

Eliminating Error with Older Eyewitnesses Using the Elimination Lineup
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Abstract

Older eyewitnesses have difficulty saying the perpetrator is not present in a lineup where the perpetrator is in fact absent. In this study a lineup technique called the elimination lineup was used to see whether it could help seniors. Younger ($N=62$, ages 18-58) and older adults ($N=30$, ages 61-94) were assessed using four different lineup conditions: the traditional simultaneous technique and the elimination technique with the perpetrator present or absent. Participants watched a video of either an older or a younger man driving then answered questions about the video, completed a driving behaviour survey, and looked at a photo lineup to potentially identify the driver. Older participants performed better with the elimination lineup than the simultaneous lineup if the driver was absent and similar to younger participants on the elimination lineup if the driver was present. This demonstrates the elimination lineup may be a better alternative for older eyewitnesses.

Eliminating Error with Older Eyewitnesses Using the Elimination Lineup

Witnesses can play a crucial role in determining whether a suspect is found innocent or guilty as they may be expected to recall both the crime and the alleged perpetrator as part of an investigation and during court proceedings. As part of a police investigation witnesses may be asked to pick the alleged perpetrator out of a lineup; possibly long after witnessing the initial crime. This makes this task much more difficult than one might assume (Wells, et al., 1998), particularly for children and older eyewitnesses.

Lineup Procedures

Pozzulo, Bennell, and Forth (2012) outline three lineup procedures used for witnesses identifying suspects. The most common lineup procedure used is the simultaneous lineup where a witness is shown all lineup members at the same time and is asked to indicate whether the perpetrator is present. The sequential lineup procedure is when lineup members are presented serially and the witness must make a decision as to whether or not a given person is the perpetrator before seeing the next lineup member. The witness cannot look back at previous lineup members and is unaware of how many pictures he/she will be shown. The elimination lineup procedure, a procedure sometimes used with children involves showing a child all lineup members at once and asking the child to either pick the lineup member who looks most like the perpetrator (fast elimination) or to eliminate lineup members who look least like the perpetrator until only one person remains (slow elimination). Following this the child is asked if the person that remains is actually the perpetrator.

Within each type of lineup the witness may be viewing either a target present or a target absent lineup. Pozzulo et al. (2012) define a target present lineup as a lineup where the perpetrator is present. A target absent lineup is defined as a lineup that does not contain the perpetrator but instead consists of all innocent individuals. Target absent versus target present lineups are assessed in research to help identify situations when a participant has made a correct or an incorrect identification. In real life police officers rarely know whether the perpetrator is actually present or absent, thus police unknowingly ask witnesses to make identifications from lineups that could be target absent or target present. Consequently, when individuals make incorrect decisions, choosing the person the police suspect committed the crime, police officers who administer lineups are often left unaware and an innocent person may be found guilty for a crime he/she did not commit or a guilty person may be set free.

Simultaneous and Sequential Lineups

Simultaneous lineups are the most commonly used lineups in North America (Pozzulo et al., 2012) but they are far from perfect. In a comparison of the sequential and simultaneous lineup procedures Wells (1993) suggested that witnesses go through a two part decisions making process when making lineup identifications. First witnesses make a relative judgement, deciding which lineup member most resembles the perpetrator based on the other members in the lineup. Then witnesses make an absolute judgement, deciding whether or not the person they have quietly chosen is the perpetrator based on their memory of the perpetrator. When using a simultaneous lineup Wells (1993) suggests that incorrect witnesses may make a relative judgement but fail to make an absolute judgement. In contrast, when using a sequential lineup witnesses are forced to

make absolute judgements as they cannot compare lineup members and must instead rely on their memory of the perpetrator. It has been argued if this is the case, one should expect few differences between the simultaneous and sequential lineup procedures when the target is present but increased accuracy when the target is absent (Humphries, Holliday, & Flowe, 2012). If the target is present a relative judgment is fine as the perpetrator in the lineup should look most like him or herself. In contrast when the target is absent, another person may look similar to the perpetrator but an absolute judgment is needed to decide the person in the lineup is not actually the perpetrator.

