The Impact of the Physical Environment on Tele-Forensic Interviews

by

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Abstract

Children's accounts of an event can sometimes be the only evidence to a crime, so a trained forensic interviewer is crucial to obtain the highest quality of information from the child. However, trained interviewers may not be available in isolated communities, so the use of tele-forensic (online) interviewing has been considered. Currently, there is limited research on how the online environment, and the heightened distractions that accompany it, may impact a child's recall. This study aims to help fill that gap. The physical background of the interviewer was manipulated to be simple, or complex, and the child could either see their own video feed, or it was hidden. For this study, 107 children between the ages of 9 and 11-years-old were recruited to take part in a tele-forensic interview about a witnessed science video. We hypothesized that distractions in the background of the interviewer during a tele-forensic interview would decrease recall accuracy and completeness. Further, allowing the child to view their own video feed may act as a distraction, however, having the child view their own face during recall may also increase disclosure rate of a transgression. The results showed evidence that children interviewed with a complex background were more accurate than children interviewed with a simple background, and that children who could see their own face were faster at disclosing a transgression. Thus, tele-forensic guidelines may need to be updated. This was the first study to provide empirical evidence for how to best set up a tele-forensic interview and is a good starting place for future research. Effective use of tele-forensic interviews will provide children in isolated communities with better access to justice.

Keywords: Tele-Forensic Interviews; Child Witnesses; Memory; Interviewing Guidelines; Psychology and the Law

Dedication

This thesis is dedicated to my husband Tim Edge, and our two dogs Nugget and PJ.

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Table of Contents

Declaration of Committee ii
Ethics Statement iii
Abstract iv
Dedication v
Acknowledgements vi
Table of Contents vii
List of Tables ix
List of Figures x

Chapter 1. Introduction 1
1.1. Tele-Forensic Interviews 1
1.2. Current Guidelines for Tele-Forensic Interviews 3
1.3. In-Person Interviews and Environmental Distractions 4
1.4. Other Distractions During a Tele-Forensic Interview 5
1.5. Present Study 6

Chapter 2. Methods 8
2.1 Participants 8
2.2 Design 8
2.3 Materials 8
2.3.1 Interviewer Background and Video Feed Visibility 8
2.3.2 Videos 9
2.3.3 Interview 10
2.4 Procedure 11
2.5 Data Coding 11
2.5.1 Detail Parsing 11
2.5.2 Categorization of Verifiable Details 12
2.5.3 Accuracy 12
2.5.4 Completeness 12
2.5.5 Disclosure 13
2.5.6 Percent Agreement 13
2.6 Data Analysis 14

Chapter 3. Results 15
3.1 Accuracy 15
3.2 Completeness 15
3.3 Disclosure of the Transgression 16

Chapter 4. Discussion 18
4.1 Limitations 22
4.2 Implications and Future Research 23

Chapter 5. Conclusion 24

References **25**

Appendix A. Video Script **29**

Appendix B. Order of Demonstrations **33**

Appendix C. Interview Script **34**

Appendix D. Consent/Assent Script **41**

List of Tables

Table 1. Mean proportions (standard deviations) comparing the experimental groups (background: simple or complex; face visibility: visible or hidden) across accuracy and completeness for analyses of the full interview and the free recall section only 16

Table 2. Proportion of children that made a disclosure of the transgression across the two face visibility conditions during both the full interview and free recall section 17

List of Figures

Figure 1. Interviewer background was either simple (left) or complex (right). The child was either able to see their own face (top) or it was hidden (bottom) 9

Chapter 1.

Introduction

1.1. Tele-Forensic Interviews

Cases of child maltreatment, and child sexual abuse in particular, often have no witnesses and limited physical evidence, thus the case against the defendant relies highly on the child's statement (Lamb et al., 2007). Obtaining the most complete and accurate account of the events from the child, therefore, becomes crucial to the investigation of abuse. This often means having a child interviewed by a trained child forensic interviewer. However, not all communities have access to these personnel; Isolated, small, or rural communities may not have a trained interviewer nearby (Brown et al., 2021; Hamilton et al., 2017; Pathirana, 2017). This can lead to a delay in the forensic interview that is associated with memory decay and the introduction of memory intrusions that can result in incomplete reports and decreased accuracy in children's reports (Brown et al., 2021). It could also lead to an interview being conducted by an untrained investigator. To address these challenges, online investigative interviews, otherwise known as tele-forensic interviews, have been considered (Brown et al., 2021; Hamilton et al., 2017; Pathirana, 2017). A tele-forensic interview is an investigative interview that takes place over a video-conferencing medium such as Skype, Zoom or Facetime (Brown et al., 2021).

