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Assessing the Accuracy of Eyewitness Verbal and Written Descriptions

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Abstract

It has been proven that it is more beneficial for eyewitness statements to be taken as soon as possible after a crime has occurred. The longer the waiting time for statements and eyewitness identifications, the more likely other factors will come into effect and negatively impact the accuracy of eyewitness testimonies and identification (Wise et al., 2014). The manner in which statements are taken also have a huge impact on eyewitness accuracy and reliability. It has been suggested that allowing eyewitnesses to write a written statement rather than verbally explaining it to someone else, yields more accurate descriptive results (Smith & Flowe, 2015). This experimental study aimed to test whether or not there is a difference in the quality of verbal descriptions versus written descriptions provided by eyewitnesses and whether or not a delay in interviewing time can affect the quality of descriptions and identification accuracy provided by eyewitnesses. Participants were split into various conditions. Based on the condition the participant was in, they would provide a verbal or written statement either immediately after witnessing the 'crime' or after a delay. The results from the various conditions were then run through a factorial ANOVA and compared. It was found that there was no significant effect between a delay condition and participant accuracy scores and there was also no significant effect observed between type of participant description (written vs. verbal) and participant accuracy scores ($p > 0.05$). There was however a significant effect observed between low confidence levels and participant accuracy scores ($p < 0.05$).

Errors in Eyewitness Verbal & Written Descriptions

Advances in forensic investigation have aided in reducing incorrect convictions, DNA testing has released over 267 wrongfully convicted prisoners through a policy organization called the Innocence Project. Errors through eyewitness testimony and misidentification were responsible for more than 70% of the cases (Shermer et al., 2011). Despite these alarming findings, many individuals in high authority positions (jury, judges, police etc.), believe that eyewitness testimony is accurate (Redman, 2010). There is evidence that jurors are over-reliant on information provided by eyewitnesses when coming to a decision regarding a criminal conviction (Shermer et al., 2011) and this could be contributing to the rates of wrongful convictions. Eyewitnesses make many vital mistakes when reporting crime including misidentification, errors regarding physical events, encounters and conversations (Magnussen et al., 2010). There has been a growing area of research looking at the accuracy of eyewitness testimony as a means to reduce wrongful convictions as a result of witness errors. Problems which have been identified in research include errors in lineup and photo identification processes as well as issues surrounding detailed verbal descriptions of events and perpetrators (Hellmann et al., 2011; Shermer et al., 2011).

Factors Affecting Eyewitness Descriptions

The basic goal of eyewitness testimony is to gather information of a crime by retrieving a witness's mental representation of a specific target face and events. This representation of the target face is encoded into a format used for other processes. This is typically the first step involved when reporting a crime, gathering the eyewitnesses verbal description of a target face (Nejati et al., 2011). The description is not based on the appearance of the actual target face, but is rather based on the individual's own reconstructed perception of the face (Nejati et al., 2011). Eyewitnesses may also be asked questions on the perpetrator's height, gender, build etc. If police then identify a suspect, a lineup may be presented to the eyewitness. This lineup includes the police suspect and other fillers who resemble the perpetrator (Mickes, 2016). Researchers have questioned the accuracy of eyewitness verbal descriptions over recent years as verbal descriptions may contain a certain level of bias. This is because they are loaded with linguistic presuppositions and may have already undergone transformations prior to officially reporting the crime (Hellmann et al., 2011). These verbal descriptions may cloud an eyewitness's visual memory and may have an effect on accurate identification at lineups, this phenomenon is often referred to as verbal overshadowing (Nejati et al., 2011). Scientists have pondered upon reasons for the verbal overshadowing effect and one possible explanation is that verbal descriptions may affect the

quality of the original memory trace. Verbal memory may compete with the original memory trace, which is usually a visual memory (Smith & Flowe, 2015).

Memory may also be altered by coming across new information after an event has occurred, this information refers to post-event information (Valentine & Maras, 2011). Many crimes have a few witnesses present, when witnesses discuss details surrounding the crime with one another, it is likely that they will start incorporating details of each other's stories into their reports unknowingly (Hjelmsater et al., 2012). Communication about events may shape an individual's personal memory of the event and in turn, this may affect descriptions provided by eyewitnesses (Hellmann et al., 2011). This is a major problem as incorrect descriptions may spread across witnesses (Hjelmsater et al., 2012). If witnesses are informed of the effect of post-event information, the effects may be reversed to a certain degree and witnesses will more easily identify incorrect information given to them (Oeberst & Blank, 2012).

Research on members of the legal system has found that very few of these individuals have knowledge on factors contributing to eyewitness errors. Interviews indicated that members of the jury relied too heavily on eyewitness confidence when making their decision regarding a conviction (Wise et al., 2014). Psychological researchers have discovered through the use of staged crimes and fake lineups that even though eyewitnesses may be highly confident of a decision, in a lot of instances they are wrong, this is up to 40% in some cases (Wixted et al., 2018). It is important to remember that survivors of trauma may start associating traumatic cues with unrelated neutral ones (Guez et al., 2011), eyewitnesses may include their inferences about perpetrators features (facial, visual, behavioral) when reporting a crime. These inferences are supported by the eyewitness's internal biases and are held with high confidence, which remains influential during the reporting of the crime. Although these inferences are based on personal judgements, they are still incorporated into police statements and can be highly inaccurate (Hellmann et al., 2011). Confidence is not usually considered a solid measure of eyewitness description accuracy, but it has been found to be a good predictor when adapting a calibration approach (measures the proportion of correct responses for each level of confidence), it is however still prone to error and can break down as an indicator of accuracy when faced with certain conditions (Brewer & Wells, 2011).

Presenting information at trial and recalling the crime can induce stress on the witness. Stress is another well-known factor that affects memory accuracy, recall and can break down eyewitness confidence (Shermer et al., 2011). Audience tuning may also cause the eyewitness to change their verbal descriptions, audience tuning in this instance refers to

when an eyewitness alters their original descriptions in a way which will satisfy whoever is interviewing them or listening to their report (Hellmann et al., 2011). It can lead to inaccurate verbal descriptions and the eyewitness original memory trace can be altered (Hellmann et al., 2011). If eyewitness errors are to be reduced, then it is necessary that judicial members as well as legal professionals are knowledgeable about the various factors affecting eyewitness testimony and descriptions and how to apply them to each specific case. (Wise et al., 2014).

