An Applied Comparison of Eyewitness Lineup Procedures: New Jersey v. England and Wales' PACE v. New York

by

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Abstract

In response to the growing recognition of wrongful conviction and the role that mistaken identification (ID) plays in these miscarriages of justice, some countries, states, and police departments have developed new guidelines for eyewitness ID procedures (Smith & Cutler, 2013a). The guidelines vary considerably, however, in their recommendations. The present research compared the performance of three reformed, 'packaged' lineup procedures: The New Jersey, England and Wales' PACE (Police and Criminal Evidence), and New York procedures. The benefit of having examined current lineup procedures in a laboratory environment was that it allowed for precise measures of accuracy. Lineup type did not influence correct IDs in perpetrator-present conditions, but correct rejections were significantly more likely in the New York procedure when the perpetrator was absent. Causal conclusions from the findings could not be derived in view of the applied nature of the experiment, but important implications for policy and research are discussed.

Keywords: New Jersey; PACE; New York; sequential; simultaneous

Dedication

It is my great pleasure and honor to dedicate this thesis to the Lord. "Whether therefore ye eat, or drink, or whatsoever ye do, do all to the glory of God" (1 Cor 10:31, KJV). I pray that the fruits of this labor bring glory to the name of Jesus.

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Chapter 1: Introduction

The first systematic research on convictions of the innocent was recorded in the late Yale University professor Edwin Montefiore Borchard's book, *Convicting the Innocent: Errors of Criminal Justice* (1932). Borchard (1932) reviewed 65 wrongful conviction cases from the United States of America and Britain and concluded that mistaken eyewitness identifications were the primary source of error. Research over the next several decades consistently implicated eyewitness errors as the leading cause of wrongful convictions (e.g., Frank & Frank, 1957; Huff, Rattner, & Sagarin, 1986). In recent years, overturned convictions have become more definitive with the development of deoxyribonucleic acid (DNA) evidence. Scheck, Neufeld, and Dwyer (2000) reviewed 62 wrongful conviction cases where DNA evidence led to exonerations and reported that 84% were the consequence of erroneous identifications (IDs). With a current total of 312 overturned convictions, the Innocence Project claims that mistaken IDs have been involved in 75% of cases that led to exonerations by DNA evidence (www.InnocenceProject.org). Although it is known that eyewitness testimony disproportionately influences wrongful convictions, courts will not exclude such evidence from proceedings unless lineup procedures are found to be egregiously suggestive (Wells & Quinlivan, 2009). Lineup procedures are a crucial topic of research if wrongful convictions are to be mitigated.

Systematic laboratory research has provided sound recommendations for reforms to eyewitness lineup procedures (e.g., Wells et al., 1998). For example, suspects should not stand out from others in photo arrays, repetitive viewing of individual photographs should be avoided, lineups should be constructed using a match-to-description method

(i.e., selecting fillers, lineup members who are not suspects, based on eyewitnesses' descriptions of the perpetrator), and instructions should be non-biased (e.g., Technical Working Group for Eyewitness Accuracy, 1999; Turtle, Lindsay, & Wells, 2003; Wells & Quinlivan, 2009). Wells et al. (1998) documented the Executive Committee of the American Psychology and Law Society's (APLS) official recommendations of good practices for constructing and conducting eyewitness lineups: 1) double-blind procedures should be used (i.e., lineup administrators and eyewitnesses are blind to the identity of the suspect); 2) eyewitnesses should be instructed that the perpetrator may or may not be present in the lineup; 3) fillers should be selected using the match-to-description method; and 4) eyewitness confidence should be recorded immediately after an ID. Absent from this list of recommendations is the use of sequential lineup presentations. The basic components of standard sequential lineups include eyewitnesses viewing each lineup member one at a time, making a yes/no decision for each lineup member based on their memory of the perpetrator, and being unaware of the number of lineup members (Lindsay & Wells, 1985). The standard sequential lineup is concluded upon an ID of any lineup member or after the last lineup member is viewed, and the lineup is only viewed once. In contrast, standard simultaneous lineups involve eyewitnesses viewing all lineup members at once with a single decision (ID or lineup rejection) being made. Eyewitnesses in the standard simultaneous lineup can compare lineup members and potentially decide which one looks most like the perpetrator. The APLS Executive Committee withheld recommending sequential lineup presentations as a standard practice because its superior performance over simultaneous lineups was dependent on three of the four recommendations. Specifically, sequential superiority was primarily evident with the

administration of instructions that the perpetrator may or may not be present (Rule 2) and match-to-description lineup composition method (Rule 3), and sequential lineups may have been worse than simultaneous lineups without double-blind administration (Rule 1). What was not considered, however, was the conflicting evidence that sequential lineups are consistently superior to simultaneous lineups.

Sequential Superiority

Absolute-relative cognitive processing theory. Wells (1984) opined that some eyewitnesses are prone to making IDs based on the similarity of a lineup member's appearance to the suspect relative to other lineup members, known as 'relative judgements'. Eyewitnesses using this strategy were thought to be less credible than those making IDs using 'absolute judgements', the selection of a suspect based on an eyewitnesses' memory, due to influences of "… a response bias, specifically, a bias to choose someone from the lineup" (Wells, 1984, p. 94). This, of course, increases the probability of mistaken IDs when the perpetrator is absent. Wells (1984) developed a method to identify eyewitnesses who were using the relative judgement strategy. In an experiment, participants witnessed a live theft and were subsequently administered simultaneous lineup(s). Participants were assigned to one of four conditions. No-blank conditions were simply perpetrator-present and -absent lineups. Blank conditions included a blank lineup before perpetrator-present or -absent lineups. Blank lineups differed from perpetrator-absent lineups in that there was no similar-looking innocent suspect replacing the perpetrator - they were lineups composed only of fillers. It was thought that the witnesses who made IDs in blank lineups were those using the relative judgement strategy. This hypothesis was supported by the results. In blank conditions,

eyewitnesses who identified a member of the blank lineup made significantly more errors in subsequent lineups as compared to those who did not identify a member from the blank lineup (61.1% v. 31.7%). Moreover, eyewitnesses in no-blank conditions made significantly more errors than those in blank conditions who did not make an ID in the blank lineup (55.2% v. 31.7%). It was assumed that there was a negative relationship between the propensity to make relative judgements, as indicated by IDs from blank lineups, and strength of memory.

Lindsay and Wells (1985) argued that, although effective in identifying those employing a relative judgement strategy, Wells' (1984) blank lineup method was likely to be dismissed by police because it could spoil investigations by automatically impeaching eyewitnesses. They hypothesized that sequential lineups would be a more tenable method of preventing relative judgements. Participants viewed a live staged crime and wrote a description of the perpetrator. The lineup was composed of fillers based on the similarity of their appearance to the perpetrator. Participants then viewed a six-photograph sequential or simultaneous lineup in perpetrator-present or -absent conditions. Suspect positions were counterbalanced in positions one, three, and five while fillers in positions two, four, and six were held constant. Findings supported Wells' (1984) theory of absolute and relative judgements. When the perpetrator was present, lineup type did not significantly influence eyewitness performance. When the perpetrator was absent, however, sequential lineups elicited more conservative choosing rates, which resulted in significantly more correct rejections (65% v. 42%) and significantly fewer false IDs (the identification of an innocent suspect, 17% v. 43%) as compared to simultaneous lineups. It appeared as though sequential lineups eradicated the ability for eyewitnesses to

compare suspects, thereby eliminating relative judgement cognitive process. In effect, eyewitnesses used the absolute judgement processes as they were forced to make a decision for each lineup member that they absolutely did or did not match their memory of the perpetrator. It was suggested that sequential presentations were the superior lineup technique. A limitation to this study, however, concerns how well the innocent suspect matched the perpetrator. Carlson, Gronlund, and Clark (2008) replicated the Lindsay and Wells (1985) experiment with more fair lineups and an innocent suspect less similar in appearance to the perpetrator, and the results indicated that lineup type did not significantly influence eyewitness accuracy. Carlson et al. (2008) surmised that unfair lineups set the conditions for a sequential advantage.

Meta-analyses comparing sequential and simultaneous lineups. The seminal works by Wells (1984) and Lindsay and Wells (1985) sparked subsequent research and spirited academic debate on the performance of sequential and simultaneous lineups, which have been complied and analyzed in several meta-analyses. The first major meta-analysis was conducted by Steblay, Dysart, Fulero, and Lindsay (2001) in which they examined data from 23 papers (9 published; 14 unpublished) with a total of 30 tests that compared the performance of sequential and simultaneous lineups. The sample included studies from 1983 to 2000, and the majority of the tests (93%) utilized photographic lineups. Steblay et al.'s (2001) aim was to test the "sequential superiority effect" (p.460), which refers to findings from previous research that indicated negligible differences for correct ID rates in perpetrator-present conditions and lower filler ID rates in perpetrator-absent conditions for sequential lineups relative to simultaneous lineups. Findings from perpetrator-present conditions showed that simultaneous lineups performed better than

sequential lineups in regards to significantly higher correct ID rates (50% v. 35%) and significantly lower incorrect rejection rates (26% v. 46%). Filler ID differences were not significant (24% v. 19%). When the perpetrator was absent, sequential lineups performed better as compared to simultaneous lineups with significantly higher correct rejection rates (72% v. 49%) and significantly lower filler ID rates (28% v. 51%). When analyzing cases only from studies that employed more rigorous experimental designs (between-participants) and what they presumed to be more realistic stimuli (live or video lineups), Steblay et al. (2001) noted that correct ID rates between lineup types were not significantly different and the pattern of significantly lower filler ID rates for sequential lineups did not change. The authors concluded that the results supported the sequential superiority hypothesis.

Clark, Howell, and Davey (2008) conducted a meta-analysis on 94 experiments from 49 published articles that compared perpetrator-present and -absent lineups where there was a single suspect. They analyzed several variables inherent to lineup procedures, but their findings relating to lineup administrations are the most relevant. The diagnosticity (likelihood of a specific event occurring) analysis that did not include experiments directly comparing sequential and simultaneous lineups indicated no correct ID differences ($Z = .391$), marginally higher diagnosticity for filler IDs for simultaneous lineups ($Z = 1.319$, $p = .094$), and significantly higher diagnosticity for lineup rejections for sequential lineups ($Z = 1.917$, $p = .028$). These results are similar to the findings from Steblay et al. (2001), save for the non-significant correct ID differences between lineup types. Clark et al. (2008) also analyzed eight studies that included direct comparisons of sequential and simultaneous lineups. Diagnosticity for correct IDs was significantly

higher for sequential lineups ($Z = 2.242$, $p = .012$), and there were no diagnostic differences for filler IDs ($Z = .329$) or lineup rejections ($Z = .549$). Clark et al. (2008) reported that lineups involving direct comparisons of sequential and simultaneous lineups are biased in that innocent suspects in perpetrator-absent conditions resemble the perpetrator more than fillers, which means that the sequential diagnosticity advantage for correct IDs may not hold under lineups constructed more fairly. The authors opined that comparisons of sequential and simultaneous lineups under unbiased conditions were not well understood.