Thus far, only a handful of studies have specifically looked at the effectiveness of any type of online interviews with children, including tele-forensic interviews. Most of the research looking at online interviews has done so in the context of closed-circuit television (CCTV) that is used in court. CCTV is an online interview that is used so children can testify from a room within the courthouse that is separate and less stressful from the courtroom (Doherty-Sneddon & McAuley, 2000; Flin et al., 1996; Goodman et al., 1998; Landström & Granhag, 2010; Tobey et al., 1995). Doherty-Sneddon and McAuley (2000) examined 6- and 10-year-olds that were interviewed in-person or through an online platform. Each of the children experienced a staged event of finding lost items and bringing them to "Fred's room," which was said to be the lost and found. Children were then interviewed about the events and the room they visited. Doherty-Sneddon and McAuley followed a standard interview protocol of rapport, free narrative

report, and then open-ended, specific, and close-ended questions. In addition, they asked direct and misleading questions to imitate a cross-examination type interview. Children who were interviewed online, reported fewer inaccuracies and were less likely to acquiesce to misleading questions than those in the face-to-face interview condition; older children produced a greater quantity of details during the in-person interview compared to those done through an online interview. Resistance to misleading questions and an increase in comfort was also found in other studies specifically examining use of online interviews in the context of CCTV research (Goodman et al., 1998; Landström & Granhag, 2010). However, these studies focused on how online interviews reduce stress in children compared to those who testify in court. Investigative interviews use a slightly different interview protocol than questioning done in court (Brown et al., 2021). Thus, although research examining CCTV testimony is related to tele-forensic interviews, more research looking specifically at investigative interviews out of a courtroom setting is needed.

Hamilton et al. (2017) studied tele-forensic interviews. They recruited children aged 5- to 12- years-old to participate in some activities and complete an interview about the events, either face-to-face (in-person) or over Skype (tele-forensic). They used the National Institute of Child Health and Human Development (NICHD) interview protocol that has been shown to help children produce an accurate and complete account of the events (Brown et al., 2013; Lamb et al., 2007; Orbach et al., 2000). There was no difference between children's accuracy in the tele-forensic compared to in-person interviews, even when children were presented with misleading questions, suggesting that the tele-forensic interviews could be just as effective as the in-person forensic interviews.

The results of Hamilton et al. (2017) have been recently replicated by Dickinson and colleagues (2021). In this recent study, children 4- 8-years-old played in-person activities and then were either interviewed in-person or with a tele-forensic interview. The researchers found no differences between tele-forensic interviews and in-person interviews regarding accuracy, or disclosures of a touch on the cheek. However, they did find children 4-6-years-old, but not 7–8-year-olds, were less talkative during the substantive portion of the tele-forensic interview compared to the in-person interview. Further, the authors found that 4–6-year-olds needed more prompts to make a disclosure of a transgression during a tele-forensic interview, however, they found

children 7-8-year-olds were faster to disclose a transgression during the tele-forensic interview compared to the in-person interview. Overall, Dickinson et al. (2021) concluded that tele-forensic interviews could be a suitable alternative to in-person interviews, especially for children over the age of 7-years-old.

The studies discussed above (Dickinson et al., 2021; Doherty-Sneddon & McAuley, 2000; Hamilton et al., 2017) provide evidence that tele-forensic interviewing can be as effective as in-person interviewing, however, more research is needed to make informed recommendations about the effectiveness, and potential limitations, of tele-forensic interviews. Additionally, empirically tested guidelines for how to set up tele-forensic interviews are required to ensure the highest quality of interview is conducted.