Supporting this, Kneller, Memon, and Stevenage (2001) found when participants in their study were given a target absent sequential lineup they were accurate 78.9% of the time compared to those who were given a target absent simultaneous lineup who were only accurate 38.9% of the time. There was less of a difference when participants were given target present lineups. Participants who were given a target present simultaneous lineup were accurate 61% of the time compared with participants who were given a target present sequential lineup who were accurate 50% of the time. Similar findings were shown in a meta-analysis conducted by Steblay, Dysart, Fulero, and Lindsay (2001) who found that when using a simultaneous target present lineup, participants were more accurate in correctly identifying the perpetrator than they were when given a target present sequential lineup. However, when given a target absent lineup participants were accurate 72% of the time when the lineup was sequential and only 49% of the time when the lineup was simultaneous. Incarcerating an innocent person and leaving the guilty person to commit further crimes is considered the worst type of error that can be made in the justice system (Pozzulo et al., 2012). Improvements in identification decisions made

with sequential target absent lineups then have led to recommendations that this procedure be used and in response the sequential lineup is now frequently used in the United States. A factor not considered in early research assessing simultaneous and sequential lineups was whether age makes a difference in accuracy.

Child Eyewitnesses and the Elimination Lineup

Research has consistently shown that children have lower correct identification rates (choosing the perpetrator) and lower correct rejection rates (recognizing the perpetrator is not present) than adults in both target absent and target present lineup decisions (e.g., Pozzulo, Dempsey, Bruer, & Sheahan, 2011). This means when presented with a target present lineup children have difficulty selecting the perpetrator and when presented with a target absent lineup children have a difficulty rejecting innocent individuals. It is hypothesized this is due to children relying on relative judgements and not making absolute judgements. Supporting this Lindsay and colleagues (Lindsay, Pozzulo, Craig, Lee, & Corber, 1997) found that children performed worse on a target present sequential lineup, being incorrect 26% of the time compared to adults who were only incorrect 4% of the time. With a target absent sequential lineup children tended to make more choices than adults, suggesting that children were guessing and had trouble rejecting individuals in the target absent lineup. Unlike adults, children's accuracy rates do not improve with a sequential target absent lineup showing that age affects the accuracy of lineup decisions differently as a function of lineup type.

In an attempt to improve children's accuracy when making lineup decisions, the elimination lineup was developed (Pozzulo & Lindsay, 1999). It was believed the elimination lineup would force children into making an absolute decision after they had

made a relative decision (Pozzulo & Lindsay, 1999). In a direct comparison of the simultaneous and elimination lineup procedures Pozzulo, Dempsey, and Crescini (2009) found children's accuracy significantly increased when they were given the elimination lineup. When using a target present lineup, the children's correct identifications increased from 44% with a simultaneous lineup to 68% for an elimination lineup. When using a target absent lineup children's false positives (picking the wrong person) decreased from 48% with a simultaneous lineup to 20% for an elimination lineup. Children were also able to correctly reject a target absent lineup 80% of the time using the elimination lineup versus 54% of the time with the simultaneous lineup (Pozzulo et al., 2009). This suggests that although the sequential lineup increases accuracy for adults in a target absent lineup scenario, the elimination lineup is the better lineup to use with children in order to ensure the perpetrator is correctly identified and that an innocent suspect is not charged for a crime he or she did not commit.

Older Eyewitnesses

Older adults also show decreased accuracy compared to younger adults (e.g., Havard & Memon, 2009). Havard and Memon (2009) for example found that when using a sequential target present lineup; older adults only made a correct identification 22.7% of the time whereas younger adults made a correct identification 54.5% of the time. Older adults also incorrectly identified a person more often (45.5%) than younger adults (18.2%) did. When using a sequential target absent lineup, older adults only made a correct rejection (acknowledged that perpetrator is not present) 47.6% of the time whereas younger adults correctly rejected the lineup 78.3% of the time. This suggests the sequential lineup procedure may not work as effectively with older adults as with

younger adults. Further supporting this, when comparing the use of sequential and simultaneous lineup procedures with older and younger adults, Wilcock, Bull, and Vrij (2011) found that older adults performed worse than younger adults when asked to make a decision from target absent sequential lineups. When given a target present sequential lineup older adults were significantly more likely to choose an innocent individual. With target present lineups older adults performed much better on the simultaneous lineups than on the sequential lineups. Memon and Gabbert (2003) also found that older adults made significantly more incorrect decisions than younger adults no matter what lineup procedure was used.