Steblay, Dysart, and Wells (2011) conducted a meta-analysis on 72 direct comparisons of sequential and simultaneous lineups. Other criteria included that the experiments must have been an event memory paradigm, there must have been only one suspect, and eyewitnesses must have only viewed sequential lineups once. Data were extracted from 23 laboratories from multiple continents. Findings from the analysis of all 72 experiments mirrored the findings from Steblay et al. (2001). For perpetrator-present conditions, simultaneous lineups had the advantage in terms of significantly more correct IDs (52% v. 38%) and significantly fewer lineup rejections (27% v. 41%), but there were non-significant differences for filler IDs (24% v. 24%). Sequential lineups proved to be superior in perpetrator-absent conditions with significantly higher correct rejection rates (64% v. 43%) and significantly lower filler ID rates (36% v. 57%). Steblay, Dysart et al. (2011) also analyzed 27 experiments that met the ‘gold standard’: a 2 (sequential v. simultaneous lineups) x 2 (perpetrator-present v. perpetrator-absent) fully randomized factorial design. It is called the gold standard because independent variables cannot be confounded with study differences. In perpetrator-present conditions, correct IDs

remained significantly higher for simultaneous lineups (52% v. 44%), but the effect size was reduced to an 8% gap from the 15% gap in the 72 test analysis. All other findings in the gold standard analysis more or less mirrored the results of the 72 test analysis. The gold standard analysis produced higher diagnosticity ratios for sequential lineups (7.72) than simultaneous lineups (5.78). Higher diagnostic values mean that IDs are more likely to be the perpetrator as opposed to the innocent suspect or fillers (Wells & Luus, 1990). The gold standard analysis was the best indicator of the cause-and-effect relationship concerning the impact of lineup type on performance, and it pointed to the comparative advantages of sequential over simultaneous lineups. Thus, it can be tentatively concluded that sequential lineups are a more rigorous test of eyewitness memory than simultaneous lineups.

Sequential Lineups and the "Lap Effect"

There is a dearth of literature dedicated to examining the effects of repeated viewings (laps) of sequential lineups. Research on this topic has real-world significance as it is not uncommon for eyewitnesses to take multiple laps through sequential lineups in jurisdictions that have implemented sequential procedures (e.g., Farmer, 2001; Klobuchar Steblay, & Caligiuri, 2006; Mecklenburg, 2006). It is in the interest of law enforcement agencies to allow multiple laps through sequential lineups because suspect IDs could be lost due to cautious or indecisive eyewitnesses (Steblay, Dietrich, Ryan, Raczynski, & James, 2011). Lindsay, Lea, and Fulford (1991) argued that taking additional laps through sequential lineups could have deleterious effects. "If sequential lineup presentation reduces false identification by reducing witnesses' reliance on relative judgements, a second opportunity to view the lineup may result in a return to higher rates

of false identification...” (p. 741). In research examining sequential laps, choosing and error rates tend to increase from first to multiple laps, a phenomenon coined by Steblay, Dietrich et al. (2011) as the “sequential lap effect” (p. 271). There may be possible risks inherent to multiple-lap sequential procedures.

MacLin and Phelin (2007) compared simultaneous and multiple-lap sequential lineups in a 3 (simultaneous v. sequential-simultaneous v. sequential-sequential lineups) x 2 (perpetrator-present v. perpetrator-absent) between-participants factorial, using double-blind administration. Participants viewed a 3 minute video of a staged calculator theft from a library in which a male perpetrator was visible for the entire scene. They subsequently engaged in a 15 minute distractor task consisting of math questions. The lineups were composed using the match-to-description method. Instructions preceding lineup stimuli were non-biased: participants were notified that the perpetrator may or may not be in the lineup, and that his appearance and clothing may have differed from the film. The lineup consisted of six mugshot photographs. Participants in sequential conditions were required to take one additional lap through the lineups. Accuracy rates from first laps in sequential lineups were significantly higher than simultaneous-only lineups, regardless of perpetrator presence. The inclusion of data from second laps changed the results. Correct ID rates between simultaneous (47.9%), sequential-simultaneous (50.0%), and sequential-sequential lineups (39.4%) were not significantly different. Differences in correct rejection rates were also non-significant (50.0% v. 43.9% v. 40.6%, respectively). MacLin and Phelin (2007) concluded that second laps through sequential lineups, whether or not they were sequential or simultaneous, eliminated the advantage found in sequential first laps over simultaneous-only lineups. A

limitation of this study concerned the ceiling effects from sequential first-lap data wherein correct rejection rates were nearly perfect when the perpetrator was absent. In these cases, IDs were limited to the innocent suspect, which indicated issues with the experimental stimuli.

Steblay, Dietrich et al. (2011) primarily examined the effects of taking multiple laps through sequential lineups in two separate experiments. In Experiment 1, the design was a 2 (simultaneous v. sequential lineups) x 2 (perpetrator-present v. perpetrator-absent) factorial, using double-blind administration. Participants viewed a film of a crime with a Caucasian male perpetrator. They were given subsequent non-biased verbal instructions that the perpetrator may or may not have been in the lineup, and that his appearance may have differed from the film. The lineup was composed using the match-to-description method, and consisted of six mugshot photographs. Participants decided whether or not to take additional laps through sequential lineups. Only five participants requested a third lap, so their data were collapsed with participants who requested only a second lap. There were two sets of analyses for which the perpetrator was familiar or a stranger to eyewitnesses. The following presents the data only from stranger-perpetrator conditions. When the perpetrator was present, choosing rates significantly increased from first to final laps (up 19.6%), which led to marginal increases in correct IDs (2.6% v. 12.8%), significant increases in filler IDs (17.9% v. 41.0%), and significant decreases in misses (79.5% v. 46.2%). When the perpetrator was absent, choosing rates significantly increased from first to final laps (up 23.2%), which led to significant decreases in correct rejections (81.8% v. 45.5%) and significant increases in filler IDs (18.2% v. 54.5%). Steblay, Dietrich et al. (2011) noted that 87% of participants who

changed their decisions from first to final laps moved from lineup rejections to filler IDs. The drawback with this experiment was that participants for whom the perpetrator was a stranger identified him only 8.6% of the time.

In Experiment 2, Steblay, Dietrich et al. (2011) utilized a photograph of the perpetrator that better resembled his appearance in the crime video in view of the low correct ID rates in Experiment 1. Experiment 2 also compared the effects of required v. optional laps through sequential lineups. The experimental design was a 3 (simultaneous v. sequential required v. optional second lap lineups) x 2 (perpetrator-present v. perpetrator-absent). The methods were highly similar to Experiment 1. Results indicated that choosing rates significantly increased from first to final laps (62.9% v. 87.1%). When the perpetrator was present, participants in requested lap conditions were significantly more likely than required lap conditions to make correct IDs (50.0% v. 37.5%) and filler IDs (35.7% v. 18.8%), but were less likely to make lineup rejections (14.3% v. 43.8%). When the perpetrator was absent, in comparison to required lap conditions, requested lap conditions were significantly less likely to make correct rejections (11.8% v. 31.6%) and significantly more likely to make filler IDs (88.2% v. 68.4%). Steblay, Dietrich et al. (2011) concluded that the sequential lap effect was apparent in both required and requested second lap conditions, with the latter eliciting more deleterious effects.

Klobuchar et al. (2006) conducted the first field test of multiple-lap sequential lineups. Data was collected in Hennepin County, Minnesota from November 2003 to November 2004. There were 280 lineups from 170 cases and 206 eyewitnesses. All protocols conformed to the *National Institute of Justice Protocol* for conducting lineups

(e.g., double-blind administration; non-biased instructions). Eyewitnesses were administered sequential lineups and chose of their own volition whether or not to take additional laps. The main findings showed that each lineup lap significantly increased filler ID rates (3% first lap, 10% second lap, 14% third lap, and 75% in laps four to six). Suspect ID rates generally decreased with each lap (66% first lap, 50% second lap, 50% third lap, and 25% laps four to six). There was no clear pattern for choosing rates (69% first lap, 60% second lap, 64% third lap, 100% laps four to six), which suggests, as indicated by the increased filler IDs and decreased suspect IDs, witnesses tended to change their decisions to filler IDs. The results suggested potential dangers of allowing eyewitnesses to take additional laps through sequential lineups.

Wells, Steblay, and Dysart (2011) conducted a field study in several American States to compare sequential and simultaneous lineups. Eyewitnesses were permitted to take multiple laps through sequential lineups upon request, but single- and multiple-lap sequential lineups were collapsed into one group in the analysis. Photo lineups were used, and all protocols were non-biased and non-suggestive (e.g., fair lineup composition; double-blind administration). There were 497 eyewitnesses included in the analysis. Eyewitnesses could make an ID, a lineup rejection, or state that they were ‘not sure’. Sequential lineups elicited higher suspect ID rates (69.1% v. 58.4%) and lower filler ID rates (30.9% v. 41.6%) than simultaneous lineups. For those who did not make an ID, more eyewitnesses in sequential lineups indicated that they were ‘not sure’ (46.5% v. 19.2%) and fewer made lineup rejections (53.5% v. 80.8%) than in simultaneous lineups. The authors concluded that “compared to the simultaneous procedure, those using the sequential procedure were not only less likely to identify a filler and just as effective in

identifying the suspect, but also less likely to reject the lineup altogether when they did not make an identification" (Wells et al., 2011, p. 14). It should be noted that suspect IDs were not necessarily accurate as they could have been either perpetrators or innocent suspects. Although the differences were not substantial, Wells et al. (2011) pointed out that an additional lap through sequential lineups increased choosing rates (up 4.6%) and filler ID rates (up 1.3%).

Present Research

How do reformed multiple-lap sequential lineup procedures compare to the traditional simultaneous lineup procedure? Examining this applied research question is a unique contribution to the literature because laboratory experiments typically do not replicate methods that are employed in real-world conditions. Meta-analyses largely report data obtained from standard sequential and simultaneous procedures (e.g., Steblay, Dysart et al., 2011), which fail to account for important differences from police lineup guidelines. Field experiments replicate substantive police lineup protocols, but their limitation is that it is unknown if a perpetrator is present or absent. It can only be said that a *suspect* is in the lineup (Wells et al., 2011). The present research, thus, employed current lineup procedures from the field with the luxury of more robust measures of accuracy.

The first lineup method that I examined is the New Jersey (NJ) sequential procedure. New Jersey's *Attorney General Guidelines for Preparing and Conducting Photo and Live Lineup Identification Procedures* (2001) is prefaced by John J. Farmer Jr., the NJ Attorney General at the time. Farmer explained that the NJ procedure was formulated in response to the growing recognition of the role that mistaken IDs played in

wrongful convictions. The aim of the reforms was to create a 'best practices' standard, enhancing the reliability of prosecutions where eyewitness evidence is influential. The modifications to the NJ procedure were based on recommendations from the scientific community from over 20 years of research. Some of the reforms included the use of sequential lineups, double-blind administration, the match-to-description lineup composition method, and taking eyewitness confidence statements immediately after IDs. One of the elements of the NJ procedure that has not yet been scientifically validated, however, is the option for eyewitnesses to take multiple laps through the lineup upon request. The intent to premise reforms to the NJ procedure on recommendations from the scientific community is why it was included in this research.