Eyewitness Descriptions and Time Delay

Memory is vulnerable to decay over time, this is because the early recall of events assists in preserving memory traces and reduces the amount of forgetting experienced (Wise et al., 2014). After an event occurs, a victim is likely to have impairments in remembering, especially when the event was traumatic in nature. These impairments have been found to be strong in relation to episodic memory and is especially true for verbal memory tasks rather than visuospatial memory tasks (Guez et al., 2011). When events are visual, memory performance during recall is typically better even when the recall requirements are verbal (Hellmann et al., 2011). This could have implications for eyewitness testimony as police and judges often require witnesses to make verbal statements of crimes (Guez et al., 2011). Eyewitnesses have reported that they find it difficult to verbally describe facial features and stimuli, in turn this causes eyewitnesses to feel uncertain about their descriptions which may affect their performance in the lineup (Smith & Flowe, 2015). Verbal descriptions can also impair recognition performance, especially when this form of reporting is forced onto the eyewitness. Individuals who previously described a perpetrator's face were found to be significantly less accurate when choosing from a lineup than individuals who had not given a verbal description (Mickes, 2016; Smith & Flowe, 2015). Contrary to these findings, verbal description accuracy seems to increase when eyewitnesses can freely describe (verbally) their understanding of an event (Hellmann et al., 2011). Research on written descriptions provided by eyewitnesses suggest that written descriptions may affect the original memory trace of a crime less than verbal descriptions. Individuals who had to verbally describe a face gave more incorrect facial descriptors and also performed worse in the lineup than individuals who had to write descriptions in a free recall manner (Smith & Flowe, 2015).

Time delay has also been noted as an important factor which can negatively affect eyewitness description accuracy (Hope et al., 2014). Although police and investigators always try and prioritize questioning witnesses as soon as possible, this is not always feasible. Witnesses may need time before they are ready to provide a statement or witnesses may need to be found first. During this delay period, witnesses' memories are vulnerable to decay and

the amount of information which can be recalled is minimized (Hope et al., 2014). Previous research has suggested that as the time delay increases, accuracy of eyewitness memory decreases which is indicative of a negative relationship between the two variables (Hope et al., 2014). It is also important to keep in mind that detailed information is known to decay more rapidly than vaguer memories and a delay also increases the chance that witnesses will come across new information affecting their initial memory. Both of these factors have negative implications for eyewitness description accuracy (Valentine & Maras, 2011). Members of the legal process should consider these negative factors especially since statements from eyewitnesses are usually the most important source of information in criminal investigations (Hjelmsater et al., 2012).

Rationale

A great deal of research has highlighted the importance of improving knowledge on eyewitness errors in members involved across all stages of the legal process (Pawlenko et al., 2013; Shermer et al., 2011) but there has been limited research in the area of verbal and written descriptions given by eyewitnesses and the accuracy of this. Time delay has also been considered an important factor affecting eyewitness description accuracy (Nejati et al., 2011), delay in interview time has been found to negatively affect eyewitnesses' descriptions but research on this is also minimal (Hope et al., 2014). It is important that research is collected on what exactly affects the accuracy of eyewitness descriptions and on the accuracy quality of verbal versus written descriptions, current literature has suggested that written descriptions provided by eyewitnesses as soon as possible after a crime, may be more accurate than verbal descriptions provided by eyewitnesses longer after the crime has occurred (Smith & Flowe, 2015). If eyewitnesses provide written statements shortly after a crime, they are suspected to perform better at lineup and the quality of their descriptions improve (Smith & Flowe, 2015).

Aims and Hypotheses

The aim of this experimental study was to determine whether or not there is a difference in the quality of verbal descriptions versus written descriptions provided by eyewitnesses and whether or not a delay in interviewing time can affect the quality of descriptions and identification accuracy provided by eyewitnesses. Current research suggests that written descriptions provided by an eyewitness themselves immediately after witnessing a crime may be more accurate than someone else taking those descriptions and summarizing it longer after the crime has occurred. This is typically seen in police investigations and has implications as verbal description summaries are the most common form of current police interviewing methods in South Africa (Smith & Flowe, 2015). A difference in the quality of

verbal versus written descriptions was also investigated through the use of 4 groups in this study, half of the participants provided written descriptions themselves and the other half of participants provided verbal descriptions which was then summarized by the researcher. Furthermore, the delay was investigated through introducing a delay and a no-delay condition, half of participants experienced a delay in interviewing time and the other half experienced no delay. Finally, lineup identification accuracy was assessed by providing lineups to all participants, the lineups included target-present lineups (including the perpetrator) and also target-absent lineups (perpetrator was absent).

There were ultimately three hypotheses of this study:

H_1: Written descriptions provided by eyewitnesses themselves will result in more accurate/correct descriptions than eyewitnesses providing verbal descriptions which are summarized by someone else.

H_2: Gathering eyewitness descriptions immediately after witnessing a crime will result in more accurate/correct descriptions than gathering eyewitness descriptions longer after witnessing a crime.

H_3: Confidence levels will have an effect on participant description accuracy.

Methods

Participants

This study aimed to recruit 160 participants, majority of participants were non-students and were recruited through snowballing. The cut-off age for participants was 75 years old and participants were only allowed to do the experiment if they were at least 18 years old. All participants were evenly distributed into four groups: Written-delay (WD), written- no-delay (WND), verbal-description-delay (VD), verbal-description-no-delay (VND). Participants were randomly distributed into one of these four groups through randomization software in Qualtrics. The participants which were in a written description condition provided written descriptions of a simulated crime themselves and the participants in the verbal description condition provided verbal descriptions of the simulated crime which was then summarized by the researcher. The participants which were in a delay condition watched a staged crime video and provided their descriptions only 24hours after watching the video. Participants in a no-delay condition provided their descriptions almost immediately after watching the staged crime video. All participants also received a lineup task after providing their descriptions, the first lineup would have had the perpetrator present and the second lineup would have had the perpetrator absent.

Materials

Before taking part in the experiment, participants were asked to complete a consent form in which demographic information was collected such as age, gender, and other general information relevant to the study. The consent form also gave participants a brief explanation of the experiment so that they knew what it would entail and also provided details on possible risks and issues with regards to withdrawing from the experiment (see Appendix A). An online platform, namely Qualtrics was used to administer the bulk of the research experiment. Staged crime videos were also used from previous research work and this was shown to participants, these videos were embedded into Qualtrics. Participants in the WND condition were asked to complete the follow-up task immediately after watching the video on the Qualtrics platform. The participants in the WD condition also used this platform to complete the full experiment, but they only completed the follow-up task 24hrs after. Although all participants in a written description condition had complete the full experiment on the Qualtrics platform, participants in a verbal description condition had a slightly different follow up task.