Numerous researchers have illustrated that older adults cannot use sequential and simultaneous lineup procedures as effectively as younger adults. In fact, like children older adults seem to have increased difficulty when asked to make decisions using the sequential lineup. Even though the sequential lineup was developed to help adult's accuracy with target absent lineups it seems that the sequential lineup decreases accuracy not only for children but for older adults as well.

It is important to study the eyewitness memory of older adults since in 2000 11% of the world's population was 60 years or older and it is estimated that by 2050 that number will double (WHO, 2014). Thus, the probability of an older adult witnessing a crime is increasing. As discussed above, both children and older adults appear to behave similarly, with regards to lineup decisions; both are less accurate than young adults (Coxon & Valentine, 1997). They both have trouble not choosing individuals when given a target absent lineup. Since both children and older adults have trouble making accurate lineup decisions when given both sequential and simultaneous lineup procedures

perhaps the elimination lineup, a lineup shown to increase children's ability to make correct lineup decisions will also improve older adult's lineup decisions. In the present study this possibility was assessed. Older adults (ages 60 and up) were asked to make lineup decisions from either a simultaneous or a fast elimination lineup procedure. The decisions made by older adults were compared with those of younger adults (between ages 18-59). Both target absent and target present variations of simultaneous and elimination lineup procedures were assessed. It was hypothesized that younger adults would outperform older adults on the simultaneous lineup but during the fast elimination lineup older adults would perform similar to younger adults.

Method

Participants

Sixty-two younger participants aged 18-58 ($M_{age} = 24.94$, $SD = 11.13$) were sampled at Grenfell Campus, Memorial University of Newfoundland. Of those younger participants 21 were male and 41 were female. As well 30 senior participants aged 61-94 ($M_{age} = 77.23$, $SD = 9.94$) were sampled from senior homes and clubs across Western Newfoundland. Of those senior participants 15 were male and 15 were female.

Videos

Participants were randomly assigned to watch one of two possible videos. The videos consisted of either a younger man (age 26) or an older man (age 70) driving in a neighbourhood setting. The beginnings of the videos were very similar in both content and duration with the exception of the age of the driver. The endings of both videos were identical - as the car approached an intersection with a yield sign the driver had a head on collision with a car making the turn into the intersection. To ensure the endings were the same a video of a head on collision was obtained from the public domain (youtube) and spliced into the videos of the younger and older drivers. Each completed video was approximately one minute in length. There was no sound to the videos and participants were all shown the videos on the same laptop screen. Two videos were created in order to assess whether participants in varying lineup conditions would better remember someone of similar age. This hypothesis had to be omitted given the very low sample size and thus results were collapsed across videos.

Lineups

Photo lineups were constructed based on the videos of both the younger and the older man. There was a target absent and a target present lineup for each man. In the target present lineup the driver from the video was present. In the target absent lineup the picture of the driver was replaced with a picture of a different man who had similar features. These lineups were developed by asking men who were similar in description to the drivers in the videos if they would volunteer to have their picture used in this study. Additional pictures of men were obtained from public websites until six person lineups could be constructed for each driver.