The second lineup procedure that I examined is England and Wales' Police and Criminal Evidence (PACE) procedure, detailed in their 1984 *Police and Criminal Evidence Act*. It is a sequential procedure that has recently undergone considerable reform (revised March, 2011) and sparked interest in the academic community. One of the signature elements of the PACE procedure is the requirement for eyewitnesses to view the entire lineup once before being permitted to make an ID when administered photographic lineups. Eyewitnesses are allowed to take multiple laps through the lineup upon request. Lineups are constructed using the match-to-suspect method, the selection of lineup fillers based on the similarity of their appearance to the suspect. The reason for including the PACE procedure in this study was that some aspects of the procedure are consistent with recommendations from scientific research (e.g., sequential administration; double-blind administration), but others are not scientifically grounded (e.g., viewing the entire lineup once before making an ID) and, thus, have little or no evidence for their

effectiveness. It was compelling to compare the performance of sequential lineups under conditions that were partially scientific (PACE) and scientific (NJ). Inconclusive evidence that IDs based on multiple viewings of sequential lineups perform similar to simultaneous procedures (e.g., Steblay, Dietrich et al., 2011) also made PACE a pertinent inclusion on both academic and applied levels.

The final format that I examined is the New York (NY) procedure. *The New York State Lineup Procedure Guidelines* (2011) are unique in that they resemble traditional lineup practices, predating the development of new guidelines for eyewitness ID procedures. Some of the elements of the NY procedure include lineup members to be presented simultaneously, lineup fillers are selected using the match-to-suspect method, and lineups are administered using single-blind administration (i.e., lineup administrators know the identity of the suspect whereas the eyewitnesses do not). What made NY a compelling inclusion to this study was that it boasted an unbiased ID procedure where future improvements would be made with practical experience and time, not necessarily with research-based evidence. Scientifically-founded recommendations were considered during the formulation stages of the NY procedure but not implemented.

The central aim of this research was to compare the performance of three reformed lineup procedures in a laboratory environment. My first hypothesis was that there would be no accuracy differences between the three lineup procedures in view of research that has found non-significant differences between multiple-lap sequential and simultaneous lineups (MacLin & Phelin, 2007). My second hypothesis was that requests for additional laps through sequential lineups would degenerate accuracy performance

(e.g., Klobuchar et al., 2006; Steblay, Dietrich et al., 2011). The remainder of the research was exploratory in nature.

Chapter 2: Method

Participants

Participants were 301 undergraduate students from the University of Ontario Institute of Technology (UOIT). They were awarded one bonus credit in a university course as compensation for participation. None of the participants were excluded from analysis. Participants ranged in age from 16 years old to 59 years old (M = 21.13, SD = 4.88). The sample consisted of more females (63.5%) than males (36.5%). The majority of participants were in their first year of university (51.5%). The racial dispersion was Caucasians (29.6%), South Asians (22.3%), Arabs/West Indians (18.9%), and Blacks (10.6%). The remainder of identified races had low and relatively equal frequencies.

Design

The experimental design was a 3 (NJ v. PACE v. NY lineup procedures) x 2 (perpetrator-present v. perpetrator-absent) between-participants factorial, using double-blind administration. Participants were randomly assigned to one of the six cells. The perpetrator, innocent suspect, and fillers were rotated clockwise in the same order through five different positions in each lineup condition. The perpetrator and innocent suspect never appeared in the first position. The stipulation in the NY procedure for suspects choosing their position in the lineup could not be satisfied.

Materials

Laptops and software. The entire experiment was conducted on MacBook Pro laptop computers, save for the informed consent form, using the research software program, MediaLab (www.Empirisoft.com/).

Staged crime film. I directed a film of a staged robbery in a bowling alley/café located in Aurora, Ontario. A Film Productions student from Seneca College captured and edited the film to make it appear as security camera footage. Actors were my friends and family members, and all signed release forms for the use of their images for research purposes. None of the actors who appeared in the film were affiliated with UOIT. The film spanned 1 minute 59 seconds. The perpetrator was a blonde 25–year-old Caucasian male who was approximately six feet, one inch tall. He entered the premises and did not attract the attention of the customers, who were either bowling or conversing over lunch. The perpetrator approached a male cashier and aggressively demanded him to open the cash register. He subsequently stole money out of the cash register and ran out of the building. He was not wearing a disguise or wielding a weapon as these are variables that interact with ID accuracy (e.g., Cutler, Penrod, & Martins, 1987; Shapiro & Penrod, 1986; Steblay, 1992) and were beyond the scope of the present research. There was a good view of the perpetrator's face for approximately 18 seconds of the film. The camera was slanted 40 degrees from above and on a ¾ angle, capturing more of the right side of the perpetrator's face than his left.

Photo arrays. It is important to discuss why photo arrays were selected as the lineup administration method. The NJ procedure permits both live and photo lineups with no preference for one over the other. The PACE procedure favors the use of rotating video images and the NY procedure favors live lineups, but both offer set guidelines for photo lineups. I decided to utilize photo lineups for three reasons: 1) accounting for the logistical feat of conducting enough live lineups to achieve adequate samples for the NJ and NY procedures over the data collection time period, it seemed more feasible to

proceed with photo lineups; 2) photo arrays were used to gain some consistency between the very different lineup packages; and 3) the psychological processes involved in differing lineup administration methods are assumed to be the same (Smith & Cutler, 2013b), and thus any differences should be negligible.

I considered the criteria for the inclusion of fillers in each lineup procedure. The NJ procedure typically requires lineups to be composed using the match-to-description method, but using the match-to-suspect method is permitted if the eyewitnesses' description of the suspect is vague, inaccurate, or unobtainable. The PACE and NY procedures both rely solely on suspect-matched lineups. I thus used the match-to-suspect lineup composition technique to fulfill the requirements of the NY and PACE procedures without disserving the NJ procedure.

Fillers in the photo arrays consisted of my friends and acquaintances. Forty persons similar in appearance to the perpetrator submitted passport-style photographs and signed release forms for the use of their images. I parsed out 15 photographs that were poorly captured or did not bear enough resemblance to the perpetrator. The members in the remaining 25 photographs had no tattoos or piercings, were of the same race (Caucasian), were approximately the same age, and had similar hair colours. I then asked 10 of my friends and family members from my church to order the photographs from best to worst in terms of their resemblance to the perpetrator's photograph. The photograph with the highest rating was selected as the innocent suspect for perpetrator-absent conditions. The top five photographs were used in NJ and NY conditions, and the top 11 photographs were used in the PACE condition.

There were some differences between each lineup in terms of the number and nature of the photographs. The NJ and NY procedures each allow only one suspect to appear in a lineup. The PACE procedure offers a prescription for multiple-suspect lineups, but only one was used to satisfy the requirements of all procedures. The NJ procedure mandates that a *minimum* of five fillers must be included in a lineup; the minimum standard was used. The requirement for 11 fillers in the PACE photograph procedure is inflexible. It should also be noted that the top-right portion of each photograph appearing in PACE lineups had a corresponding number. Finally, although the NY procedure permits a four-filler lineup, I followed the recommendation to use five fillers.

Distractor task. Participants completed a distractor task (Appendix B) between the film and lineup in order to simulate the time delay between witnessing a crime and viewing a suspect lineup in a real-world event. It consisted of 10 innocuous personality and intelligence assessment questions compiled via internet searches. Participants were given up to 1 minute to answer each question.

Procedure

Up to five participants were simultaneously able to complete the study in the laboratory or a small office. Participants signed consent forms (Appendix A) before commencing the experiment. Participants read a set of opening instructions when the experiment began: "Good day and welcome to our study. This is a psychology study. Carefully follow the instructions with which you will be provided. Please pay close attention to the following film". Participants viewed the staged crime film on the

MacBook Pro laptop computers, which have 15.4 inch high-resolution screens. Participants wore headphones with the volume set at a medium level.

After viewing the staged crime film, a set of instructions preceding a distractor task were administered: "You will now be assessed on the Legal Decision-Making Lab Personal and Analytical Skills Schedule. This test will assess you and your analytical skills. Please ensure that you answer all questions to the best of your ability. Do not take too much time on each answer. The use of writing utensils is not allowed". The distractor task lasted for up to 10 minutes as each of the 10 questions had to be answered within 1 minute or the computer would automatically move to the next question.

Participants were then randomly assigned to one of the three lineup procedures, which will be described below (see Appendices C and D for examples of perpetrator-present and -absent simultaneous lineups). After the lineup tests, a demographic questionnaire (Appendix E) was administered and the experiment concluded after participants read and signed a debriefing form (Appendix F) that discussed the importance of keeping the nature of the study confidential.

New Jersey procedure. After the distractor task, participants typed a description of the perpetrator from their memory, as required in the NJ procedure. Participants read the following instructions: "Please provide a description of the physical appearance of the man in the film who perpetrated the crime. Include as much detail as possible".

Following a description of the perpetrator, another set of instructions preceding the lineup were presented that are unique to the NJ procedure:

> You will now be viewing a suspect photo lineup. Your task is to select the perpetrator whom you saw in the film; however, the perpetrator MAY or MAY NOT be present in the lineup. Be advised that the appearance of the perpetrator may differ from the film, and he may be wearing different

> clothing. Individual photographs will be presented one at a time. The photos are in random order. Take as much time as needed in making a decision about each photo before moving to the next one. All photos will be shown, even if an identification is made prior to viewing all photos.

For the sake of transparency, participants were informed that the appearance of the perpetrator in the lineup may differ from his appearance in the film, known as an appearance change instruction (Technical Working Group, 1999), which is not required in the NJ procedure. In view of the landmark decision by Supreme Court of New Jersey in *The State of New Jersey v. Larry R. Henderson* (2011) that found, "when defendants can show some evidence of suggestiveness, all relevant system and estimator variables should be explored at pre-trial hearings" (p. 2), inferences that the absence of the appearance change instruction may be a suggestive lineup practice (Technical Working Group, 1999) indicate that its inclusion is appropriate. It is a reasonable position because the NJ guidelines were created in 2001, whereas the *R v. Henderson* decision was reached in 2011.

Participants were asked if they understood the instructions, and could answer "Yes" or "No". If they did not understand the instructions, they were asked to re-read the instructions and answer again whether or not they understood the instructions. All participants confirmed that they understood the instructions. The NJ procedure allows for sequential or simultaneous administration of lineups. However, Section 1(C) in the NJ procedure states, "When possible, photo or live identification procedures should be conducted sequentially". Photographs were presented sequentially for this reason. For each photograph, participants were asked, "Is this the perpetrator you saw in the film"? Participants could answer "Yes" or "No". If participants answered "Yes" for any photograph they were immediately asked to report their level confidence, a protocol

stipulated in Section E in the NJ procedure. Participants were allowed to view each photograph for as much time as desired. Confidence was measured on a scale of 1-10, with one representing "Completely Unconfident" and 10 representing "Completely Confident". Multiple IDs were permitted. At the end of the lineup, participants were asked, "Would you like to see the lineup again"? Participants could answer "Yes" or "No". Photographs were presented in the same order for those who requested a second lap. There was a constraint that the lineup could be viewed no more than twice. It is a constraint consistent with laboratory research (e.g., Duckworth & Kreiner, 2009; Steblay, Dietrich et al., 2011), most importantly in a laboratory examination of the NJ procedure (MacLin & Phelin, 2007), which has found that only one additional lap to hamper performance in sequential lineups. Thus, one additional lap should have been sufficient to uncover any potential degenerative effects. Once participants concluded the lineup, whether it was after the first or second lap, participants were asked, "Overall, how confident are you in your decision?" Overall confidence was assessed on the same 10-point scale.