Participants in a written description condition received basic questions in ordinary format on Qualtrics which they were required to respond to themselves (see Appendix B for questions which was asked in Qualtrics). The remaining participants in a verbal description condition also watched the crime video on Qualtrics and also received the same set of questions but they were required to respond verbally via WhatsApp rather than on the Qualtrics software. The questions asked were designed to resemble typical police interviewing questions which are asked following the witnessing of a crime and were based on formats typically seen in self-administered interviews.

Design and Setting

This was a 2x2 factorial design which aimed to test the effect of two main conditions (time delay; type of description) on the accuracy of eyewitness descriptions. In this experiment, eyewitness description accuracy was the dependent variable and there were two independent variables with two levels each, hence taking the form of a 2x2 factorial design. The first independent variable was the time delay, this had two levels: No delay at all and a 24hr delay; the second independent variable was the type of description provided by participants, this also had two levels: Written descriptions and verbal descriptions. This experimental design had no control group but rather had four experimental groups: WD, WND, VD, VND. Different participants being exposed to different conditions made this a

between-subjects design, only the researcher was aware of the different conditions also making this a blind experiment.

Procedure

After ethical approval was granted, participant recruitment began. Interested participants were briefed on the procedures of the study through their consent form and once they had provided informed consent, they were allowed to start the experiment. Once all participants had been recruited, they were randomly divided into one of four conditions: WD, WND, VD, VND. Participants were not informed that they were being split into different groups and they were also not aware of the different conditions. This was done so that these factors would not influence participants responses and lead to changes or biases in the outcome of the experiment.

Participants were also randomly assigned to watch one of four staged crime videos in order to increase variability in the experiment and cover more areas as opposed to one video which all participants would have potentially watched. Participants in the WND condition received a Qualtrics link taking them to a staged crime video which was approximately 5 minutes long to watch, the video was of a petty crime. Once the participant had watched the video, they were redirected to a questionnaire (see Appendix B) asking questions on the crime they had witnessed. Participants in the WD condition also received a Qualtrics link taking them to a video, however they only completed the questionnaire section 24hrs after watching the video. All participants in a written description condition would have received the same questionnaire. Once participants in a written description condition were done with the questionnaire, they were then redirected to complete the lineup task. All participants would have seen two lineups, one with the perpetrator present and one with the perpetrator absent (see Appendix C for lineups). The first lineup shown included the perpetrator and the second lineup shown would have had the perpetrator absent. This was the style of lineup presentation which all participants would have received regardless of which video they watched or which condition they were in.

Participants in the VND condition received the same initial Qualtrics link showing a staged crime. Immediately after watching the video, they were shown the same set of questions on Qualtrics as participants in the written description conditions. However, these participants were required to respond to the questions verbally on Whatsapp rather than typing it out on Qualtrics. The researcher then summarized these verbal answers. Finally, participants in the VDD condition also received the Qualtrics link to a crime video, only 24hrs after watching the video were they then contacted by the researcher via email with a

follow-up Qualtrics link. This link would once again, prompt these participants to respond to the crime questions verbally on Whatsapp rather than on Qualtrics. Once participants in a verbal condition were done with their verbal 'statement' on WhatsApp, they were redirected to Qualtrics once more to complete their specific lineup task.

Participants were marked on their number of overall 'correct responses/descriptions'. The correct descriptions were predetermined and based on the individual videos provided. For example, when answering question 3 in the questionnaire (see Appendix B), a correct description was based on whether or not a correct setting was identified, if the staged crime occurs in a bookstore and the eyewitness says that the crime occurred within a bookstore or in a 'shop selling books', they were marked correct. The identification task (see Appendix C) was also marked correct based on if the correct perpetrator/s were identified or not.

Data Analysis

Since this study was based on a quantitative paradigm, statistical analyses were conducted on the produced results. The analyses included factorial ANOVA's and linear modelling. The calculations tested for significant differences between the means of the four groups and for significant relationships between the variables of interest in the study: time delay, type of witness description, confidence levels and its effect on eyewitness description accuracy.

Results

Participant responses was coded by the researcher and then converted into percentage accuracy scores. Each condition was marked independently based on which coding criteria they had (this would have been based on each video watched). If participants said that they were not sure whether or not the perpetrator was present during their lineup tasks, they were still marked as incorrect or received '0'. For all statistical analyses' alpha was set at 0.05.

Measures of Accuracy

There were two measures of accuracy used in this experiment to determine participant accuracy scores, the first was predetermined coding sheets for each individual video. Each participant's score would have been coded accordingly depending on which video they were randomly assigned to watch. The second was lineup scoring, participants were first shown a lineup with the perpetrator absent, if they identified the perpetrator it was coded as 1 (with the highest possible score being 1) and if they identified incorrectly or said they were not sure, they were marked with '0'. Levels of participant confidence was also considered and was measured on a 5-point scale with 0 being 'extremely unconfident' and 5 being 'extremely confident'.

Accuracy of Verbal vs. Written Descriptions

The means of the various conditions (WD, WND, VD, VND) were compared to test whether or not the different conditions had a significant effect on participant accuracy levels. These figures were put into a linear model in R-Studio where a factorial ANOVA was run. The results from the ANOVA showed that there was no significant interaction between the amount of correct participant responses and the condition that they were placed in, $p > 0.05$. This does seem to suggest that time delay and the type of witness description provided may not be contributing to participant accuracy scores as initially thought. However, the results do also show us that participants in the written conditions were closer to having a significant effect on accuracy scores than participants in a verbal condition. This is apparent as the participants in the written conditions produced results closer to the alpha value of 0.05 than the participants in a verbal condition. There was however a significant interaction effect observed between extremely low confidence levels (1) and participant accuracy scores, $p < 0.05$. These results are summarized in figure 1 below.

