, the charge is burglary of a habitation, and the questions that you must decide is whether or not the defendant is the person who burglarized Eduardo Lopez's dorm room. If you believe that the prosecution has established beyond a reasonable doubt that the defendant is the person who committed this act, then you must find him Guilty. However, if you believe that there is a reasonable doubt as to whether the defendant is the person who committed this act, then you must find him Not Guilty."

## Appendix D: Verdict Form

1. For the charge of Burglary of a Habitation,

_____ I find the defendant **GUILTY** of burglary of a habitation.

_____ I find the defendant **NOT GUILTY** of burglary of a habitation.

2. How confident are you in your verdict decision of guilty or not guilty? (Circle one)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| Not at all | | | | | | | | | Completely |

**Stop here if you checked Not Guilty**

_____ _____

### Continue ONLY if you checked GUILTY.

If you found the defendant GUILTY, for how many years would you sentence the defendant?

The sentencing guideline in the State of Texas for this offense of Second Degree Felony of Burglary of a Habitation is punishment by imprisonment for not more than 20 years and no less than 2 years. In addition, the defendant, if charged, may be punished by a fine not to exceed $10,000.

My sentence is: _____ Years and $_____ Fine (optional)

**Appendix E: Post Verdict Questionnaire**

For the following questions, please read each one carefully and circle the number the best corresponds to your answer.

1. **How accurate was the witness, Victor Guzman, in his description of the suspect in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

2. **In your opinion, how honest is Victor Guzman?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

3. **How believable did you find Victor Guzman's testimony to be in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

7. **In your opinion, how intelligent is the witness, Victor Guzman?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

8. **In general, how good is Victor Guzman's memory?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

9. **How trustworthy did you find the witness, Victor Guzman to be in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

10. **In your opinion, how confident was Victor Guzman?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**11. To what extent, if any, do you believe Victor Guzman intentionally made up the story that he saw the defendant in his dorm?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Not at all                                                                            Completely

**12. Did you find Victor Guzman to be very self-assured during the trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Not at all                                                                            Completely

**13. In general, did you find Victor Guzman to be accurate?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Not at all                                                                            Completely

**14. How likeable did you find the witness, Victor Guzman to be in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Not at all                                                                            Completely

**15. Does Victor Guzman have a high cognitive functioning ability?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Not at all                                                                            Completely

**16. Did you find Victor Guzman to be well-spoken during the trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Not at all                                                                            Completely

**17. How suggestible was Victor Guzman in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Not at all                                                                             Completely

**18. In your opinion, how ethical is the witness, Victor Guzman?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Not at all                                                                            Completely

**19. Do you think Victor Guzman is a reliable source of information?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**20. Did you find Victor Guzman to be poised during the trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**21. How sincere did you find Victor Guzman to be in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**22. In general, does the witness, Victor Guzman have a strong sense of morality?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**23. How good was Victor Guzman's memory for the appearance of the suspect he saw?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**24. In your opinion, is Victor Guzman honorable?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**25. How genuine did you find Victor Guzman to be in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**26. Do you believe the witness, Victor Guzman, was biased in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**27. Did Victor Guzman seem to be confused during his testimony in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**28. In your opinion, how competent is Victor Guzman?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**29. How consistent was Victor Guzman's testimony? That is, did he always tell the same story while testifying?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**30. In general, how well did the witness, Victor Guzman, appear to be able to think, remember, and answer the questions the lawyer asked?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**31. How good was Victor Guzman's memory for the events he testified about in this trial?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**32. To what extent, if any, did Victor Guzman's testimony influence your opinion on whether or not the defendant committed the crime?**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Completely |

**33. What is the likelihood that the defendant, Miguel Reyes committed the crime of burglary of a habitation? (Circle one)**

0%     10     20     30     40     50     60     70     80     90     100%

**Vita**

Abigail Moore earned her Bachelor of Science degree in Psychology from the University of Mary Washington in 2007. She joined the Legal Psychology doctoral program at the University of Texas at El Paso (UTEP) in 2008 and received her Master of Arts degree in Experimental Psychology in 2010.

While at UTEP, Dr. Moore conducted research on eyewitness credibility in the courtroom. She presented her research at two American Psychology-Law Society conferences. She also worked as an intern at the El Paso Juvenile Probation Program and America's Promise Alliance in Washington, DC. Dr. Moore is currently living in Washington, DC and working as the Research Coordinator at a non-profit organization for genetic disease advocacy.

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