Police and Criminal Evidence Act procedure. Participants were provided with a set of instructions that asked for a description of the perpetrator whom they saw in the film. The instructions thereof were the same as seen in the NJ procedure. After typing the perpetrator's description, participants read lineup instructions derived from Annex E of the PACE procedure:

> You will now be viewing a suspect photo lineup to see if you recognize the perpetrator involved in the crime. The perpetrator MAY or MAY NOT be present in the lineup. If you cannot make a positive identification, you will be given an option to say so. There are 12 photographs in the lineup, and you will not be able to make a decision until you have viewed them all.

All participants confirmed that they understood the instructions. A photo lineup was then presented sequentially. As stipulated in the PACE procedure (Annex E, Subsection 10), each photograph was numbered in the top-right corner. Consistent with Annex E, Subsection 1 of the PACE procedure, participants viewed the entire lineup once without the ability to make an ID. Participants were allowed to view each photograph for as much time as desired. On the second lap through the lineup participants were asked, "Is this the perpetrator you saw in the film?" Participants could answer "Yes" or "No". If the participants answered "Yes" for any photograph, as required in the PACE procedure (Annex E, Section7), participants reported their level of confidence. Multiple IDs were permitted. At the end of the lineup, participants were asked, "Would you like to see the lineup again"? The available answers were "Yes" and "No". Photographs were presented in the same order for those who chose to take a third lap. There was a constraint that the lineup could be viewed no more than three times, during two of which IDs were permissible. The PACE procedure as many laps as requested, but, as explained above, only one additional lap should have been sufficient to uncover any potential effects of requesting additional laps. Participants were asked to provide their overall level of confidence in their decision upon conclusion of the lineup.

One caveat to the procedure must be noted. The PACE procedure requires eyewitnesses who make an ID from a photo lineup to be asked to attend an alternative ID procedure (e.g., video lineup) unless the suspect's identity is indisputable (Annex E, Section 6). This protocol was not implemented. The PACE procedure does not specify whether the subsequent lineup must contain the same or a new set of fillers. In almost all cases the only person appearing in subsequent, alternative lineups is the one identified in

the photo lineup (Wells & Quinlivan, 2009). Irrespective of lineups composed of the same or new set of fillers, persons identified in one lineup who appear in subsequent lineups are likely to be selected again, a phenomenon known as commitment effects (Deffenbacher, Bornstein, & Penrod, 2006). I assumed that the results would reflect commitment effects, rendering the subsequent video lineup redundant.

New York procedure. Unlike the sequential procedures, the NY procedure does not require eyewitnesses to provide a description of the perpetrator. The following instructions were read by participants:

> As part of the ongoing investigation into the crime that you witnessed earlier in the video, which occurred on December 14, 2012 in Aurora, Ontario, you will now be viewing a suspect photo lineup to see if you recognize the perpetrator involved in the crime. The perpetrator MAY or MAY NOT be present in the lineup. Do not assume that the investigators know who the perpetrator is. Focus on the lineup, and do not ask anyone in the room for assistance during the procedure. Take however much time you need to view the lineup.

All participants confirmed that they understood the instructions. A photo lineup was then presented simultaneously. When the photographs were presented, participants were given the option to make an ID or lineup rejection. Participants viewed the lineups for as much time as they desired. Multiple IDs and multiple laps were not permitted. Participants provided a confidence rating in their decision at the conclusion of the lineup. Confidence ratings are not required in the NY procedure. However, the confidence appraisals did not impact the results as they were collected after the lineup tests, and they were important to the data analysis.

Similar to the PACE procedure, and although not essential, the NY procedure requires police officers to give consideration to conducting a live lineup if an eyewitness makes an ID from a photo lineup. Assuming the results would not be impacted by a

subsequent live lineup because of the commitment effects phenomenon (Deffenbacher et al., 2006), only photo lineups were administered.

Chapter 3: Results

Single ID Analysis

An analysis of cases in which participants made only single IDs (see Table 1) perhaps offers a clean perspective of the data because they are more likely to represent participants who were decisive, without the murkiness of multiple IDs. Lineup type did not significantly impact correct IDs in perpetrator-present conditions, χ^2 (2, N = 110) = 2.057, p = .358. Correct rejections were significantly more likely in NY (55.1%) than in PACE (36.4%) and NJ conditions (20.0%) when the perpetrator was absent, χ^2 (2, N = 96) = 9.374, p = .009, but correct rejections between NJ and PACE were not significantly different, χ^2 (1, N = 47) = .860, p = .354. False IDs were not significantly impacted by lineup type, χ^2 (2, N = 96) = 3.977, p = .137, and the same held for filler IDs, χ^2 (2, N = 96) = 2.698, p = .259.

I assumed that an examination of single IDs in initial lap cases (see Table 2) could perhaps offer the cleanest perspective of the data because they may represent instances in which participants were both decisive and unwilling to second-guess themselves in an additional lap. Initial laps refer to the lap where the first opportunity to make an identification materialized. Therefore, initial laps for NJ refer to the first lap whereas initial laps for PACE refer to the second lap. Again, in perpetrator-present conditions, correct IDs were not significantly influenced by lineup type, χ^2 (2, N = 92) = 3.595, p = .166. In contrast, when the perpetrator was absent, participants were significantly more likely to make correct rejections in the NY (55.1%) as compared to PACE (38.9%) and NJ lineups (14.3%), χ^2 (2, N = 81) = 8.313, p = .016. Correct rejection differences between NJ and PACE were not significant, χ^2 (1, N = 32) = 1.524, p = .217. Lineup type

did not significantly influence false IDs, χ^2 (2, N = 81) = 4.882, p = .087 or filler IDs, χ^2 (2, N = 81) = 1.981, p = .371.

Analysis of All Cases

Table 3 presents ID performance as a function of lineup condition for all cases (N = 301). The same patterns as seen in the single ID analysis emerged. Consistent with my hypothesis, lineup condition did not significantly influence correct ID performance in perpetrator-present conditions, χ^2 (2, N = 153) = 1.378, p = .502.

In contrast to my hypothesis, lineup condition significantly influenced correct rejection performance in perpetrator-absent conditions, χ^2 (2, N = 148) = 31.434, p > .001. Correct rejections were significantly more likely in the NY condition (55.1%) than in PACE (14.3%) and NJ conditions (10.0%), but correct rejection differences between NJ and PACE were not significant, χ^2 (1, N = 99) = .427, p = .514. Lineup condition did not significantly impact false IDs, χ^2 (2, N = 148) = 5.246, p = .073. Filler IDs were significantly less likely for NY (28.3.0%) as compared to PACE (65.3%) and NJ (56.0%), χ^2 (2, N = 148) = 14.312, p = .001, but the differences between NJ and PACE were not significant, χ^2 (1, N = 99) = .898, p = .343.

Multiple IDs and Laps

It was necessary to analyze the multiple ID and lap data because they represented the majority of cases in sequential lineups (63.7%). Multiple IDs in sequential lineups were classified using participants' highest reported level of confidence as the determinate for which photograph they believed to be the perpetrator. The following elaborates on the treatment of multiple IDs and laps.

My classifications of multiple IDs and laps (n = 128) are recorded in Table 4. Recall that reported levels of confidence were measured on a scale of 1-10, with one representing the lowest level of confidence and 10 representing the highest level of confidence. Multiple IDs (n = 95) refer to cases in which participants identified two or more members from a lineup. Data from participants who identified the same lineup member in their initial and subsequent laps without identifying any other lineup member were not classified as multiple IDs.

Multiple laps (n = 100) refer to cases in which participants in sequential procedures requested a subsequent lap through the lineups. The NJ procedure allows eyewitnesses to make an ID on their first lap. The PACE procedure requires eyewitnesses to view the entire lineup once, and then they are permitted to make an ID during the second lap. Therefore, multiple laps for NJ indicate that participants requested a second lap whereas multiple laps for PACE indicate that participants requested a third lap.

Reported in Table 5 are the percentages of single and multiple IDs divided by initial and multiple laps in sequential lineups. Analyzing this data is important to understand whether participants were more likely to make single or multiple IDs or take single or multiple laps through NJ or PACE conditions. NY was not included in the following analysis because participants were unable to make multiple IDs or laps. Collapsing across perpetrator presence, participants were significantly more likely to request an extra lap in NJ (70%) than in PACE conditions (29.7%), χ^2 (1, N = 201) = 32.639, p > .001, and were equally likely to make multiple IDs in NJ (51%) and PACE lineups (43.6%), χ^2 (1, N = 201) = 1.115, p = .291.

I collapsed sequential conditions and examined the likelihood for participants to make multiple IDs in initial v. multiple lap conditions. Participants were significantly more likely to make multiple IDs in multiple lap cases (67.0%) as compared to initial lap cases (27.7%), χ^2 (1, N = 201) = 31.101, p > .001. When separating sequential conditions, the pattern is the same for NJ but different for PACE. Participants in NJ conditions were more likely to make multiple IDs in multiple lap (65.7%) than in initial lap cases (16.7%), χ^2 (1, N = 100) = 20.216, p > .001, but they were more likely to make single IDs in initial lap (67.6%) than in multiple lap cases (30.0%) in PACE conditions, χ^2 (1, N = 101) = 12.131, p > .001. This makes sense because participants in PACE see the lineup twice before requesting an extra lap, whereas participants in NJ see the lineup once before requesting an extra lap.

Requests for Additional Laps

Testing my hypothesis that requests for additional laps through sequential lineups would degenerate performance, I separated the data by target presence and examined accuracy differences (see Table 6). Recall that decisions from multiple ID cases were classified using participants' highest reported level of confidence (see Table 4) whereas this was not necessary for single ID cases. The effect of requests for extra laps on ID accuracy was marginally significant when the perpetrator was present, χ^2 (1, N = 102) = 3.616, p = .057. Participants were more likely to make correct IDs in initial laps (36.5%) as compared to multiple laps (18.0%). When separating sequential conditions, participants in NJ were more likely to make an incorrect response (filler ID or miss) in multiple laps than in initial laps (85.7% v. 14.3%), χ^2 (1, N = 50) = 6.036, p = .014, but the differences in PACE were not significant, χ^2 (1, N = 52) = 1.910, p = .167. Extra laps

did not significantly influence correct rejections in perpetrator-absent conditions, χ^2 (1, N = 99) = 1.611, p = .204.

I examined participants' decisions from initial to multiple laps to understand how changes in lineup decisions influenced performance (see Table 7). When the perpetrator was present, lineup rejections decreased from initial (48.0%) to multiple laps (18.0%). Only 12% of participants changed their decisions from incorrect decisions in initial laps (filler IDs or misses) to correct IDs in multiple laps, while 4% changed from correct IDs to incorrect decisions. The majority (78.0%) made incorrect decisions in both their initial and multiple laps. The pattern was somewhat different when the perpetrator was absent. Correct rejections decreased from initial (40.0%) to multiple laps (8.0%). A substantial portion (32.0%) of participants changed from correct rejections to incorrect decisions (false or filler IDs), which was particularly detrimental for NJ as it represented most of those cases (87.5%, n = 14). None of the participants changed from a false or filler ID to a correct rejection. Most of the participants made incorrect decisions in both their initial and multiple laps (60.0%).

Confidence

Reported in Table 8 are my tests overall confidence-accuracy correlation coefficients, separated by lineup type and target presence. All of the correlations are small in magnitude and not significantly different from zero. I also computed the correlations for choosers and non-choosers and found most of these correlations to be non-significant (see Table 9).