Figure 1

```
Call:
lm(formula = CORRECT ~ CONFIDENCE * CONDITION, data = figures)

Residuals:
    Min     1Q  Median     3Q    Max
-29.825 -6.828   0.000  7.277 38.717

Coefficients: (2 not defined because of singularities)
                            Estimate Std. Error t value Pr(>|t|)
(Intercept)                  43.4783    13.4204   3.240  0.00231 **
CONFIDENCE2                  11.7849    16.4365   0.717  0.47725
CONFIDENCE3                   2.4211    16.4365   0.147  0.88359
CONFIDENCE4                  -4.3204    14.7013  -0.294  0.77027
CONFIDENCE5                  25.5149    16.4365   1.552  0.12791
CONDITIONVND                 -1.1442    16.4365  -0.070  0.94483
CONDITIONWD                 -13.0435    18.9793  -0.687  0.49562
CONDITIONWND                 -9.0572    16.4365  -0.551  0.58446
CONFIDENCE2:CONDITIONVND    -19.1518    19.7542  -0.970  0.33772
CONFIDENCE3:CONDITIONVND     -0.2639    20.4999  -0.013  0.98979
CONFIDENCE4:CONDITIONVND     -3.1854    18.1299  -0.176  0.86136
CONFIDENCE5:CONDITIONVND     -4.6911    23.2448  -0.202  0.84102
CONFIDENCE2:CONDITIONWD     -21.1670    23.2448  -0.911  0.36757
CONFIDENCE3:CONDITIONWD      14.5126    25.1072   0.578  0.56626
CONFIDENCE4:CONDITIONWD       8.8293    20.7907   0.425  0.67319
CONFIDENCE5:CONDITIONWD      12.4714    25.1072   0.497  0.62191
CONFIDENCE2:CONDITIONWND     -3.9703    20.1305  -0.197  0.84458
CONFIDENCE3:CONDITIONWND          NA         NA      NA       NA
CONFIDENCE4:CONDITIONWND     17.1154    17.8618   0.958  0.34331
CONFIDENCE5:CONDITIONWND          NA         NA      NA       NA
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 13.42 on 43 degrees of freedom
Multiple R-squared:  0.4168,    Adjusted R-squared:  0.1863
F-statistic: 1.808 on 17 and 43 DF,  p-value: 0.05918
```

Although low confidence scores seem to affect participant accuracy scores, no significant effect was observed between other levels of confidence on participant accuracy scores. There also seems to be no significant effects between confidence scores and the condition the participants were placed into, suggesting that type of participant description (written vs. verbal) does not have an effect on the participants level of confidence – participants do not seem to mind providing their statements verbally or written as it does not effect their confidence in their statement.
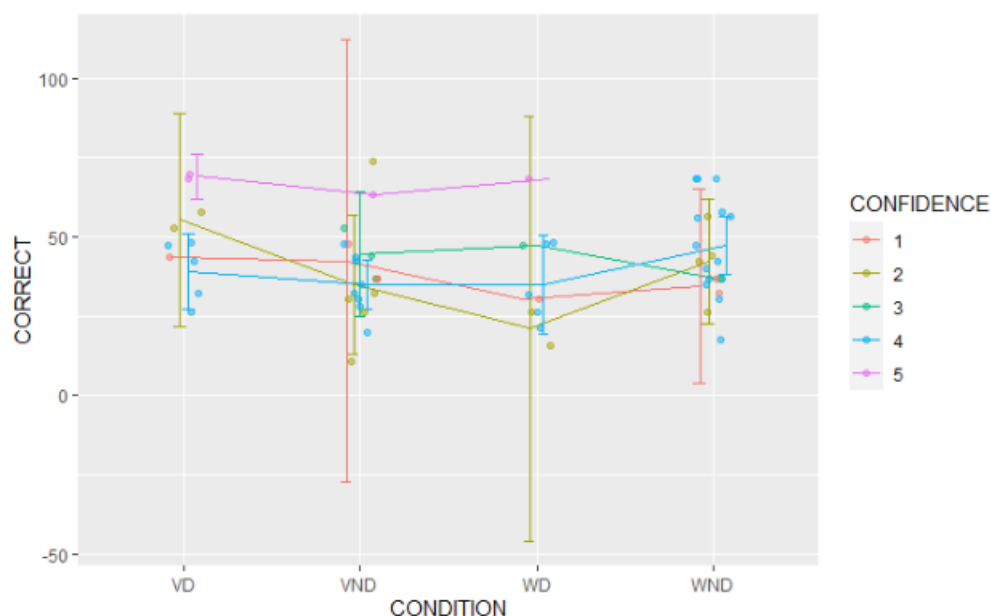
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Figure 2

Figure 2 above shows that the VND condition had the widest range of accuracy responses, the WND condition accuracy responses seemed to cluster around 20%-60% accuracy. This seems to suggest that written responses allow for more conciseness and precise descriptions while verbal responses may allow for more varied responses which could actually contribute to low accuracy scores. The opposite is observed with the VD and WD conditions, where the WD seems to produce more varied responses than the VD. Could this possibly suggest that when a delay is involved, written descriptions become more varied and may also produce low accuracy scores?

Limitations

Due to the nature of this study and the various conditions, 160 participants was the initial participant recruitment goal. This unfortunately did not end up being possible, and less than half of the desired number of participants ended up being recruited. This was due to a variety of factors: the study being conducted online, the emergence of the COVID-19 pandemic and changes to processes occurring on the university campus. This issue is one that may easily be avoided in future replications of this study, future researchers could possibly generate more efficient interviewing means which does not force the interview to be conducted online/virtually. Many participants dropped out due to the study being online, it is not determined why these participants dropped out, but suspected reasons could be data usage costs and difficulties remaining connected and being online. The study was initially going to make use of in-person interviews which could hopefully be achieved in future research once social distancing is no longer an issue. The low sample size leads to issues with

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generalizability and accurate results, if future researchers incorporate more participants into this research, the yielded results will be more accurate and more closely reflect that of the general population.

As previously mentioned, the study was initially going to be conducted face-to-face and make use of in-person interviews. This was also not possible due to new restrictions put into place following COVID-19, this is a major downfall of the study as the interview was meant to resemble police interviewing methods which are always conducted in-person. Since the study had to be adjusted to take place online, it is difficult to guarantee whether or not the produced results accurately reflects answers which would have been given in a proper police style interview. Participants may have taken a more laid-back approach to answering questions as they would not have been with the researcher in a set-up environment. Another issue with this study being conducted online, is the fact that the researcher cannot monitor the participant directly. For example, the participant may have watched the staged crime video more than once without the researcher knowing, this would then lead to this participant yielding more accurate results than they would have if they had only watched the video once. These sorts of issues tried to be avoided by asking participants to indicate how many times they watched the video, but participants could also lie and say they had only watched it once. This is also an easy issue to combat in future – researchers could rather make use of video-call or revert back to in-person interviews once social distancing restrictions are lifted.