Participants were shown the pictures on a laptop using a PowerPoint presentation. Each picture was approximately 2.5 inches x 3.0 inches. If shown the simultaneous lineup, lineup members were presented at the same time in two rows of three. The participants were given a sheet of paper with two rows of three boxes and a seventh box beneath to make a lineup decision (See Appendix A). The following instructions were then read to the participants: "Please look at these pictures; think about the video you saw and what the first person in the video looked like. That person may or may not be here. If you see the picture of the first person you saw in the video check the box that corresponds to that person's position. If you do not see a picture of the person check the "not here" box." Participants recorded their responses on the corresponding lineup sheet. If the participant was presented with the fast elimination lineup he/she was also shown the lineup members at the same time in two rows of three and was given the following instructions: "Please look at these pictures, think about the video you saw and what the first person in the video looked like. Pick the picture that most looks like the first person

you saw in the video.” When the participants had made their choice the picture of that lineup member was enlarged (6.0 inches x 7.0 inches) and shown in the centre of the screen while all other lineup members were taken away. The following instructions were then read: “This may or may not be a picture of the first person in the video. Think back to the video, and compare what you remember to this picture. Is this a picture of the first person in the video or could it be somebody else?” Participants were given the same lineup sheet as with the simultaneous procedure and were told “If this is the picture of the first person you saw in the video check the box that corresponds to that person’s position. If this is not a picture of the person check the “not here” box.” to indicate your response.

Surveys

Two surveys were used assessing stereotypes of younger drivers or older drivers. Each survey consisted of 10 questions along with some demographics at the end. The first two questions assessed feelings towards both young and old drivers and the rest of the questions were based on either younger or older drivers. The questions on each survey were the same except the age (25 years and younger or 65 years and older) of the driver was changed. With permission a stereotype survey was modified for this study from Dr. Ann Lambert. The original survey can be found in Lambert et al. (2013).

Questions

All participants were asked two questions: Can you remember what happened in the video? Can you describe what the first person in the video looked like? Answers to these questions were either recorded using an audio recorder and later transcribed or in the event the participant was not comfortable recording his or her answers the answers were hand written.

Procedure

Undergraduate students were recruited from Grenfell Campus, Memorial University of Newfoundland. After obtaining the appropriate permission, students were approached in their classrooms or they were asked to respond to an email asking them to participate in a study about attitudes towards driving behaviour and age. After obtaining appropriate permission, older participants were approached in seniors' homes and seniors' clubs and were asked to participate in the same study. Once participants agreed to participate they took part in a one on one interview with a researcher where they were first given a consent form to read, date, and sign (Appendix B). The consent form outlined the purpose of the study, anonymity, confidentiality, and contact information. Once they had given their consent the consent forms were placed in an envelope to ensure confidentiality.

Participants were then randomly assigned to watch one of the two videos on a laptop so the size of the video was the same for each participant. Participants next completed the survey on stereotypes regarding driving behaviour and were asked two questions about the video. The order in which these two tasks were completed was counterbalanced. Approximately, half of the participants were asked the questions first and approximately half of the participants completed the survey first to ensure there were no order effects in completing these tasks. Responses to the questions and the survey were not analyzed as part of this thesis but will instead be included as part of a larger study on this topic. Once those two tasks were finished participants were randomly assigned to one of four lineup procedures (simultaneous target absent, simultaneous target present, fast elimination target absent, or fast elimination target present).

Participants were clearly told that the man driving in the video may or may not be present in the lineup. Participants were then asked to indicate the person in the lineup whom they believed was the man from the video or to say the man from the video was “not here”.

Upon completing the experiment participants were given a debriefing form (Appendix C) stating the underlying purpose of the study since they were not told at the beginning of the study that they would be selecting someone out of a lineup. Finally, participants were thanked and were told where and when they could obtain the results of the study if they were interested.

Results

Descriptive statistics for the proportion of correct identifications and correct rejections can be found in Table 1. The table outlines how older and younger participants performed on both target present and target absent simultaneous lineups and how they performed on both target present and target absent elimination lineups.

Too few people participated to run an analysis assessing whether participants could better identify a person who was similar in age versus a person who was much younger or older. However, chi square analysis showed no difference between the older participants' decision making regarding the lineups for a younger versus an older driver, $\chi^2(1, N = 30) = 2.14, p = .143, \phi^2 = .071$. Similarly, chi square analysis showed no difference between the younger participants' decision making regarding the lineups for a younger versus an older driver, $\chi^2(1, N = 62) = 1.28, p = .259, \phi^2 = .020$. Thus results were collapsed across video conditions for subsequent analyses.