Chapter 4: Discussion

Summary of Results

The central aim of this research was to compare the performance of three reformed lineup procedures in a laboratory setting. The single ID analysis followed by the single ID, initial lap analysis was thought to be refining processes to uncover the most accurate eyewitnesses in sequential conditions. In both the single ID and single ID, initial lap analyses, lineup type did not influence correct IDs in perpetrator-present conditions, and correct rejections were significantly more likely in NY as compared to sequential lineups when the perpetrator was absent. Results from the refined analyses must be interpreted with caution in view of the small number of participants in sequential conditions (see Table 1; Table 2). However, in contrast to my hypothesis that lineup type would not significantly influence eyewitness performance, the same pattern of results held in the analysis of all cases. The lack of differences in correct IDs when the perpetrator was present suggests the procedures did not enhance or diminish eyewitnesses' abilities to identify the perpetrator from other lineup members. When the perpetrator was absent, correct rejections were significantly more likely in the NY procedure than in NJ and PACE procedures, a result that was largely a function of atypically poor accuracy in sequential conditions. Specifically, my results reflected lower correct ID rates, lower correct rejection rates, and higher filler ID rates than meta-analyses of sequential lineups (e.g., Steblay, Dysart et al., 2011).

Separate analyses of the multiple ID and lap data were necessary because they represented the majority of cases in sequential lineups (63.7%, see Table 4). Participants in NJ were significantly more likely to make multiple IDs in multiple lap cases, and

participants in PACE were significantly more likely to make single IDs in initial lap cases. This is an interesting finding because multiple laps for NJ refer to the second lap and initial laps for PACE also refer to the second lap, and there were fewer photographs from which to make an ID in NJ lineups (6) than in PACE lineups (12). Perhaps the likelihood for multiple IDs in second laps may be moderated by the ability to make an ID in first laps. Participants were significantly more likely to request additional laps in NJ than in PACE conditions. This finding makes sense because an *optional* additional lap for NJ refers to a second lap through the lineup whereas an *optional* additional lap for PACE refers to a third lap through the lineup. Perhaps the majority of eyewitnesses who request additional laps through sequential lineups are inclined to view the lineup twice, which is supported by findings in other multiple-lap sequential research (Klobuchar et al., 2006; Steblay, Dietrich et al., 2011). Taking this one step further, an examination of requests for additional laps resulted in marginally significant correct ID differences for initial laps as compared to multiple laps. When separating sequential conditions, participants in NJ were significantly more likely to make incorrect responses (filler IDs or misses) in multiple laps than in initial laps when the perpetrator was present, but there were non-significant differences in PACE. It appears as though a second lap through sequential lineups may decrease eyewitnesses' abilities to identify the perpetrator. The examination of decision changes from initial to multiple laps indicated that participants were less inclined to make lineup rejections and more prone to make filler IDs in multiple laps as compared to initial laps. Changes from correct to incorrect decisions heavily impacted NJ in perpetrator-absent conditions (n = 14). These results fit conjecture that eyewitnesses who request additional laps through sequential lineups are more prone to

hazarding a guess rather than rejecting the lineup (e.g., Horry, Memon, Wright, & Milne, 2012; Steblay, Dietrich, et al., 2011).

Tests of overall confidence-accuracy correlations were non-significant, mirroring some of the results from the beginnings of this stream of research (Leippe, Wells, & Ostrom, 1978). In contrast, a weak confidence-accuracy correlation (r = .25) was found in a meta-analysis of studies with less biased experimental conditions (Bothwell, Deffenbacher, & Brigham, 1987). More contemporary data draw the distinction that the strength of the confidence-accuracy correlation is moderate for choosers (r = .41) but non-significant for non-choosers (Sporer, Penrod, Read, & Cutler, 1995). My data also did not support these findings.

Simultaneous Superiority?

Sequential lineups are thought to be superior because research has shown that IDs and lineup rejections are more diagnostic (more likely to be correct) than in simultaneous lineups (Steblay, Dysart et al., 2011). My results do not support the sequential superiority effect. On the contrary, the significant advantage normally found for sequential lineups in perpetrator-absent conditions (Steblay, Dysart et al., 2011) was instead found in the simultaneous NY procedure. The sequential procedures did perform poorly, but the performance of the NY procedure may also have been overestimated.

Double-blind administration. A possible contributor to the success of NY involves how it was implemented in my experiment. The NY procedure allows for single-blind administration of lineups, which is likely to happen most of the time because of practical constraints (e.g., lack of trained personnel who would have to be trained in order to testify in court) entailed in double-blind administration (Wells et al., 2000). The

administration of my experiment, however, was necessarily double-blind in order to satisfy the requirements of the sequential procedures.

Single-blind administration of lineups is a technique generally known to be suggestive due to unintentional verbal or non-verbal communication from investigators to eyewitnesses as to the identity of the suspect (Wells et al., 1998). However, there is evidence that there are no accuracy differences between single- and double-blind procedures (Russano, Dickenson, Greathouse, & Kovera, 2006) and that the biasing effects of single-blind administration may be limited to sequential lineups (Philips, McAuliff, Kovera, & Cutler, 1999). Yet others have found that single-blind lineups do not impact accuracy rates in sequential lineups, but are responsible for reducing accuracy rates in simultaneous lineups under certain conditions, such as administering biased v. non-biased instructions (Greathouse & Kovera, 2009) and high v. low lineup administrator contact with eyewitnesses (Haw & Fisher, 2004). The inconsistent findings from previous research lend the possibility that using double-blind administration may have overestimated the performance of the NY procedure, particularly in perpetrator-absent conditions (Haw & Fisher, 2004), but not necessarily to a point where it would have performed worse than NJ or PACE.

Methods. My methods of counterbalancing the lineups to prevent order effects (i.e., varying eyewitness ID performance based on the perpetrator's position in a lineup) may have impacted the results because of the lack of full randomization. The perpetrator, innocent suspect, and fillers appeared in the same order, and were rotated clockwise through five positions. Gonzalez, Davis, and Ellsworth (1995) demonstrated that correct IDs were less likely when the perpetrator was surrounded by similar-looking fillers (15%)

as opposed to dissimilar-looking fillers (32%). Moreover, Clark and Davey (2005) found a perpetrator-to-filler ID shift in sequential lineups, but not in simultaneous lineups, when the next-best-alternative was place before the perpetrator. Interestingly, the fillers who were selected most in my experiment, presumably because they had the greatest similarity of appearance to the perpetrator, were the ones that always appeared before (Filler 1) and after (Filler 2) the perpetrator and innocent suspect. My results perhaps affirm previous findings that similar-looking fillers who surround the perpetrator may be at greater risk of erroneous ID, particularly in sequential lineups. The potential biasing effects of filler positioning in lineups, however, has received scant empirical attention and requires further investigation.

Requests for additional laps. Requests for additional laps may be one of the reasons why NJ performed so poorly, but this does not necessarily apply to PACE because it is inherently a multiple-lap procedure. Participants in NJ were significantly more likely to request an additional lap (70%) as compared to PACE (30%), a finding that compliments previous research that has found requests for second laps to occur more frequently than requests for three or more laps through sequential lineups (e.g., Klobuchar et al., 2006; Steblay, Dietrich et al., 2011). As indicated in Table 7, the result of this was a greater frequency of changes from correct decisions in initial laps to incorrect decisions in multiple laps for NJ (n = 14) than for PACE (n = 4). This suggests that performance may substantially degenerate from first to second laps, but may minimally degenerate from second to third laps. All of the changes from correct decisions in initial laps to incorrect decisions in multiple laps for NJ occurred when the perpetrator was absent (i.e., correct rejection to false or filler ID), whereas these changes

for PACE were equal between perpetrator-present and -absent conditions. This finding resembles Lindsay et al.'s (1991) conjecture that "…a second opportunity to view [a sequential] lineup may result in a return to higher rates of false identification..." (p. 741), but it appears as though the higher inaccurate ID rates may carry over from second to third laps. Eyewitnesses may rely on a relative judgement strategy, which includes a tendency make an incorrect ID, in both their second laps (Steblay, Dietrich et al., 2011) and third laps (Horry et al., 2012).

It is expedient to note that, if only initial lap data for NJ were included in the analysis of all cases, the observed correct rejection rate of 10.0% would have been increased to 29.7%. This is still much lower than the correct rejection rate for NY (55.1%), which may depart from findings of non-significant differences between multiple-lap sequential and simultaneous lineups (e.g., MacLin & Phelin, 2007). However, the potential for tripling eyewitness performance by denying the ability to take a second lap is compelling evidence for discouraging the practice.

Multiple IDs. Another possibility for why the sequential lineups performed so poorly concerns multiple IDs. While the NY procedure outperformed both sequential lineups in the single ID analysis, the inclusion of multiple IDs exacerbated the gap, suggesting a performance degenerating effect. In contrast to my findings, in a meta-analysis McQuiston-Surrett et al. (2006) found a sequential advantage over simultaneous lineups only in studies that allowed multiple IDs as opposed to studies that used the stopping rule, a rule wherein sequential lineups conclude when an eyewitness makes an ID. These results may not be applicable to my findings because the studies in the analysis treated multiple ID cases by analyzing first IDs only, coding multiple IDs as

filler IDs, or excluding them from analysis (McQuiston-Surrett et al., 2006), which departs from my classification method. Additionally, findings from two experiments conducted by Levi (1998, 2002) suggest *partial* IDs (another term for multiple IDs) can protect against innocent-suspect-only IDs, not affect correct ID rates, and enhance the reliability of the eyewitness evidence. These data, however, relate only to large lineups. My findings, perhaps, offer insight into the potentially deleterious effects of multiple IDs in smaller-sized lineups.

Limitations

There are several limitations with this study that are worth noting. The first is that there are inherent confounds in the study because packaged lineup procedures were examined. It is impossible to tell what specific aspects of the procedures influenced the results. Some of the confounded variables include differences in the number of photos presented, typing a description of the perpetrator before the lineup v. providing no description of the perpetrator, appearance change instruction v. no appearance change instruction, whether participants were informed of the number of photographs that are in the lineup v. not informed of the number of photographs that were in the lineup (known as backloading), required v. option v. no option to take multiple laps through lineups, and option v. no option to make multiple IDs. My purpose, however, was not to identify the effect of a specific component of the lineup, but rather to test the effectiveness of different sets of lineup procedures as they are implemented in various states.

Another limitation to this study is that the precise methods of conducting the lineups were not replicated; namely, that photographs were used instead of video images (PACE) or live lineups (NY). As I mentioned above, the psychological processes

involved in eyewitness IDs from differing lineup methods are assumed to be the same (Smith & Cutler, 2013b). It is, thus, reasonable to extrapolate that the results from this study would not be different had I used video and live lineups where required. Studies that have shown video and live lineup administrations decrease filler ID rates (Cutler & Fisher, 1990), however, suggest that filler IDs may have been lower for PACE and NY had their procedures been strictly followed.