Another limitation of the study were the measures of accuracy, only one researcher was used to mark participant results rather than using two researchers to mark and then checking for inter-rater reliability. The absence of a second researcher to assist with coding opens up room for error with the coding of participant responses. It could also lead to biases in the study. Future replications of this study could ensure that there is at least two or three researchers checking each other's coding, this will lead to more accurate results and leaves less room for error and biases.

Accessibility would be another potential issue in this study, once again the online nature of the study comes into question here. With participants mainly being from South Africa, internet connectivity and accessibility is not always possible and if it is, it may often be faced with difficulty or the connections are slow and not reliable. Many participants struggled with connectivity which eventually caused them to drop out in the second half of the study (those participants in a delay condition). This also contributed to a small sample size as these participants had to be considered as drop-outs of the study and their results could not be used in the final data analysis. This accessibility issue is also one that can be

combatted in future replications of this study, researchers may use in-person interviews which would then remove the issue of internet connection as everything will be conducted in-person.

Discussion

Previous research work in this area has typically found that written descriptions provided by eyewitness's product more accurate perpetrator descriptions, which then also assists with accurate identification during lineup tasks (Smith & Flowe, 2015). A time delay between interviewing the witness and the crime, typically leads to a decrease in participant description accuracy and their lineup performances are also negatively impacted. This leads to many real-life issues such as incorrect individuals being incriminated for a crime they did not do (Smith & Flowe, 2015). This study seemed to depict the results seen in the current literature, being that written descriptions provided by participants produce more accurate descriptions than verbal descriptions provided by participants. Although no significant result was produced between the condition participants were placed into and their accuracy scores, it was notable that the results produced by the participants in a written condition were closer to being significant than results produced by participants in a verbal condition. Although the results between written conditions and accuracy scores were not significant, the notable difference in accuracy scores between verbal and written condition participants seems to lean towards the idea that written descriptions yield more accurate results than verbal descriptions, this notion is in line with the current literature in the field. The second area of interest in this study was the time delay, the results of this study also found that participants in a delay condition seemed to produce more varied and unconcise responses. Although no significant effect was observed between the participant condition and accuracy scores, the results from the study still indicated that participant descriptions in the no-delay condition were more concise, therefore usually being more accurate. The final factor this study considered was participant confidence levels, numerous bodies of research have previously found that high confidence levels do not always reflect accurate results and that heightened confidence can provide witnesses with a false sense of 'knowing' (Hellmann et al., 2011). This study found that low confidence levels do have an effect on participant accuracy scores, there was no significant effect observed between high confidence levels and participant accuracy scores. This seems to suggest that low confidence may affect eyewitness descriptions more than having high levels of confidence. These findings are slightly different to what is observed in the current literature, it has usually been found that high levels of confidence may negatively

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affect accuracy scores but in this instance, the opposite was observed – high confidence levels did not seem to impact participant accuracy scores.

A lot of the findings in this study do reflect the current literature but not to a significant extent thus only H_3 was accepted. A significant effect between confidence levels and participant accuracy scores was observed whereas no significant effect between participant accuracy scores and time-delay as well as type of participant description was observed. These findings also indicate that eyewitness descriptions and identifications provided by eyewitnesses with low confidence levels should be carefully and considered and evaluated before being used as evidence in a criminal case. Written descriptions could also be used as a default option for providing statements since it seems to yield more accurate responses. No significant effects between confidence scores and the condition the participants was in, suggests that type of participant description (written vs. verbal) does not have an effect on the participants level of confidence – participants do not seem to mind providing their statements verbally or written as it does not affect their level of confidence regarding their statement provided.

It is also important to keep in mind the limitations of this study as these factors may also have a huge contribution to the produced results of this study. Future researchers should try and eliminate the limitations which were faced in this study.

Ethics

In order not to influence participants results, they were not made aware of the four different conditions for the duration of the experiment, but this was explained on a debriefing form shown to all participants once they had completed the entire study (see Appendix D). Ethical clearance was also granted prior to data collection and prior to commencement of the study (see Appendix E). All participants completed a consent form on Qualtrics before they could participate in the study. Participants were also to allowed to withdraw at any time and if they chose to, it did not result in any consequences. Participants did not experience any threat to physical safety in this experiment, however one risk was noted that the staged crime video may evoke emotional responses in participants, particularly those who may have undergone some type of traumatic experience before. This risk factor was also mentioned in the consent form sent out to participants so that they were aware and could choose not to participate. A list of contact numbers for trauma counselling services were also provided in the consent form of the study.

The individual results of participants are kept confidential and results will only be published for statistical purposes and will not be linked to any specific participant,

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participants can however request their individual results after the entire study is complete. This study aimed to produce relevant, accurate data which may be utilized in future investigations, the study is also replicable so that other researchers may replicate and edit the study as they wish to.

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Appendix A

Dear Participant

Thank you for your interest in this study, your participation is really helpful and appreciated. Thank you for contributing your time to the study.

Study Description

This study will be investigating the accuracy of verbal and written descriptions provided by eyewitnesses following a crime. It will ultimately aim to test your memory. The data gathered from this study will be used for research on eyewitness memory and ways to improve police interviewing methods and lineup protocols. This study forms part of my Honours work and will be used to complete my thesis.
Please complete the study on a laptop/PC, unless prompted to do otherwise. I cannot guarantee that all aspects of the study will work accurately if it is not completed on a laptop/PC.
This is a 2-part study, if you choose to participate, you will first be shown a staged crime video and will then be asked to complete a follow-up task. You will only be allowed to complete the study once and it will take approximately 20 minutes to complete the study in total, maybe even less. On this basis, please only participate if you are able to commit some time to complete the whole study.

Inclusion/Exclusion Criteria

This study will be recruiting anyone between the ages of 18 and 75 years old, it is also necessary that you are able to understand, speak and read English because the study instructions are in English.
You need to complete the study by yourself, without the help of anyone else. If the study is completed with someone else, I will not be able to ensure the quality of my research.
You will need a laptop to complete this study as well as a phone with Whatsapp and voicenote capabilities.

Risks

The staged crime video may evoke emotional reactions/responses but besides this there are no known risks associated with completion of this study. If you experience any negative side effects from participating in the study, please contact the researcher and you will be given details of professional services which can assist.
Participation in this study is voluntary and you may withdraw at any time you wish, please let the researcher know if you are uncomfortable or no longer want to participate.