1.2. Current Guidelines for Tele-Forensic Interviews

Because tele-forensic interviews are a relatively new concept, there is limited research on the best practices for conducting these interviews. A study by Brown et al. (2021) has the most extensive set of guidelines for tele-forensic interviews. Similar to in-person interviews, Brown et al. (2021) suggested that interviewers follow evidence-based forensic interviewing practices, such as building rapport, starting with a practice interview and posing open-ended questions so the child leads the interview. Additionally, similar to in-person interviews, they suggest having interviewers be supportive rather than intimidating. Past research has clearly shown that supportive interviewers will elicit better recall from children and make them more comfortable to disclose the event being investigated (Brubacher et al., 2019; Carter et al., 1996; Goodman et al., 1991). An interviewer can show support by nodding their head and giving brief non-contingent utterances of encouragement (Brown et al., 2021; Goodman et al., 1991), and keeping eye-contact (Carter et al., 1996). However, Myer et al. (2017; see also Brown et al., 2021) reviewed practices in tele-health, and pointed out that supportive behaviours may be more challenging online, because it is often not possible to watch the actions of the child and look at the camera on the computer at the same time. Additionally, time lag in the video feed can pose a problem for both eye-contact and supportive utterances (Brown et al., 2021).

Though some aspects of rapport may be difficult to develop and/or maintain online, others have reported that rapport was easier in an online environment because the child is more comfortable being in front of a screen than in an interview room (Dale &

Smith, 2021; Hamilton et al., 2017; Myers et al., 2017) and there may be less social pressure during an online interview than an in-person interview (Doherty-Sneddon & McAuley, 2000). Therefore, though the guidelines for the actual structure of the interview are similar between in-person and tele-forensic interviews, some aspects such as using rapport to enhance comfort may be easier in a tele-forensic interview, while others, such as eye-contact and supportive behaviours, may be more challenging.

Other guidelines by Vieth et al. (2020), Lundon et al. (2020) and National Children's Alliance (2020) for tele-forensic interviews have also been released in response to COVID-19 that support those of Brown et al. (2021). The guidelines released in response to COVID-19 almost exclusively refer to the use of tele-forensic interviews when the child and interviewer are in separate rooms, but both are located within a Child Advocacy Center (CAC) where high-quality equipment is available. The availability of high-quality equipment may not be realistic when considering doing interviews remotely for rural communities. However, some guidelines would still apply to tele-forensic interviews in rural communities. For example, the brief guidelines by Lundon et al. (2020) suggest the interviewer should have a blank screen that blocks out the interviewer's real background to minimize distractions. However, it has not been specifically tested if this is the best protocol for tele-forensic interviews.

In summary, the extant literature on virtual interviews indicates the reports given by children in a tele-forensic interview can be just as complete and accurate as those given in-person (Dickinson et al., 2021; Doherty-Sneddon & McAuley, 2000; Hamilton et al., 2017). However, the only guidelines available specifically for investigative tele-forensic interviews are from Brown et al. (2021), the brief COVID-19 related guidelines of Vieth et al. (2020), Lundon et al. (2020) and National Children's Alliance (2020). These important papers relied on existing literature to formulate recommendations, but there are still many questions that have been unanswered by researchers, such as specifically how the physical environment of the interviewer may impact recall.

1.3. In-Person Interviews and Environmental Distractions

Some guidelines developed for in-person interviews may be helpful when considering how to set up a tele-forensic interview. Research and guidelines on in-person interviews suggest that children should be interviewed in a room with low stimulation but that has child-friendly items to make them comfortable (Muñoz et al.,

2016, Orbach et al., 2000; Poole & Lamb, 1998; Saywitz & Camparo, 2014; Saywitz et al., 2017). Some researchers have suggested that stuffed animals can increase children's comfort (Perona et al., 2005), but others suggest that stuffed animals are distractions and should be removed from the room (Krueger, 2016). Published guidelines also suggest that toys should not be present in the room because they could be distracting to the child (Krueger, 2016; Orbach et al., 2000), but toys should be present in the waiting room to help the child feel comfortable prior to the interview (Poole & Lamb, 1998; Rohrabaugh et al., 2016). The environment should make the child feel comfortable and minimize distractions that could lead to a lower quality interview (Mastroberardino & Vredeveldt, 2014; Muñoz et al., 2016; Orbach et al., 2000; Rodrigues & Pandeirada, 2018).