The number of optional laps allowed through NJ and PACE lineups (only one) was not in accordance with their respective guidelines. Both procedures place no limits on the number of laps eyewitnesses may take through lineups. It is a constraint that is not unheard of in research, even in field studies (Wells et al., 2011), and findings have indicated that one additional lap is sufficient in degenerating performance in sequential lineups (e.g., MacLin & Phelin, 2007; Steblay, Dietrich et al., 2011). On the other hand, each additional lap through sequential lineups has been shown to degenerate performance (Klobuchar et al., 2006). Allowing unlimited laps in sequential lineups may have exacerbated the differences with NY, but my findings from PACE of few changes from correct decisions in second laps to incorrect decisions in third laps suggests otherwise. Allowing unlimited laps, however, may have uncovered any differences between NJ and PACE with respect to frequencies of requested laps.

The PACE procedure was not implemented in its strictest sense because I included the option to make multiple IDs. The PACE guidelines do not specifically state that eyewitnesses cannot make multiple IDs when viewing photo lineups, but it is not the standard practice. Thus, the results may not fully reflect the PACE procedure. But the fact that researchers who have conducted a field study on the PACE method have called

the multiple ID option, "…deserving of empirical attention" (Horry et al., 2012, p. 261) made it a compelling inclusion. The findings suggest that making multiple IDs and classifying decisions based on the highest level of confidence are not significantly different from the single ID data. The confidence classification method implemented in this study is one technique the PACE procedure could consider if multiple IDs are deemed a viable option. There was little to lose and much to be gained in allowing multiple IDs in the PACE procedure.

The experimental stimuli may have influenced the results for two reasons. First, the duration for which participants were adequately exposed to the perpetrator's face was short (approximately 18 seconds). Short exposure time has been found to reduce accuracy rates in comparison to long exposure time (Memon, Hope, & Bull, 2003). Second, there were discrepancies between the camera angles of the perpetrator in the staged theft film and the photographs of all lineup members. During the film, the camera was positioned approximately 40 degrees from above and on a ¾ angle, capturing more of the right side of the perpetrator's face than his left. Conversely, the photographs in the lineups were mugshots. Liu and Chaudhuri (2002) found that eyewitness accuracy rates increase as the angular differences between views of the crime (memory encoding) and lineup test (memory retrieval) decrease. A film that included longer exposure time with a full frontal view of the perpetrator's face may have increased accuracy rates. Nevertheless, there is still a valid application to the results because eyewitnesses may not always get an extended, head-on view of a perpetrator's face, and it can be assumed that the pattern of results would have been the same had the experimental stimuli reflected optimal witnessing conditions.

Finally, as mentioned above, the match-to-suspect lineup composition method that I used is not preferred by all procedures. Recall that suspect-matched lineups is the only filler-selection method incorporated in the NY and PACE procedures whereas the NJ procedure favors description-matched lineups but permits the suspect-matched lineups if the description of the suspect is vague, inaccurate, or unobtainable. Description-match lineups have been argued to be more fair than suspect lineups because fillers are selected based on an eyewitnesses' memory as opposed to their appearance-similarity relative to a suspect who may be innocent (Luus & Wells, 1991). Early evidence suggested that, in comparison to suspected-match lineups, description-matched lineups increased correct IDs (Luus & Wells, 1991) and decreased false IDs (e.g., Clark & Tunnicliff, 2001). More recent evidence indicated that while description-matched lineups elicit more correct IDs, they also increased false IDs relative to suspect-matched lineups (Clark, Rush, & Moreland, 2013). However, a meta-analysis showed that description-matched lineups are more diagnostic than suspect-matched lineups in both sequential and simultaneous lineups (Steblay, Dysart et al., 2011). The results for the NJ procedure may have been different had I used description-matched lineups.

Conclusions and Implications for Research and Policy

Reforms to eyewitness ID procedures have occurred at a fairly steady rate over the last decade or so, but there are almost as many renditions of ID procedures as there are revised guidelines (Smith & Cutler, 2013a). Many reforms include a preference for sequential administration of lineups because of convincing evidence that point to its advantage (Steblay, Dysart et al., 2011), though, like PACE, they may depart from the standard sequential procedure. The issue here, as illustrated by this study, is that

laboratory experiments tend to rely mostly on standard sequential procedures that do not adequately reflect the variety of lineup procedures that are reformed in packages. The challenge for researchers now is to examine the influences of different combinations of variables that depart from traditional lineup procedures on ID performance.

The state of sequential administration of lineups and their impact on eyewitness performance are not yet fully understood. Some have argued that the sequential superiority effect is robust across an array of rigorous studies with different methodological features (e.g., Steblay, Dysart et al., 2011). Others have argued that the sequential superiority effect is not robust in view of evidence that suggested unfair lineups (Clark et al., 2008) and order effects (Gronlund, Carlson, Dailey, & Goodsell, 2009) set the conditions for a sequential advantage. Even some proponents of the sequential superiority effect have explained non-significant differences between first laps through sequential lineups and simultaneous lineups as an anomaly (Steblay, Dietrich et al., 2011). Similarly, my findings of a strong simultaneous advantage in perpetrator-absent conditions are unexplainable, perhaps because experimental control of individual elements of each lineup procedure was sacrificed to gain ecologically valid performance comparisons of grouped lineup procedures. Some of the variables (e.g., multiple IDs and laps) are likely responsible for the abnormal outcome. Further research will be needed to understand the effects of the grouped lineup procedures.

The paucity of research and differences in experimental methods indicate that the current understanding of multiple laps through sequential lineups is incomplete. However, the utility of taking additional laps through sequential lineups appears to be weak. The inaccuracy, especially in terms of filler IDs, that was associated with

additional laps is consistent with other research using the PACE (Horry et al., 2012) and NJ methods (MacLin & Phelin, 2007). Steblay, Dietrich et al. (2011) suggested that eyewitnesses who *request* an extra lap are more likely to identify fillers than eyewitnesses who are *required* to take an extra lap. It appears as though if multiple laps through sequential lineups are to be permitted, the decision should not be left in the control of eyewitnesses (cf. Gronlund et al., 2013). Another option to offset the harmful effects of taking laps through sequential lineups that is worth exploring is the inclusion of the 'not sure' option because of its potential to discourage guessing (Wells et al., 2011).

My findings are consistent with literature that has recognized multiple IDs to be potentially compromising (Corey, Malpass, & McQuiston, 1999). There is evidence, however, that allowing multiple IDs may improve accuracy in sequential lineups (McQuiston-Surrett et al., 2006). The major issue with multiple IDs is that there is no obvious solution for their treatment. Some of the options that researchers have previously employed to deal with multiple IDs include analyzing only first IDs (Sporer, 1993), classifying multiple IDs as filler IDs (Lindsay & Wells, 1985), and excluding multiple IDs from analysis (McQuiston & Malpass, 2002). Some of the more promising avenues for multiple IDs that have been proven to be more diagnostic of guilt include identifying the same suspect from several lineups, each with different angles of the suspect's face (Kalmet, 2009), and using different identifying methods (e.g., voice and body IDs) in multiple lineups (Pryke, Lindsay, Dysart, & Dupuis, 2004). However, these findings require support as there were issues of order effects (Kalmet, 2009) and low ID rates (Pryke et al., 2004). Honing in on a prescription of conditions wherein multiple

lineup, multiple ID methods reliably postdict accuracy may serve to sift through weak and potentially harmful eyewitness evidence.

In sum, the findings challenge conceptions of the ability for sequential lineups to consistently elicit a superior performance in comparison to simultaneous lineups. There are no explanations readily available because causal conclusions cannot be derived in view of the applied nature of the experiment, but some of the findings can serve as a springboard for future projects. The importance of examining different combinations of variables and how they impact performance in sequential and simultaneous administrations of lineups is one of the major lessons learned from this research. Furthermore, the value of examining reformed lineup packages in a laboratory context cannot be understated as they tend to depart from standard procedures, and it is important to understand the effects of such modifications in light of their ongoing, real-world impacts. Nevertheless, the unusual results must be interpreted with caution as they substantially depart from the norm. Replication using different experimental stimuli must demonstrate the robustness of these findings.

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List of Tables

Table 1

Percentages of Correct and Incorrect Single IDs by Lineup Condition

	NJ	PACE	NY	Total
Perpetrator-Present				
Correct IDs	33.3	20.0	33.3	29.1
Filler IDs	33.3	51.4	43.1	43.6
Misses	33.3	28.6	23.5	27.3
n	24	35	51	
Perpetrator-Absent				
False IDs	36.0	18.2	16.3	21.9
Filler IDs	44.0	45.5	28.6	36.5
Correct Rejections	20.0	36.4	55.1*	41.7
n	25	22	49	

* Correct rejections significantly more likely in NY than in sequential conditions, $p < .001$.

Table 2

Percentages of Correct and Incorrect from Single IDs and Single Laps by Lineup Condition

	NJ	PACE	NY	Total
Perpetrator-Present				
Correct IDs	54.5	23.3	33.3	32.6
Filler IDs	36.4	46.7	43.1	43.5
Misses	9.1	30.0	23.5	23.9
n	11	30	51	
Perpetrator-Absent				
False IDs	42.9	16.7	16.3	21.0
Filler IDs	42.9	44.4	28.6	34.6
Correct Rejections	14.3	38.9	55.1*	44.4
n	14	18	49	

* Correct rejections significantly more likely in NY than in sequential conditions, $p < .05$.

Table 3

Percentages of Correct and Incorrect IDs from All Cases by Lineup Condition

	NJ	PACE	NY	Total
Perpetrator-Present				
Correct IDs	30.0	25.0	33.3	29.4
Filler IDs	54.0	53.8	43.1	50.3
Misses	16.0	21.2	23.5	20.3
n	50	52	51	
Perpetrator-Absent				
False IDs	34.0	18.4	16.3	23.0
Filler IDs	56.0	65.3	28.6*	50.0
Correct Rejections	10.0	16.3	55.1**	27.0
n	50	49	49	

* Correct rejections significantly more likely in NY than in sequential conditions, $p < .01$.