UCT Wellness Centre
Rhodes Avenue, Mowbray, Cape Town, 7700
021 650 1017
South African Depression & Anxiety Griup (SADAG)
UCT Hotline (24hrs) - 0800 24 25 26
Or see http://www.sadag.org/index.php?option=com_content&view=article&id=3012:university-lines&catid=95:finding-help&Itemid=101 for more helpline options.

If you need help or someone to talk to, call one of the above numbers or you can visit a trauma room at one of your local police stations.

Data

All participant details will be kept confidential and stored in a separate database (password protected computers) which only the researcher can access, results from this study will not be linked to individual participants.

You will be guided throughout the study and instructed on exactly what to do, don't worry about your performance too much and just enjoy the study :)

☑
Q77
⚙

If you have any concerns you'd like to address before participating, please feel free to contact the researcher on the below email:
HNKNAZ001@myuct.ac.za - Nazeedah Hanekom
colin.tredoux@uct.ac.za - Colin Tredoux (Research Supervisor)
rosalind.adams@uct.ac.za - Rosalind Adams (UCT - Honours course secretary)

☐Q1   I have read the above and give my consent to participate in the study.

⚙   ○ Yes

✳

Q2 I understand that I can withdraw at any time and that my participation is completely voluntary. By giving consent, I also acknowledge that I can read, write and understand English.

○ Yes

Q3 I will be using a desktop/PC unless instructed to do so otherwise.

○ Yes

○ No

Q4 I do not have any known or diagnosed memory problems.

○ Yes

○ No

Q5 Gender

○ Male

○ Female

○ Genderqueer/Non-Binary

○ Transgender

○ Prefer not to disclose

Q6 Are you currently living in South Africa?

○ Yes

○ No

Appendix B

	You will now be asked to complete a statement on the video you watched earlier. Please try be as detailed as possible.
instruction statemen ⚙	

	Imagine if the police had contacted you after witnessing the crime, they have now asked you to provide a statement on what you saw.
Q20 ⚙ iQ *	In the block below you may freely describe in your own words what you witnessed in the video, try to cover as many details of the incident as possible such as:

1)   The type of crime witnessed? How long was the incident? Explain from beginning to end.
2)   Where did the crime happen?
3)   Who was involved in the crime? Explain perpetrators you saw and their details (did they take anything; was there only one perpetrator?)
4)   Was there a weapon involved?
5)   Other witnesses involved.

You may use this as a guideline to provide your statement. |

	You will now be asked to complete a statement on the video you watched earlier. Please try be as detailed as possible.
Instruction 2 ⚙	

	Imagine if the police had contacted you after witnessing the crime, they have now asked you to provide a statement on what you saw.
Q20 ⚙	Please provide a statement in your own words covering the following information:

1)   The type of crime witnessed? How long was the incident? Explain from beginning to end.
2)   Where did the crime happen?
3)   Who was involved in the crime? Explain perpetrators you saw and their details (did they take anything; was there only one perpetrator?)
4)   Was there a weapon involved?
5)   Other witnesses involved.

You may use this as a guideline to provide your statement. Please record a voice note of your statement and send it to the below number on Whatsapp along with your special code identifier you created earlier (initials + your birth date in the following format: **day/month/year**):
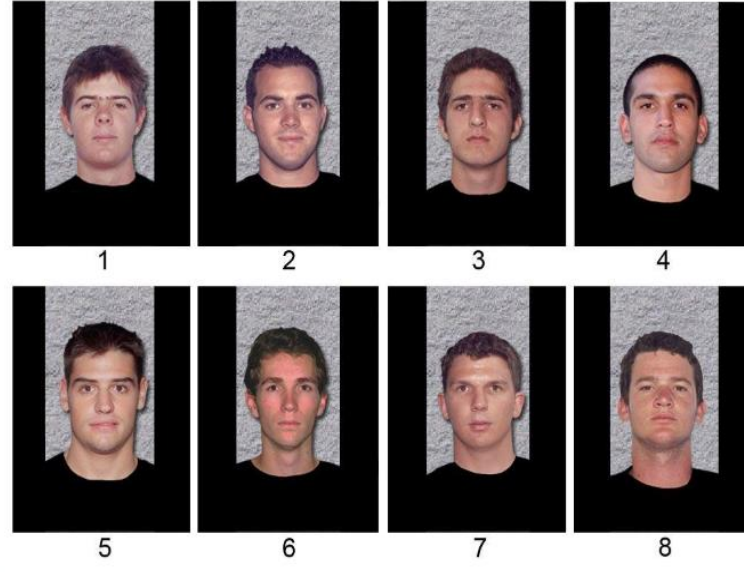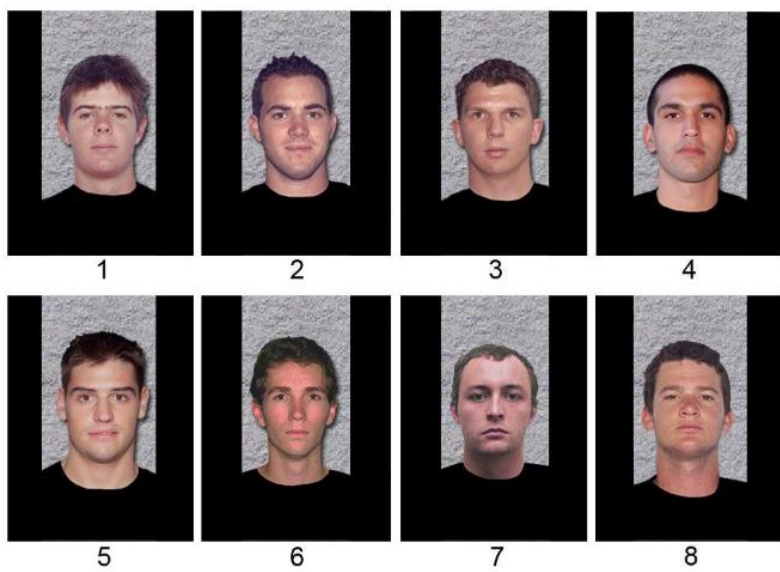
(+27) 084 655 2333 - UCT Eyewitness Experiment