Participants' accuracy was assessed to determine whether participants performed better than chance, to assess differences across the four lineup procedures, and to assess age differences in performance. One sample t-tests were completed to look at performance relative to chance and chi square analyses were completed to look at performance relative to lineup type and age.

Performance Relative to Chance

Since there were seven options for the participants to choose from when trying to identify the man in the video (one for each person in the lineup and a decision that the person in the video was not present) the chance of making a correct decision was calculated as 1 out of 7 (.14). The younger participants performed significantly better

Table 1

Proportion of Correct Identifications/Rejections Across Lineup Procedures

| | | Lineup Procedure | |
|----------------|-------|------------------|-------------|
| | | Simultaneous | Elimination |
| Young | | | |
| Target Absent | | | |
| M | 85.7% | 52.9% | |
| N | 14 | 17 | |
| Target Present | | | |
| M | 53.3% | 31.3% | |
| N | 15 | 16 | |
| Old | | | |
| Target Absent | | | |
| M | 0% | 87.5% | |
| N | 7 | 8 | |
| Target Present | | | |
| M | 28.6% | 62.5% | |
| N | 7 | 8 | |

than chance in the target absent simultaneous condition, $t(13) = 7.39, p = .000, r^2 = .808$, the target absent elimination condition, $t(17) = 2.90, p = .010, r^2 = .331$ and the target present simultaneous condition, $t(14) = 2.95, p = .011, r^2 = .383$. The younger participants performed no different than chance in the target present elimination condition, $t(15) = 1.44, p = .170, r^2 = .121$. The older participants in the target absent simultaneous condition were all incorrect thus performing worse than chance. Likewise, the older participants performed no better than chance in the target present simultaneous condition, $t(6) = .190, p = .460, r^2 = .006$. Contrasting this, the older participants performed better than chance in the target absent elimination condition, $t(7) = 5.88, p = .001, r^2 = .832$ and the target present elimination condition, $t(7) = 2.65, p = .033, r^2 = .500$.

Performance Relative to Lineups

Next, performance was assessed by comparing performance with the target absent and target present lineups using the simultaneous and elimination procedures. Older participants performed significantly better on the elimination target absent lineup condition than on the simultaneous target absent lineup condition, $\chi^2(1, N = 15) = 11.48, p = .001, \phi^2 = .766$, but there was no difference in their performance on the elimination target present lineup condition and on the simultaneous target present lineup condition, $\chi^2(1, N = 15) = 1.73, p = .189, \phi^2 = .115$. Younger participants did not perform differently on the elimination target present lineup condition and on the simultaneous target absent lineup condition, $\chi^2(1, N = 31) = 1.55, p = .213, \phi^2 = .050$, or on the elimination target absent lineup condition compared to the simultaneous target absent lineup condition, $\chi^2(1, N = 31) = 3.77, p = .052, \phi^2 = .122$.

Performance Relative to Age

Thirdly, the performances of older and younger participants were compared across the four lineup procedures. The younger participants performed significantly better than the older participants in the target absent simultaneous procedure, $\chi^2(1, N = 21) = 14.00, p = .000, \phi^2 = .666$. There was no difference between younger and older participants in the target present simultaneous procedure, $\chi^2(1, N = 22) = 1.180, p = .271, \phi^2 = .054$, the target present elimination procedure, $\chi^2(1, N = 24) = 2.14, p = .143, \phi^2 = .089$, and the target absent elimination procedure, $\chi^2(1, N = 25) = 2.82, p = .093, \phi^2 = .113$.

Discussion

This study assessed the accuracy of eyewitness identification of older adult eyewitnesses by comparing them with younger adult eyewitnesses. Participants were also compared across four lineup conditions: target absent simultaneous, target present simultaneous, target absent elimination, and target present elimination. This study used a six person lineup which means that the chance of making a correct decision was 1 out of 7 (choosing between the six people or saying the perpetrator was not present). Results showed that younger participants performed better than chance in all conditions except the target present elimination lineup condition. Older participants performed better than chance in both elimination lineup conditions but no better than chance in both simultaneous lineup conditions.