** Filler IDs significantly less likely in NY than in sequential conditions, $p < .001$.

Table 4

Multiple ID and Lap Classifications for Sequential Lineups (n = 128)

Part	Lineup	Perp	Initial Laps	Multiple Laps	Classification
226	NJ	Present	P(7); F1(5)	N/A	Hit
46	NJ	Present	P(9); F1(6)	P(10)	Hit
160	NJ	Present	P(7)	P(9)	Hit
292	NJ	Present	P(5)	P(6)	Hit
52	NJ	Present	Reject	P(6)	Hit
82	NJ	Present	Reject	P(10); F1(4); F5(1)	Hit
118	NJ	Present	Reject	P(5)	Hit
154	NJ	Present	Reject	P(6)	Hit
232	NJ	Present	Reject	P(10); F1(7)	Hit
66	PACE	Present	F8(5)	P(7)	Hit
30	PACE	Present	P(8); F3(7); F9(7)	N/A	Hit
198	PACE	Present	P(7); F10(4)	N/A	Hit
264	PACE	Present	P(7); F1(6); F3(6)	N/A	Hit
270	PACE	Present	P(8); F8(7)	N/A	Hit
10	NJ	Present	F2(6)	F1(5); F2(7)	Filler ID
16	NJ	Present	F2(8)	F2(8)	Filler ID
22	NJ	Present	F5(7)	F3(8); F5(7)	Filler ID
34	NJ	Present	P(5); F3(5)	F3(7)	Filler ID
40	NJ	Present	F1(7)	F1(7)	Filler ID
130	NJ	Present	F1(5)	F1(8)	Filler ID
142	NJ	Present	F1(3); F3(4)	F1(3); F3(6)	Filler ID
184	NJ	Present	F2(4)	F1(8)	Filler ID
190	NJ	Present	F1(7); F2(7)	F1(8)	Filler ID
196	NJ	Present	F3(4)	F3(5); F4(5)	Filler ID
204	PACE	Present	P(5); F1(7)	N/A	Filler ID
244	NJ	Present	F1(9)	F1(9)	Filler ID
262	NJ	Present	F1(6); F5(7)	F2(7); F3(7); F4(7); F5(7)	Filler ID
58	NJ	Present	Reject	F2(7)	Filler ID
64	NJ	Present	Reject	F1(6)	Filler ID
100	NJ	Present	Reject	F1(5)	Filler ID
106	NJ	Present	Reject	F3(7)	Filler ID
124	NJ	Present	Reject	F1(6)	Filler ID
166	NJ	Present	Reject	F4(8)	Filler ID
178	NJ	Present	Reject	F1(6)	Filler ID
202	NJ	Present	Reject	F3(6)	Filler ID

Table 4 (Continued)

Multiple ID and Lap Classifications for Sequential Lineups (n = 128)

Part	Lineup	Perp	Initial Laps	Multiple Laps	Classification
238	NJ	Present	Reject	F2(3)	Filler ID
256	NJ	Present	Reject	F1(6)	Filler ID
280	NJ	Present	Reject	F2(6)	Filler ID
42	PACE	Present	F7(6); F11(5)	N/A	Filler ID
114	PACE	Present	F7(4); F9(6)	N/A	Filler ID
126	PACE	Present	F1(7); F7(5)	N/A	Filler ID
228	PACE	Present	F5(10); F7(8)	N/A	Filler ID
276	PACE	Present	F2(6); F3(8); F7(4)	N/A	Filler ID
18	PACE	Present	P(6)	F6(6); F11(5)	Filler ID
48	PACE	Present	F1(1); F2(4); F6(3); F7(4)	P(4); F1(3); F2(3); F6(5); F7(3)	Filler ID
72	PACE	Present	F7(4)	F7(6)	Filler ID
174	PACE	Present	F7(1); F9(1)	P(2); F1(2); F9(4)	Filler ID
186	PACE	Present	F7(4); F11(3)	F1(3); F7(4); F11(3)	Filler ID
216	PACE	Present	F1(8)	F1(8)	Filler ID
222	PACE	Present	F11(7)	F11(7)	Filler ID
252	PACE	Present	F1(7)	F1(8)	Filler ID
300	PACE	Present	P(4); F11(6)	F1(7)	Filler ID
28	NJ	Present	Reject	Reject	Miss
70	NJ	Present	Reject	Reject	Miss
88	NJ	Present	Reject	Reject	Miss
94	NJ	Present	Reject	Reject	Miss
136	NJ	Present	Reject	Reject	Miss
274	NJ	Present	Reject	Reject	Miss
298	NJ	Present	Reject	Reject	Miss
144	PACE	Present	P(5)	Reject (8)	Miss
90	PACE	Present	Reject	Reject	Miss
285	NJ	Absent	IS(8); F1(4)	N/A	False ID
261	NJ	Absent	IS(10); F1(8); F5(6)	N/A	False ID
105	NJ	Absent	IS(6)	IS(6)	False ID
117	NJ	Absent	IS(7)	IS(8)	False ID
165	NJ	Absent	IS(3)	IS(5)	False ID
171	NJ	Absent	IS(9); F1(9)	IS(10)	False ID
69	NJ	Absent	Reject	IS(10)	False ID

Table 4 (Continued)

Multiple ID and Lap Classifications for Sequential Lineups (n = 128)

Part	Lineup	Perp	Initial Laps	Multiple Laps	Classification
87	NJ	Absent	Reject	IS(6)	False ID
159	NJ	Absent	Reject	IS(4)	False ID
243	NJ	Absent	Reject	IS(10); F1(5)	False ID
51	NJ	Absent	IS(6); F2(6); F5(4)	IS(6); F2(5)	False ID
41	PACE	Absent	IS(5); F5(3); F7(3)	N/A	False ID
101	PACE	Absent	IS(5); F3(4)	N/A	False ID
113	PACE	Absent	IS(7); F7(6)	N/A	False ID
143	PACE	Absent	IS(1)	IS(2)	False ID
221	PACE	Absent	IS(6); F9(5)	N/A	False ID
275	PACE	Absent	IS(7); F3(10)	IS(7)	False ID
3	NJ	Absent	F1(10); F2(9)	F1(8); F3(8)	Filler ID
15	NJ	Absent	Reject	IS(6); F3(7)	Filler ID
21	NJ	Absent	F2(5)	F2(6)	Filler ID
45	NJ	Absent	F1(7); F3(8)	F3(8)	Filler ID
93	NJ	Absent	F1(3)	F1(8); F3(3)	Filler ID
213	NJ	Absent	F1(6)	F1(8)	Filler ID
219	NJ	Absent	F1(6); F3(5)	F1(6)	Filler ID
225	NJ	Absent	F1(6); F2(6)	N/A	Filler ID
237	NJ	Absent	F1(7)	F1(6)	Filler ID
249	NJ	Absent	F3(3); F4(3)	F3(4); F5(4)	Filler ID
255	NJ	Absent	F1(3); F3(3)	N/A	Filler ID
267	NJ	Absent	F1(9)	F1(10)	Filler ID
273	NJ	Absent	F1(3)	F1(7)	Filler ID
9	NJ	Absent	Reject	F4(6); F5(5)	Filler ID
39	NJ	Absent	Reject	F1(3); F2(4)	Filler ID
75	NJ	Absent	Reject	F1(3)	Filler ID
99	NJ	Absent	Reject	F1(6); F5(5)	Filler ID
111	NJ	Absent	Reject	F3(5)	Filler ID
123	NJ	Absent	Reject	F1(4)	Filler ID
183	NJ	Absent	Reject	F1(5)	Filler ID
231	NJ	Absent	Reject	F2(5)	Filler ID
297	NJ	Absent	Reject	F2(3)	Filler ID
5	PACE	Absent	IS(5); F1(6)	N/A	Filler ID
59	PACE	Absent	F6(4); F7(7)	N/A	Filler ID
83	PACE	Absent	IS(5); F2(6); F7(6)	N/A	Filler ID
95	PACE	Absent	F1(7); F2(6)	N/A	Filler ID

Table 4 (Continued)

Multiple ID and Lap Classifications for Sequential Lineups (n = 128)

Part	Lineup	Perp	Initial Laps	Multiple Laps	Classification
161	PACE	Absent	F1(5); F6(4)	N/A	Filler ID
173	PACE	Absent	F1(8); F7(6)	N/A	Filler ID
185	PACE	Absent	F1(6); F2(7); F7(6)	N/A	Filler ID
203	PACE	Absent	F1(5); F11(7)	N/A	Filler ID
53	PACE	Absent	F9(6)	F9(6)	Filler ID
77	PACE	Absent	F1(7); F2(9)	F2(8)	Filler ID
119	PACE	Absent	F1(4)	F2(5); F9(3)	Filler ID
125	PACE	Absent	F1(10); F6(5); F7(7); F10(5); F11(6)	IS(5); F1(5); F6(5); F10(5); F11(6)	Filler ID
149	PACE	Absent	F1(3); F6(3); F11(3)	F6(3); F11(3)	Filler ID
155	PACE	Absent	IS(6)	F1(9)	Filler ID
167	PACE	Absent	Reject	F6(3)	Filler ID
179	PACE	Absent	F1(6); F3(3)	F1(9); F2(5); F3(8)	Filler ID
209	PACE	Absent	F8(7)	IS(4); F8(7)	Filler ID
227	PACE	Absent	F7(5)	F1(6); F7(7); F11(5)	Filler ID
233	PACE	Absent	F1(7); F2(9); F7(3); F8(2); F11(6)	F1(4); F2(9); F3(3); F7(2); F8(3); F11(6)	Filler ID
239	PACE	Absent	F1(6)	F1(5); F4(5)	Filler ID
245	PACE	Absent	F6(6)	F6(6)	Filler ID
265	PACE	Absent	IS(7)	F1(8)	Filler ID
281	PACE	Absent	Reject	F11(4)	Filler ID
27	NJ	Absent	Reject	Reject	Reject
63	NJ	Absent	Reject	Reject	Reject
291	NJ	Absent	Reject	Reject	Reject
23	PACE	Absent	Reject	Reject	Reject

Note. Numbers in brackets indicate reported levels of confidence on 10-point scale.
P = Perpetrator, IS = Innocent Suspect, and F = Filler followed by the filler number.

Table 5

ID Percentage Distribution in Initial- v. Multiple-Lap Sequential Lineups

	Initial Laps	Multiple Laps	*n*
NJ			
Single IDs	25.0	24.0	49
Multiple IDs	5.0	46.0*	51
Total	30.0	70.0	
PACE			
Single IDs	47.5**	8.9	57
Multiple IDs	22.7	20.8	44
Total	70.3	29.7	

* For NJ (and in all sequential lineups), multiple IDs were more likely in multiple laps than in initial laps, $p < .01$.

** For PACE, single IDs were more likely in initial laps than in multiple laps, $p < .001$.

Table 6

Percentage Changes in Performance from Initial to Multiple Laps in Sequential Lineups

	Initial Laps	Multiple Laps	Total
Perpetrator-Present			
Correct IDs	36.5[a]	18.0	27.5
Filler IDs	44.2[b]	64.0	53.9
Misses	19.2	18.0	18.6
n	52	50	
Perpetrator-Absent			
False IDs	30.6	22.0	26.3
Filler IDs	51.0	70.0	60.6
Correct Rejections	18.4	8.0	13.1
n	49	50	

[a] Collapsed across lineup conditions, correct IDs were more likely in initial laps than in multiple laps with marginal significance when the perpetrator was present, $p = .057$.

[b] For NJ, incorrect responses (filler IDs or misses) were significantly more likely than correct IDs in initial laps as compared to multiple laps when the perpetrator was present, $p > .05$.

Table 7

Percentages of Decision Changes and Duplicates from Initial to Multiple Laps

Initial Laps	Multiple Laps	NJ	PACE	Combined
Perpetrator-Present				
Correct ID	Correct ID	7.9	0.0	6.0
Correct ID	Filler ID	0.0	8.3	2.0
Correct ID	Miss	0.0	8.3	2.0
Miss	Correct ID	13.2	0.0	10.0
Filler ID	Correct ID	0.0	8.3	2.0
Filler ID	Filler ID	31.5	66.7	40.0
Miss	Filler ID	28.9	0.0	22.0
Miss	Miss	18.4	8.3	16.0
		n = 38	n = 12	
Perpetrator-Absent				
Correct Reject	Correct Reject	9.4	5.6	8.0
Correct Reject	Filler ID	31.3	11.1	24.0
Correct Reject	False ID	12.5	0.0	8.0
False ID	False ID	9.4	5.6	8.0
False ID	Filler ID	0.0	11.1	4.0
Filler ID	False ID	6.3	5.6	2.0
Filler ID	Filler ID	31.3	61.1	50.0
		n = 32	n = 18	

Note. For NJ initial laps, one case in perpetrator-present and two cases in perpetrator-absent conditions reported the same level of confidence for a correct or false ID and a filler ID. These cases were classified as filler IDs in this table. All three of these decisions in multiple laps were filler IDs, so they appear as filler IDs in both initial and multiple lap columns. All possible combinations are not included as there were zero cases in some NJ and PACE cells (e.g., initial lap false ID and multiple lap correct rejection).