DO NOT EXIT the survey page whilst sending the voice note. When you are done sending the voice note, you can click on the arrow below to navigate to the next page. Please do not move on to the rest of the survey if you have not sent the voice note first. |
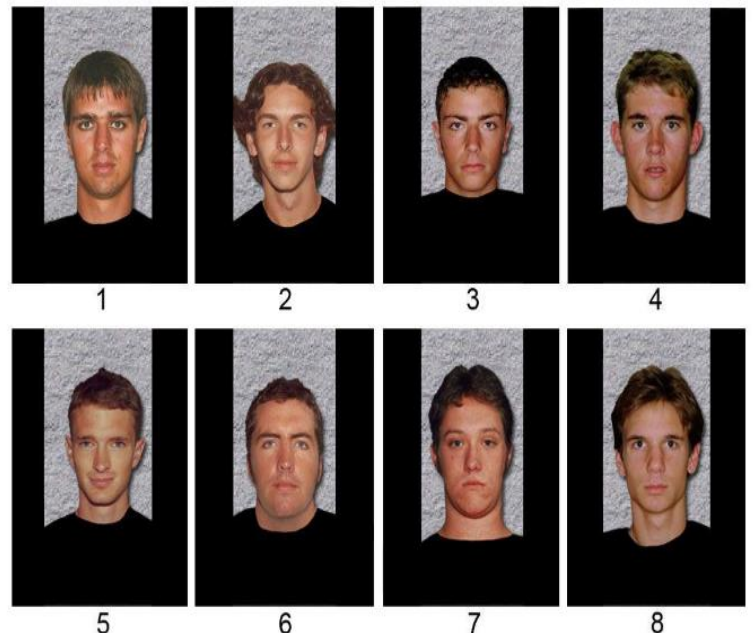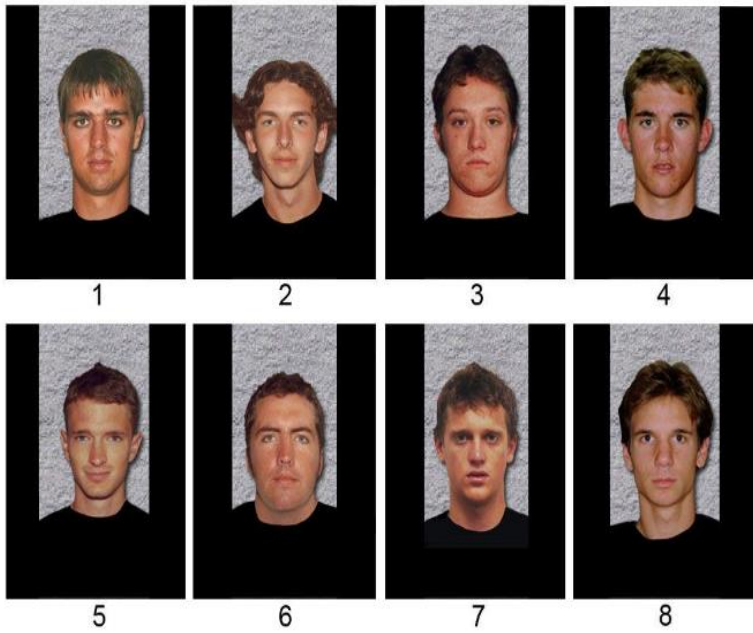
Appendix C

Lineups -Video 1 (Target Present vs Target Absent)

Lineups -Video 2 (Target Present vs Target Absent)

Lineups -Video 3 (Target Present vs Target Absent)
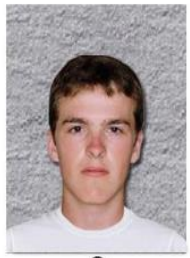
Lineups -Video 4 (Target Present vs Target Absent)
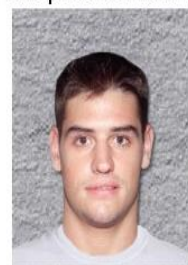
Appendix D

Thank you for participating in this experiment!

Your description accuracy was tested and you were placed into one of four groups within this experiment. I really hope you enjoyed taking part in the study.

If you would like to know how you did, please feel free to contact the researcher on the email below:

HNKNAZ001@myuct.ac.za - Nazeedah Hanekom.

Just a few last questions.

How many times did you watch the video before answering the statement question and lineup?

Have you seen this video before?

O Yes

O No

Did you complete the experiment alone?

O Yes

O No

Appendix E

UNIVERSITY OF CAPE TOWN

Department of Psychology
Research Ethics Committee
Rondebosch, 7701
Tel: 27 21 6503417 Fax: 27 21 6504104

APPLICATION TO CONDUCT PSYCHOLOGICAL RESEARCH

1. All applications must be submitted with the documentation outlined in the attached form.

2. All documents should be submitted electronically.

3. The University of Cape Town's Department of Psychology actively supports research as an essential academic function. It is essential that all applicants consult the UCT Code for Research involving Human Subjects (available from the UCT website).

4. In the case of research involving clinical populations, drug trials, neuroimaging, and recruitment from Groote Schuur Hospital or any affiliated medical institutions, approval must also be obtained from the Faculty of Health Sciences Research Ethics Committee (FHS REC).

5. Final responsibility for the ethical and effective conduct of the research lies with the principal investigator.

HONOURS STUDENTS:

Complete this application form, and submit it to Rosalind Adams with the formal research proposal that forms part of your research methods module in the Honours programme.

MASTER'S AND DOCTORAL STUDENTS:

Complete this application form, and submit it in electronic form to Rosalind Adams attached to the research proposal you will present to a departmental thesis committee.

DEPARTMENTAL STAFF, VISITING SCHOLARS AND POST-DOC STUDENTS:

Complete this application form, and submit it in electronic form to Assoc. Prof. Lauren Wild (lauren.wild@uct.ac.za). The application must be accompanied by a detailed proposal (maximum length 25 1.5-spaced pages).

UNIVERSITY OF CAPE TOWN
DEPARTMENT OF PSYCHOLOGY
APPLICATION FOR ETHICAL APPROVAL TO CONDUCT PSYCHOLOGICAL RESEARCH

Section A	Proposal Identification Details	To be completed by all applicants
Section B	Study Information	To be completed for all studies
Section C	Financial and Contractual Information	To be completed by all applicants
Section D	Declaration on Conflict of Interest	To be completed by all applicants
Section E	Ethical and Legal Aspects	To be completed by all applicants
Section F	Checklist	To be completed by all applicants

Section A: Proposal identification details.