Findings from this study are consistent with previous findings with older adults performing worse when identifying a perpetrator than younger adults with the simultaneous lineup condition (Memon & Gabbert, 2003). In the current study it was found that younger adult participants made a correct rejection with the simultaneous target absent lineup more often (85.7%) than older adult participants who performed much more poorly (0%). As expected younger adults were also more accurate in the simultaneous target present lineup (53.3%) compared to older adults (28.6%). Similar to past research there was a bigger age difference in performance for the simultaneous target absent lineup than for the simultaneous target present lineup (Wilcock et al., 2011). Previous research using simultaneous target absent lineups has shown that older adults make significantly more incorrect rejections than younger adults (Coxon & Valentine, 1997; Memon & Gabbert, 2003). This means that older adults are potentially more likely

to incarcerate an innocent person than younger adults. The results from previous studies (Havard & Memon, 2009; Wilcock et al., 2011) as well as this study demonstrate that as a participant's age increases accuracy with the simultaneous target absent lineup decreases.

Others have tried using other lineup procedures to increase the accuracy of older eyewitnesses but have not had success (e.g., Memon & Gabbert, 2003; Wilcock et al., 2011). The reason for creating the sequential lineup was to increase accuracy for target absent lineups (Humphries et al., 2012). Kneller et al. (2001) for example, found that younger adult participants were accurate 78.9% with the target absent sequential lineup. Yet when Havard and Memon (2009) assessed the sequential lineup with older adults they found that older adults incorrectly identified a person 45.5% of the time with a target present sequential lineup and only made a correct rejection 47.6% of the time with a target absent sequential lineup. This demonstrates that although the sequential lineup works well with younger adults in target absent conditions it does not work well with older adults. In fact, Wilcock et al. (2011) and Memon and Gabbert (2003) both found that in general older adults performed much worse than younger adults in the simultaneous and sequential lineup procedures. These results demonstrate that neither the sequential lineup nor the simultaneous lineup appear to work with older eyewitnesses.

This is the first study to assess the elimination lineup with older and younger adults. The results from this study have shown that there was no significant age difference in accuracy levels on either the target absent or the target present elimination lineups. Older eyewitnesses performed similar to younger adults in these conditions. Other studies assessing the effectiveness of alternate techniques with older eyewitnesses have not demonstrated increased accuracy with people in this age group (Coxon &

Valentine, 1997; Havard & Memon, 2009; Memon & Gabbert, 2003; Wilcock et al., 2011).

Perhaps the most important finding from this study was that older adults performed better on the target absent elimination lineup than on the target absent simultaneous lineup and there was no difference in performance for the target present lineups. The first hypothesis that the older participants would perform better on the elimination lineup than on the simultaneous lineup when the perpetrator was absent was supported. Of the eight older participants seven of them made a correct rejection in the elimination lineup compared to 0 correct rejections in the simultaneous lineup. This is the first study to show older adults actually outperforming younger adults with lineup accuracy and in particular in the target absent condition, a condition that is generally problematic for witnesses of all ages.

Limitations of the study include sample size. There were only 62 younger participants and 30 older participants divided up into four different lineup conditions. This meant there were very few participants per condition. Additionally, with so few participants generalizability is questionable. More participants would allow for an assessment of age bias, that is an assessment of whether participants are better at recognizing a person who is similar in age. Furthermore, the videos were taken with a side view (i.e., profile) of the driver from the passenger seat and the lineup pictures showed people who were facing the camera; there were no side shots as you could see in traditional lineups. The person in the video did turn towards the camera to ensure that pictures with individuals facing forward were appropriate. Another limitation to this study is that only 5-10 minutes passed between watching the video and being presented

with the lineups which is not similar to real time where this process could take days, weeks, even years.