Table 8

Overall Confidence-Accuracy Correlations

	R	*p*	*n*
Perpetrator-Present			
NJ	.151	.294	50
PACE	.204	.147	52
NY	-.135	.346	51
Perpetrator-Absent			
NJ	-.158	.272	50
PACE	.017	.909	49
NY	.076	.605	49

Table 9

Confidence-Accuracy Correlations for Choosers v. Non-Choosers

	R	*p*	*n*
Choosers			
NJ	.155	.153	83
PACE	.218*	.049	82
NY	-.224	.083	61
Non-Choosers			
NJ	-.130	.672	13
PACE	-.171	.483	49
NY	.289	.074	39

* $p > .05$.

Appendix A: Participant Consent Form

In this experiment you will watch a video about a social interaction and answer questions about it using a computer program. The program will also contain some questions about your basic demographic characteristics. The entire session should last approximately 30 minutes. The purpose of the study is to examine psychological processes of individuals in an experimental environment.

There are no known physical, psychological, economic, or social risks associated with this study. Your participation in this study is completely voluntary and you may withdraw from this study at any time without any consequences or penalties. You are not obliged to answer any questions that you find objectionable. You will be given one credit for your participation in this study. Full credit will be awarded whether you complete the study or not. This research has been reviewed and approved by the Research Ethics Board (REB # 12-033).

All information will be coded and stored in a secure area under lock and key and/or password protected computers for an indefinite period of time. Only the principle investigator, research assistants, and other researchers interested in psychology will have access to the data for research purposes (i.e., for meta-analyses). Individual performance will remain confidential and will not be released to professors, employers or in publications. Only group results will be reported (i.e., conferences presentations, journal articles).

The principal investigator of this study is Michael Jehu, and the supervising faculty member is Professor Brian L. Cutler of the Faculty of Social Science and Humanities. In the event that you have any questions, concerns, or complaints, you may contact Dr. Cutler (brian.cutler@uoit.ca; 905-721-8668 ext. 3807) or Michael Jehu (mike.jehu@uoit.ca). If you have questions pertaining to your rights, contact the Research Ethics Compliance Officer, Margaret Rofaiel (compliance@uoit.ca; 905-721-8668, ext. 3693). Be advised that you are not waiving your legal rights.

I have read and understood the statements above. I have had my questions answered to my satisfaction and I understand that I may ask additional questions at any time. My signature, below, indicates my free and informed consent for the use of my data for this research.

Name (Please Print Clearly): _____

Signature: _____

Date: _____

Appendix B: Distractor Task

Legal Decision-Making Lab Personal and Analytical Skills Schedule

Please answer the following questions to the best of your ability.

1) Rearrange the following letters to make a word and choose the category in which they fit.

RAPETEKA

A. City
B. Fruit
C. Bird
D. Vegetable

2) Find the answer that best completes the analogy:

People : Democracy : Wealthy :

A. Oligarchy
B. Oligopoly
C. Plutocracy
D. Timocracy
E. Autocracy

3) Find the answer that best completes the analogy:

Languages : Meaning : Philology :

A. Erudition
B. Philosophy
C. Ethics
D. Semantics
E. Grammar

4) Which one of the sets of letters below can be arranged into a five letter English word?

A. A T R U N
B. P O D E B
C. R N A S L
D. M O H A T
E. E T L R N

Appendix B: Distractor Task (Continued)

5) Which number should come next in this series?

25 : 24 : 22 : 19 : 15

A. 4
B. 5
C. 10
D. 15

6) Is the statement 'this statement is false' true or false?

A. True
B. False

7) Which word does not belong?

A. Apple
B. Marmalade
C. Orange
D. Cherry
E. Grape

8) At the end of a banquet 10 people shake hands with each other. How many handshakes will there be in total?

A. 100
B. 20
C. 45
D. 50
E. 90

9) The day before yesterday is three days after Saturday. What day is it today?

A. Monday
B. Tuesday
C. Wednesday
D. Thursday
E. Friday

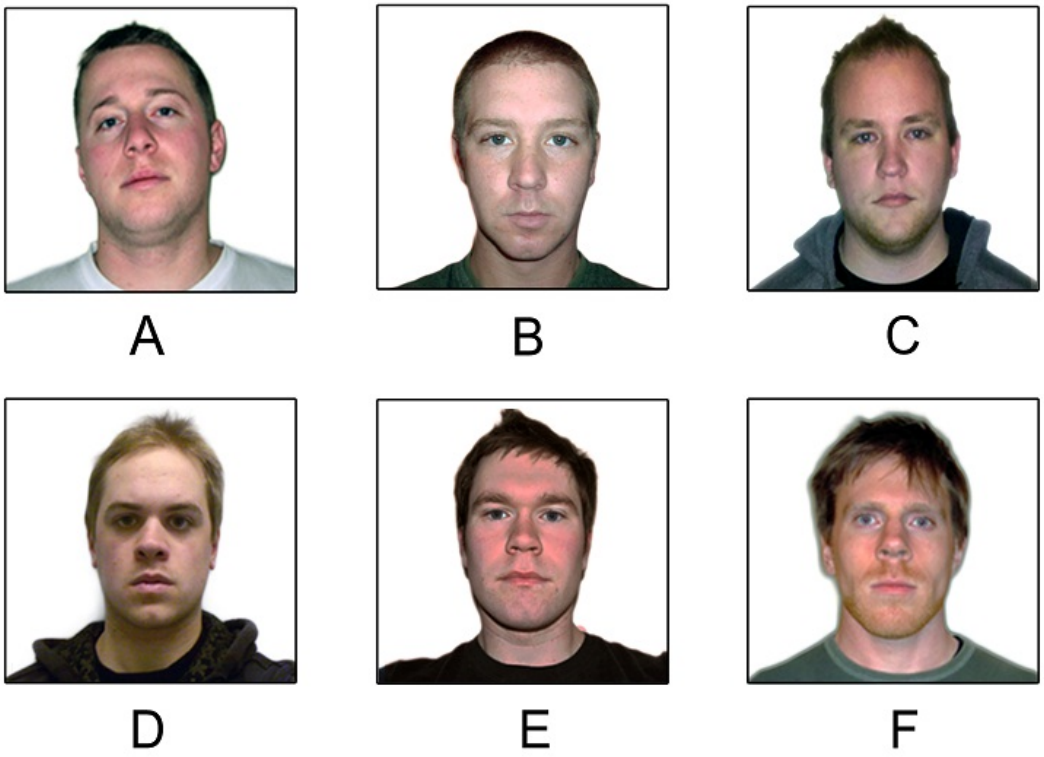
Appendix B: Distractor Task (Continued)

10) Select the number that best completes the analogy:

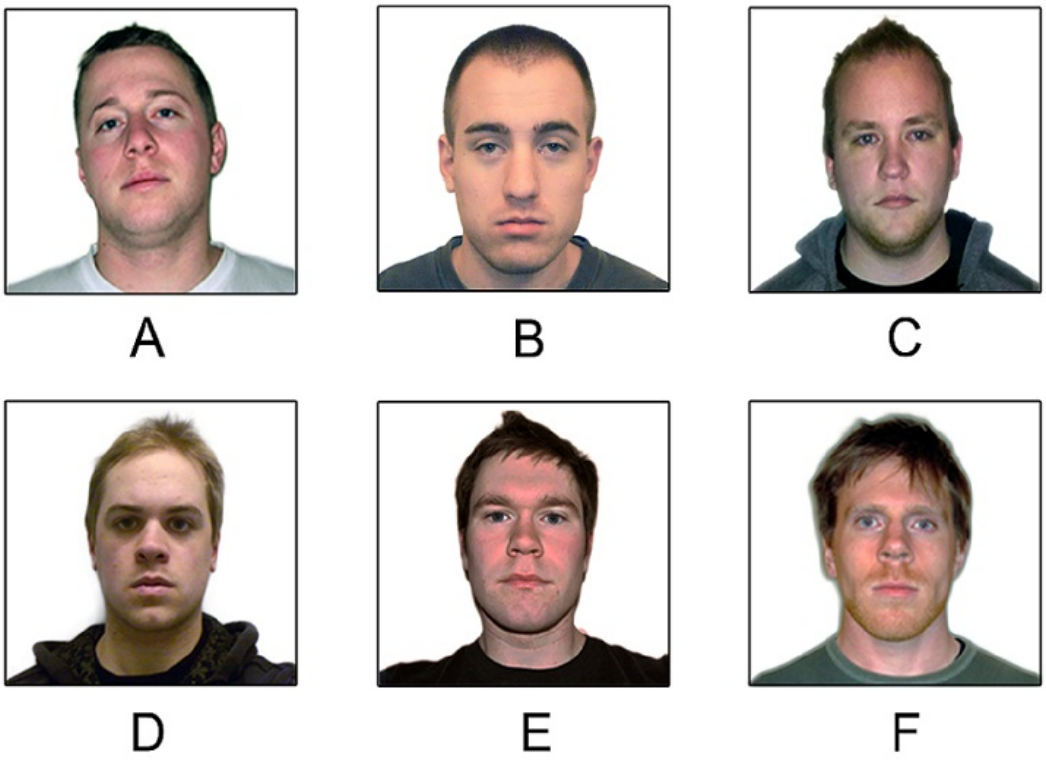
10 : 6 : 3

A. 2
B. 1
C. -1
D. 12

Appendix C: Example Perpetrator-Present Lineup (Simultaneous)



Appendix D: Example Perpetrator-Absent Lineup (Simultaneous)



Appendix E: Demographic Questionnaire

1. What is your age? _____.

2. What is your gender?

a. Male
b. Female

3. What is your race?

a. Caucasian
b. Black
c. Arab/West Indian
d. Aboriginal
e. Latin American
f. Filipino
g. Korean
h. Japanese
i. Chinese
j. South Asian
k. South East Asian
l. Other _____.

5. What is your university major?

.

6. What is your current year of post-secondary education?

a. 1
b. 2
c. 3
d. 4
e. 5 and up

Appendix F: Debriefing Form

During this study, you were asked to view a film and answer subsequent questions for psychology-related analyses. During the film, you were an eyewitness to a robbery of a cashier at a bowling alley/café. You were then shown a lineup of suspects that similar in appearance to the perpetrator in order to examine accuracy performance. You were not told that the study was about eyewitness memory beforehand because too much attention to detail of the film would be uncharacteristic of the behaviour of eyewitnesses to real-life spur-of-the-moment crimes.

In this study, the procedures differ somewhat between experimental sessions, and we are interested in how these differences influence identification accuracy. Because this study is ongoing, we are unable to tell you the details about how the procedures differ between sessions and the accuracy of your identification. We ask that you not discuss the identification procedure or any other aspect of this study with other students.

Questions or Concerns?

Please be aware that the film was staged and all persons involved were actors. No person was harmed, nothing was stolen, and no crimes were committed. If you feel uncomfortable with the use of your data for this study, please notify your experimenter and your data will be destroyed as soon as possible. If you wish you have additional questions or concerns, please feel free to contact Professor Brian L. Cutler or Michael Jehu. We would like to take this opportunity to extend our sincere thanks for your participation in this study.

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