Environmental distractions have been shown to influence children's recall in multiple cognitive tasks, including eyewitness testimony. For example, Mastroberardino and Vredeveldt (2014) examined how visual and auditory distractions impacted children's memory for a witnessed crime. They had 8- to 11-year-olds watch a video of a theft and then answer 18 open-ended questions either with a blank screen behind them (no distractions), visual distractions, auditory distractions, or they were instructed to close their eyes and viewed no screen. Children in both the no distraction and the eye closure conditions were more accurate and reported fewer inaccuracies than both the visual and auditory distraction conditions. Mastroberardino and Vredeveldt (2014) suggested that when children were asked to perform the recall task with environmental distractions, the cognitive load increased, leaving fewer mental resources to allocate to target memory retrieval, which is referred to as the cognitive load hypothesis (Mastroberardino & Vredeveldt, 2014). Evidence for the cognitive load hypothesis has been observed in studies with both children and adults (Hale & Stevenson, 1974; Nathanson & Saywitz, 2003; Perfect et al., 2012; Rodrigues & Pandeirada, 2018;). Thus, distractions, even in the surrounding environment, can impact recall during in-person interviews.

1.4. Other Distractions During a Tele-Forensic Interview

In most videoconferencing programs the parties can see both their video feed and the feed of the other person on the screen. Seeing one's own face can have at least two different effects during a tele-forensic interview with a child. First, it may act as a further distraction to the child (Brown et al., 2021; Su & Ceci, 2021) which can decrease

recall and memory ability in children (Mastroberardino & Vredeveldt, 2014; Nathanson & Saywitz, 2003; Saywitz & Camparo, 2014). Increased distractions may take some of the child's attention away from the task and increase their cognitive load leaving fewer resources the child can assign to retrieval of their memory for the event (Mastroberardino & Vredeveldt, 2014; Saywitz et al., 2017). Seeing their own video feed may be even more distracting than a still picture because there is movement, which is a salient distraction (Abrams & Christ, 2003). Additionally, research by Lavie et al. (2003) has also shown that faces are a very salient distraction, so a child seeing their own face on their screen could divert some of their attention from the interviewer.

Another theory is that allowing children to see their own video feed during a tele-forensic interview will decrease their likelihood to lie based on the self awareness hypothesis (Beaman et al., 1979; Bender et al., 2018). The self awareness hypothesis is based on the notion that when a person can examine themselves, they are more likely to be aware and conform to their moral code such as honesty (Bender et al., 2018). Beaman et al. (1979) demonstrated this effect when they showed that children were less likely to commit a transgression, in this case take more candy than allowed, if they could see themselves in a mirror placed behind the candy bowl than if they could not see themselves in a mirror. This same theory has been applied in an interview setting (Bender et al., 2018). Bender et al. (2018) showed that when preschoolers were interviewed about a transgression (i.e., if they peeked at a toy after being told not to peek), seeing themselves in a mirror placed behind the interviewer increased the likelihood for the child to disclose the transgression compared to children that could not see themselves. Thus, having the child be able to see their own face during the tele-forensic interview may also increase their likelihood to disclose a transgression they witness. Further, allowing children to see their own video feed may decrease their likelihood to lie during a tele-forensic interview, thus increasing their accuracy.

1.5. Present Study

The current study investigated how the physical environment of a tele-forensic interview influences recall in children aged 9 to 11 years. This research aims to provide some empirical evidence for how to best set up the physical environment during a tele-forensic interview and provide some further recommendations to the framework of guidelines already provided. The extant research suggests that the environment of the interview is important for a quality in-person interview (Mastroberardino & Vredeveldt,

2014; Perfect et al, 2012; Saywitz & Camparo, 2014; Saywitz et al., 2017), but it is unclear how the online environment of the interviewer during a tele-forensic interview can be structured to help achieve the highest quality interview. Additionally, this study aims to examine how a visible or hidden video feed of the child will impact the child's recall accuracy and the likelihood of disclosing a witnessed adult transgression (i.e., the teacher breaks an item and tells the child not to tell anyone).