There has been little research assessing older eyewitnesses, especially with testing older eyewitnesses' abilities to use different lineup types. The elimination lineup has mostly been tested with children (Pozzulo et al., 1999). Research demonstrating the effectiveness of the elimination lineup with older adults could help improve the reliability of older eyewitnesses. Additional research is needed but it appears that the elimination lineup could become not only a standard procedure for children but also for older adults. The simultaneous lineup is the most common procedure but older eyewitnesses often make mistakes when asked to make identifications using this type of lineup, especially when the target is absent. In the United States a move has been made to use the sequential lineup to increase accuracy for target absent lineups but as previous studies have found this procedure does not work for older eyewitnesses (Coxon & Valentine, 1997). This study shows that the elimination lineup appears to work with people of this age, especially with the all important target absent lineups. By educating police officers to use the elimination lineup procedure with vulnerable witnesses such as children and older adults, identification accuracy can be increased. Incriminating an innocent person for a crime is a major fault in lineup procedures and is considered the biggest mistake an eyewitness can make as a guilty person is free to commit more crimes while an innocent person is incarcerated (Pozzulo et al., 2012). The elimination lineup has proven useful in helping older eyewitnesses recognize that a perpetrator is not always present in a lineup, a problem that has never been successfully addressed

References

- Coxon, P., & Valentine, T. (1997). The effects of the age of eyewitnesses on the accuracy and suggestibility of their testimony. *Applied Cognitive Psychology, 11*, 415-430.
- Havard, C., & Memon, A. (2009). The influence of face age on identification from a video line-up: A comparison between older and younger adults. *Memory, 17*, 847-859.
- Humphries, J. E., Holliday, R. E., & Flowe, H. D. (2012). Faces in motion: Age-related changes in eyewitness identification performance in simultaneous, sequential, and elimination video lineups. *Applied Cognitive Psychology, 26*, 149-158.
doi:10.1002/acp.1808
- Kneller, W., Memon, A., & Stevenage, S. (2001). Simultaneous and sequential lineups: Decision processes of accurate and inaccurate eyewitnesses. *Applied Cognitive Psychology, 15*, 659-671. doi:10.1002/acp.739
- Lambert, A. E., Seegmiller, J. K., Stefanucci, J. K., & Watson, J. M. (2013). On working memory capacity and implicit associations between advanced age and dangerous driving stereotypes. *Applied Cognitive Psychology, 27*, 306-313. doi: 10.1002/acp.2908
- Lindsay, R. L., Pozzulo, J. D., Craig, W., Lee, K., & Corber, S. (1997). Simultaneous lineups, sequential lineups, and showups: Eyewitness identification decisions of adults and children. *Law and Human Behavior, 21*, 391-404.
doi:10.1023/A:1024807202926

- Memon, A., & Gabbert, F. (2003). Unravelling the effects of sequential presentation in culprit-present lineups. *Applied Cognitive Psychology, 17*, 703-714. doi: 10.1002/acp.909
- Pozzulo, J. D., Bennell, C., & Forth, A. (2012). *Forensic psychology*(3rd ed.). Toronto, ON: Pearson Canada Inc.
- Pozzulo, J. D., Dempsey, J., Bruer, K., & Sheahan, C. (2012). The culprit in target-absent lineups: Understanding young children's false positive responding. *Journal of Police and Criminal Psychology, 27*, 55-62. doi:10.1007/s11896-011-9089-8
- Pozzulo, J. D., Dempsey, J., & Crescini, C. (2009). Preschoolers' person description and identification accuracy: A comparison of the simultaneous and elimination lineup procedures. *Journal of Applied Developmental Psychology, 30*, 667-676. doi: 10.1016/j.appdev.2009.01.004
- Pozzulo, J. D., & Lindsay, R. L. (1999). Elimination lineups: An improved identification procedure for child eyewitnesses. *Journal of Applied Psychology, 84*, 167-176. doi:10.1037/0021-9010.84.2.167
- Stebly, N., Dysart, J., Fulero, S., & Lindsay, R. L. (2001). Eyewitness accuracy rates in sequential and simultaneous lineup presentations: A meta-analytic comparison. *Law and Human Behavior, 25*, 459-473. doi:10.1023/A:1012888715007
- Wells, G. L. (1993). What do we know about eyewitness identification? *American Psychologist, 48*, 553-571. doi:10.1037/0003-066X.48.5.553
- Wells, G. L., Small, M., Penrod, S., Malpass, R. S., Fulero, S. M., & Brimacombe, C. A. E. (1998). Eyewitness identification procedures: Recommendations for lineups and photospreads. *Law and Human Behavior, 22*, 603-647.