1. Title of the proposal/protocol: Assessing the Accuracy of Eyewitness Verbal and Written Descriptions	

		Yes		No ⊠
2. Has this protocol been submitted to any other Ethical Review Committee?				
2.1 If so, list which institutions and any reference numbers.	NA			
2.2 What was/were the outcome/s of these applications?	NA			

		Yes		No ⊠
3. Is this proposal being submitted for ethical approval for an amendment to a protocol previously approved by this committee?				
3.1 If so, what was the previous protocol's reference number? NA				

4. Investigator details

4.1 Principal Investigator (if a student project, the student is the principal investigator):

Title	Initials & Last Name	Department and Institution	Phone	Email	Signature	Date
Miss	N Hanekom	Psychology Dept. University of Cape Town	084655 2333/0 789574 981	nazhoneycombe@gmail.com	NH	17/05/2020

4.1.1 (If different to 4.1 above) UCT Principal Investigator

Title	Initials & Last Name	Department and Institution	Phone	Email	Signature	Date

4.2 Co-investigators: (if a student project, add the supervisor's name here)

Title	Initials & Last Name	Department and Institution	Phone	Email
Prof	C Tredoux	Psychology Dept. University of cape town	0828548 346	colin.tredoux@uct.ac.za
Dr.	Alicia Nortje	Psychology Dept. University of cape town	0836882 828	alicia.nortje@gmail.com

5. Is the study being undertaken for a higher degree?	Yes ✗	No

If yes:

5.1 What degree? Honours in psychology

5.2 Student name: Nazeedah Hanekom

5.3 Supervisor name: Colin Tredoux and Alicia Nortje (co-supervisor)

5.4 In what department is the degree? The psychology department

Section B: Study Information (summarize the information contained in the proposal).

6. Who will act as participants in the study? *Undergrad students at UCT and non-students recruited through snowballing.*

7. Estimated number of participants:

   160

8. Estimated duration of study:

   +-1 month to collect data.

9. Location of study (e.g. UCT, school, hospital, etc., where you will gather data from the participants):

The entire study will take place online on the Qualtrics platform and on WhatsApp.

10. Recruitment: Please describe how and from where the participants will be recruited. Attach a copy of any posters or advertisements to be used.

    Half of the participants will be undergraduate students at the University of Cape Town, they will be recruited through the Department of Psychology's student research participation program (SRPP), making this convenience sampling. The other half of participants will be non-students recruited through snowballing.

11. Vulnerable groups: Are there pre-existing vulnerabilities associated with the proposed participants, e.g., relating to pre-existing physiological or health conditions, cognitive or emotional factors, and socio-economic or legal status?

Yes		No

    If yes, explain briefly what vulnerability would entail in the study, and how you propose to safeguard participants' wellbeing.

NA

12. Risks: Briefly describe the research risk associated with your study, i.e. the probability and magnitude of harms participants may experience. Minimal risk means that the probability and magnitude of harm due to participation in the research are no greater than that encountered by participants in their everyday lives.

The use of a staged crime video may evoke emotional reactions in participants especially if they have undergone a similar traumatic experience before. The staged video will depict a theft taking place in a bookstore/lab.

13. Costs: Give a brief description of any costs or economic considerations for participants.
The only cost to participants would be their data usage, besides this there are no other economic considerations.

14. Benefits: Discuss any potential direct benefits to the participants from their involvement in the project.

Participants who are students at the University of Cape Town will receive SRPP points which go towards a course of their choice. Besides this, participants can learn more about identification processes and can also request their results once the study is completed.

15. Compensation: If participants are to receive compensation for participation, please provide details.

Same as discussed in Question 14 above.

16. Consent. Describe the process to be used to obtain informed consent. Where applicable, attach a copy of the information letter and consent form.

Prior to undertaking the study, potential participants will be emailed a consent form with all the relevant details relating to the study. Please see Appendix A for the consent form. The form will ask for their demographic information and establish consent.

17. Confidentiality. Please describe the procedures to be used to protect confidentiality of the data.

The results of the study will not be linked to individual participants, participant details will be stored on a password protected computer which only the researchers can access. Participants will be assigned numbers instead of using their names to ensure confidentiality of results.

18. Does the protocol comply with UCT's Intellectual Property Rights Policy (including ownership of the raw data)?	Yes ☒	No

Section C: Financial and contractual information

19. Is the study being sponsored or funded?	~~Yes~~	No
If yes: 19.1 Who is the sponsor/funder of the study? The National Research Foundation (NRF) is funding my studies for my honours degree.		
19.2 Are there any restrictions or conditions attached to publication and/or presentation of the study results?	Yes	~~No~~
19.3 Does the contract specifically recognize the independence of the researchers involved?	~~Yes~~	No
(Note that any such restrictions or conditions contained in funding contracts must be made available to the Committee along with the proposal.)		
20. Will additional costs be incurred by the department?	Yes	~~No~~
20.1 If yes, specify these costs: *NA*		

Section D: Statement on Conflict of Interest

The researcher is expected to declare to the Committee the presence of any potential or existing conflict of interest that may potentially pose a threat to the scientific integrity and ethical conduct of any research in the Department. The committee will decide whether such conflicts are sufficient as to warrant consideration of their impact on the ethical conduct of the study.

Disclosure of conflict of interest does not imply that a study will be deemed unethical, as the mere existence of a conflict of interest does not mean that a study cannot be conducted ethically. However, failure to declare to the Committee a conflict of interest known to the researcher at the outset of the study will be deemed to be unethical conduct.

Researchers are therefore expected to sign **either** one of the two declarations below.

a) As the Principal Researcher in this study (name: Nazeedah Hanekom), I hereby declare that I am **not aware** of any potential conflict of interest which may influence my ethical conduct of this study.

Signature: NH
Date: 17/05/2020

b) As the Principal Researcher in this study (name: _____), I hereby declare that I am **aware** of potential conflicts of interest which should be considered by the Committee:

Signature: _____   Date:_____

Section E: Ethical and legal aspects

21. Have you read the UCT Code for Research involving Human Subjects (available from the UCT website)?	Yes ☒		No

Section F: Checklist   **Tick**

Application form	1 electronic copy	Y
Covering letter and all other correspondence (e.g., ethics approval from other bodies, letters to parents, etc.)	1 electronic copy	Y
Detailed proposal, including a 200-word summary/abstract	1 electronic copy	Y
Consent/Assent form/s	1 electronic copy	Y
Participant information sheet/Debriefing form (if separate from consent form)	1 electronic copy	Y
Other documents (e.g., advertising posters)	1 electronic copy	Y

IMPORTANT NOTES:

- All applicable sections of this application form must be filled in OR justified why not.
- All applicable signatures must be sought
- All additional number of copies must be included with application
- All incomplete applications will be returned to the applicant, leading to delays in review.

Version February 2017