Based on research on in-person interviews showing that distractions in the physical environment increase cognitive load and lead to lower completeness and accuracy (Hale & Stevenson, 1974; Mastroberardino & Vredeveldt, 2014; Rodrigues & Pandeirada, 2018; Saywitz et al., 2017), we hypothesized that when the interviewer's virtual background is more complex, children aged 9- to 11-years will have less complete and accurate recall of unique video details than children who see the simple interviewer background. In addition, we hypothesized that children between the ages of 9- and 11-years-old who can view their own video feed will be more conscious of what they say and report fewer inaccuracies about video details based on the self-awareness hypothesis (Bender et al., 2018). Additionally, if children can view their own face, we hypothesized that they will be more likely disclose a witnessed transgression than children who cannot view their own face.

Chapter 2.

Methods

2.1 Participants

Children aged 9-to-11 years were recruited for this study from online Facebook groups, science pages (e.g., Children Helping Science) and through school and summer camp connections. A total of 118 participants were collected for the study, which based on an a priori power analysis calculated in G*Power 3.1 (Faul et al., 2009) for an ANOVA with a medium effect size, the sample should have sufficient power (f = .26, α = .05, power = .80, sample size =119). Eleven participants were excluded from the analysis due to watching the video multiple times (n = 4), taking notes during the video (n = 1), withdrawing from the study (n =2) and audio failure that made transcribing impossible (n = 4). Thus, the final number of participants included in the analysis was 107. A $10 gift card was sent to the parent through email after the interview and compensation was given regardless of if the participant completed the full study.

2.2 Design

This study employed a 2 (interviewer background: simple, complex) x 2 (child's video feed: visible, hidden) between subject design. Participants were randomly assigned to one of the four groups and one of the video versions with a random number generator.[1]

2.3 Materials

2.3.1 Interviewer Background and Video Feed Visibility

There were two interviewer backgrounds: simple and complex. The simple interviewer background had a plain dull coloured background behind the interviewer. The complex interviewer background contained stuffed animals (e.g., an elephant and a bear) and three child-drawn paintings (e.g., of flowers), which are items that may be

[1] Due to an oversight in the first 36 participants, participants were counterbalanced on what video and condition they were assigned but were assigned to a participant condition based on the order they signed up, not using a random number generator. The remaining participants were both counterbalanced and randomly assigned with a random number generator.

present in the rooms set up for in-person forensic interviews to make the child feel more comfortable (See Figure 1). In addition, children were able to see their own face at the top of the screen, or they were not able to see their face at all and only saw the interviewer (See Figure 1).