Wilcock, R. A., Bull, R., & Vrij, A. (2005). Aiding the performance of older eyewitnesses: Enhanced non-biased line-up instructions and line-up presentation.

Psychiatry, Psychology, and Law, 12, 129-140. doi: 10.1375/pplt.2005.12.1.129

World Health Organization. (2013). Ageing and Life Course. Retrieved from

<http://www.who.int/ageing/en>

Appendix A

LINEUP

Please check off the box where you believe the suspect is in the lineup or check the “not here” box if you believe the suspect is not in the lineup.

1

2

3

4

5

6

Not here

Appendix B

**Attitudes Towards Different Driving Behaviours and Age.
Student Informed Consent Form**

The purpose of this Informed Consent Form is to ensure you understand the nature of this study and your involvement in it. This Consent Form will provide information about the study, giving you the opportunity to decide if you want to participate.

Researchers: This study is being conducted by Chantal Rochon as part of the course requirements for Psychology 4951 and Psychology 4959. I am under the supervision of Dr. Carla Krachun.

Purpose: This study is designed to understand the public's attitudes towards different driving behaviours and the age of the driver. The results will be used to write a thesis, which is required for the completion of an honours degree in Psychology, at Grenfell Campus, Memorial University of Newfoundland and maybe published in the future.

Task Requirements: You will be asked to watch a short video and complete a questionnaire pertaining to the video. You will also be asked to complete a short section regarding personal information. There are no right or wrong answers; I am only interested in your opinions. Then the answers will be recorded.

Duration: The questionnaire will take approximately 10 minutes to complete.

Risks and Benefits: There are no obvious risks or benefits involved with your participation in this study.

Anonymity and Confidentiality: Your responses are anonymous and confidential. Please do not put any identifying marks on any of the pages. All information will be analyzed and reported on a group basis. Thus, individual responses cannot be identified.

Right to Withdraw: Your participation in this research is completely voluntary and you are free to stop participating at any time. You may also omit any questions that you do not wish to answer.

Contact Information: If you have any questions or concerns about the study, please feel free to contact me, Chantal Rochon at crochon@grenfell.mun.ca You may also contact Dr. Kelly Warren at kwarren@grenfell.mun.ca. As well, if you are interested in knowing the results of the study, please contact myself or Dr. Kelly Warren after April 21st, 2014. If this study raises any personal issues for you, please contact the counseling centre at Grenfell, specifically, Dr. Paul Wilson at 637-6234 or pwilson@grenfell.mun.ca or Ms. Maureen Bradley at 637-6211 or mbradley@grenfell.mun.ca.

This study has been approved by an ethics review process at Grenfell Campus, Memorial

University of Newfoundland

I acknowledge that I have been informed of, and understand, the nature and purpose of the study, and I freely consent to participate. This Informed Consent Form will be placed in a separate envelope to ensure anonymity.

Signature _____

Date _____

Appendix C

Debriefing Form
Fast Elimination Line-Up for Senior Citizens

In this study we are interested in differences in opinions of older versus younger drivers. You were not told that you would need to pick someone from a lineup at the beginning because if you were to witness an accident happening you usually would not know that it would happen. If you do not want information you have given to be included in this study you can now ask that the information you provided be removed. Information gathered will be treated as group information rather than individual information. This means no one will know what information you provided. If you have any questions or concerns about the study, please feel free to contact me, Chantal Rochon at crochon@grenfell.mun.ca. You may also contact Dr. Kelly Warren at (709) 639-6511 or kwarren@grenfell.mun.ca. As well, if you are interested in knowing the results of the study, please contact myself or Dr. Kelly Warren after April 21st, 2014. Thank you for your participation.