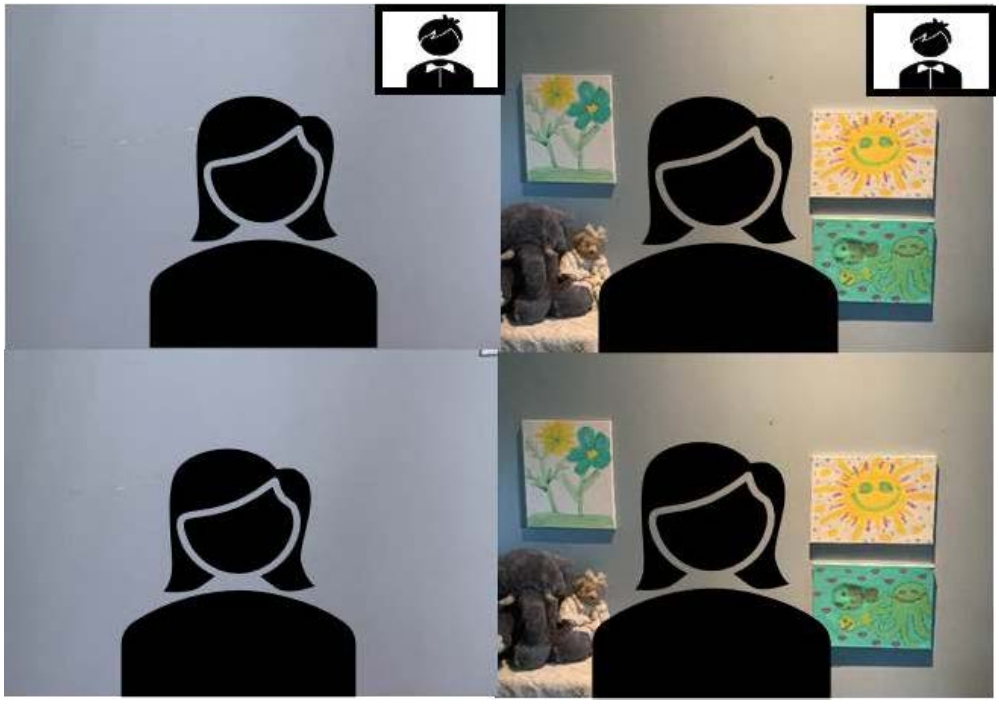

Figure 1. **Interviewer Background Conditions**
Interviewers background was either simple (left) or complex (right). The child was either able to see their own face (top) or it was hidden (bottom).

2.3.2 Videos

The full video script can be found in Appendix A. The videos showed a teacher demonstrating four science demonstrations and explained their educational value. The teacher also had an assistant, his companion dog, Nugget. The video contained seven distinct segments: Introduction, four demonstrations, transgression, and conclusion. All four of the demonstration segments followed a similar pattern of introducing the dog in a new costume, showing a dog trick, listing the materials of the science project, completing the science demonstration, explaining the science behind the demonstration, and finally cleaning up the project. The video also contained one transgression where a teacher dropped and broke a bowl and told the viewers not to tell anyone. Each science demonstration was 1.5 – 2.5 minutes, resulting in a total video length of approximately 9

minutes. There were eight versions of the target video that each contained four science demonstrations and one transgression. First, there were two separate orders of the demonstrations conducted. Second, there were four different versions of the video for each order to counterbalance which science demonstration the transgression followed, so the transgression was seen equally at each position (see Appendix B).

2.3.3 Interview

The interviews took place over the common video conferencing medium, Zoom. The interview contained the aspects of a forensic interview outlined by the NICHD protocol (Lamb et al., 2007).

The interview script is in Appendix C. The interviewer went over interview ground rules (e.g., "it's okay to say I don't know"), which followed a slightly modified version of the script for tele-forensic interviews provided by National Children's Alliance (2020; see https://learn.nationalchildrensalliance.org/telefi for introduction protocol).

Next, the substantive interview stage started. First children went through a free recall section where they had one initial invitation which was, "*First, tell me everything you remember about the science demonstrations, from the very beginning to the very end. No detail is too small.".* After the child appeared to be done answering this question, three open-ended follow-up prompts (e.g., *"What else do you remember?"*) were asked to elicit as much free recall about the demonstrations as possible.

After the free recall section, the interviewer moved on to the cued recall section and prompted, using the child's own words, the science demonstrations, the transgression (if mentioned), the teacher and teaching assistant, and the setting. The child was prompted for further details until the interviewer believed the child had no details left to say. Finally, if the child had not disclosed the transgression yet, the child was specifically asked, *"did anything happen during the video that shouldn't have?"* and the child was further prompted for more detail if they answered yes.

After the interview was completed parents and children were debriefed and given the opportunity to ask any questions.

2.4 Procedure

The interview took place over the video conferencing medium, Zoom. Children and parents were first introduced to the project, given a chance to ask questions and gave verbal consent and assent to participate. Since the study took place at the child's home, ethics required that parents have the option to stay in the room or leave during the experiment, but if they stayed, parents were asked to not help with any of the questions and stay out of camera view (See Appendix D).

The interviewer asked the parent to pull up the video link that had been emailed to them prior to the study and put the video full screen. Children were told to watch the video carefully, only watch it once and to not take any notes during the video. After the child watched the full video, a screen flashed to go back to the Zoom meeting. Children then took part in a 5-minute practice recall interview about their favourite movie. Next, the interviewer went over the ground rules and then the substantive interview was administered.

After the interview was complete the participants and their parents were debriefed about the study and asked some demographic questions (e.g., age, gender, use of video-conferencing program, etc.). After the Zoom interview was over, whether it was completed fully or not, a gift card was sent to the participant.

2.5 Data Coding

2.5.1 Detail Parsing

Every sentence that was spoken by the child during the substantive interview was parsed apart into meaningful words or phrases that were pre-determined by the researchers in the verifiable details list. Meaningful words and phrases that were parsed could be single words that provided unique information about a segment in the video (e.g., the dog wore a white bowtie = 2 details) or could be meaningful phrases from the video (e.g., oil is afraid of water = 1 detail). How details were parsed were determined in advance in the verifiable details list and agreement was determined between two researchers. Details about the video were either considered to be verifiable or unverifiable (items the researcher could not verify such as feelings or off-topic utterances). Only verifiable details were coded further. A verifiable details list was

created using a two-phase process. First, three researchers reviewed the video and extracted all the unique details they could identify (n = 118). Second, the researchers went through the first 20 child interviews to add any other items to the list that at least three children talked about (details added = 30). Thus, there was a total of 148 unique details on the verifiable detail list from the video.

2.5.2 Categorization of Verifiable Details

The video had seven segments (introduction, four separate science demonstrations, a transgression, and a conclusion). The coding first distinguished between details that occurred repeatedly throughout the video (e.g., *common details; a dog was present*) and details that were *unique* to just one of the seven segments (e.g., the dog wore *a bowtie)*. As our hypotheses concerned unique details, we did not analyze common details. Each unique detail was coded individually for each segment.

2.5.3 Accuracy

Using the parsed and categorized details described above, we coded if the detail reported by the child happened in the video (*experienced* = 1) or if the detail did not happen in the video (*not-experienced* = 0). We then calculated an accuracy score for unique details, which was experienced unique details reported divided by the sum of experienced and non-experienced unique details reported. Along with calculating the accuracy of all the unique details across all 7 segments for each participant, we also calculated the accuracy for each of the 4 science demonstration segments individually.

2.5.4 Completeness

Completeness was coded for unique details and was calculated by taking the total number of experienced unique details the child reported (as coded above) divided by the total number of unique details present in the video based on the verifiable details list described above. Thus, we calculated a completeness score for unique details that included all the reported experienced unique details divided by 148. Along with calculating completeness of all the unique details across all 7 segments for each participant, we also calculated completeness for each of the 4 science demonstration segments individually.

2.5.5 Disclosure

We examined if the child made a disclosure about the transgression anytime during the interview as well as in response to just the first free recall section. We originally planned to look at children's disclosure of the teacher's transgression during the full video by categorizing it into three different codes: spontaneous disclosures, prompted disclosures, and non-disclosures. A spontaneous disclosure is when a child discloses the teacher's transgression on their own without directly being asked. A prompted disclosure is when a child does not spontaneously disclose the transgression, but when directly asked discusses the transgression. Finally, the non-disclosure is when a child does not disclose a transgression made by the teacher in the video, even when asked directly about it. However, because 96 % of children made a disclosure, we could not run this planned analysis. Eighty percent of children disclosed the transgression in free recall. Thus, we analyzed the timing of the disclosure within the free recall section, as described next.

Disclosure was coded based on the responses to the free recall section only; that is, in response to one of the four free recall prompts. Children were either *disclosers* if they disclosed the transgression or *non-disclosers* if the transgression was not disclosed during free recall. An exploration of the timing of the disclosure in free recall was completed by separating children that disclosed after the initial invitation, after the first follow-up prompt, after the second follow-up prompt or after the third follow-up prompt.

2.5.6 Percent Agreement

Two independent coders double coded 48 % (n=50) of the interviews. First, agreement was 89 % for parsing the sentences into verifiable details and categorizing the verifiable details into unique and common details. Further, once agreement was established for parsing and categorization of the verifiable details, percent agreement was 96 % for determining if a verifiable detail was experienced or non-experienced, which was used to calculate overall accuracy and completeness scores. Finally, percent agreement between two independent coders was 85 % for the timing of disclosure coding.

2.6 Data Analysis

Four 2 (background: simple, complex) x 2 (face visibility: visible, hidden) Analysis of Variance (ANOVA) models were run on the measure of accuracy and completeness of the unique details for just the free recall section and the full interview (includes all 7 segments of the video).

To analyze disclosure, we collapsed across the background conditions to specifically examine the self-awareness hypothesis during a tele-forensic interview (Bender et al., 2018) and there was no evidence in the literature that the background would impact this effect. Children that made a spontaneous disclosure in response to the free recall section were considered *disclosers,* and children who did not disclose during the free recall section were considered *non-disclosers.* To see if face visibility (seen or hidden) impacted if children disclosed the transgression in the free recall section, a binary logistic regression was run with face visibility as the predictor variable and disclosure as the dependent variable. Additionally, to examine the timing of disclosure in the free recall section, a *z*-test was run to explore the relationship between disclosure timing (after the first initial invitation, or first, second or third open follow-up prompt) and face visibility (visible or hidden). All data was analyzed using JASP software (JASP team, 2023) and IBM SPSS Statistics 26 (2019).

Chapter 3.

Results

Mean proportions and standard deviations for the accuracy and completeness are in Table 1.

3.1 Accuracy

There was a significant effect of background condition on accuracy recorded for the full interview, $F(1, 103) = 5.494$, $p = .021$, $\eta p^2 = 0.051$ $BF_{10} = 2.203$, $BF_{01} = 0.454$ that showed children in the complex background condition were more accurate than children in the simple background condition across the entire interview. Based on the Bayes factor there was anecdotal evidence for the alternative model, which suggests weak support for the alternative model. There was no significant effect of background condition (simple or complex) on accuracy of the free recall section only, $F(1, 103) = 2.172$, $p = .144$, $BF_{10} = .545$, $BF_{01} = 1.836$. The Bayes factor indicates anecdotal evidence of the null hypothesis, which suggests weak support for the null hypothesis.

There was no significant effect of face visibility (seen or hidden) on accuracy recorded for the full interview, $F(1, 103) = 0.800$, $p = .373$, $BF_{10} = 0.271$, $BF_{01} = 3.685$. The Bayes factor indicates substantial evidence for the null hypothesis. There was no significant effect of face visibility (seen or hidden) on accuracy of the first free recall section only, $F(1, 103) = 0.073$, $p = .788$, $BF_{10} = 0.210$, $BF_{01} = 4.767$. The Bayes factor indicates substantial evidence for the null hypothesis.

There were no interactions between background (simple or complex) and face visibility (seen or hidden) on accuracy in the entire interview, $F(1, 103) = 0.470$, $p = .495$, $BF_{10} = 0.123$, $BF_{01} = 8.120$, or on accuracy for the free recall section only, $F(1, 103) = 0.073$, $p = .787$, $BF_{10} = 0.115$, $BF_{01} = 8.697$. The Bayes factors indicate strong evidence for the null hypothesis.

3.2 Completeness

There was no effect of background condition (simple or complex) on completeness recorded for the full interview, $F(1, 103) = 1.075$, $p = .302$, $BF_{10} = 0.336$, $BF_{01} = 2.977$. The Bayes factor indicates anecdotal, or weak evidence for the null model. There was no significant effect of background condition (simple or complex) on

completeness of the free recall section only, $F(1, 103) = 0.008$, $p = .931$, $BF_{10} = 0.205$, $BF_M = 4.871$. In this case, the Bayes factor indicates substantial evidence for the null model.

There was no significant effect of face visibility (seen or hidden) on completeness recorded for the full interview, $F(1, 103) = 0.001$, $p = .971$, $BF_{10} = 0.205$, $BF_{01} = 4.884$. The Bayes factor indicates substantial evidence for the null model. There was no significant effect of face visibility (seen or hidden) on completeness of the free recall section only, $F(1, 80) = 0.003$, $p = .955$, $BF_{10} = 0.205$, $BF_M = 4.883$. The Bayes factor indicates substantial evidence for the null model.

There were no interactions between background (simple or complex) and face visibility (seen or hidden) on completeness in the entire interview, $F(1, 103) = 0.936$, $p = .336$, $BF_{10} = 0.070$, $BF_{01} = 13.908$ or for completeness in just the free recall section, $F(1, 103) = 0.121$, $p = .728$, $BF_{10} = 0.040$, $BF_{01} = 24.059$. The Bayes factors indicate strong evidence for the null hypothesis.

Table 1. Mean proportions (standard deviations) comparing the experimental groups (background: simple or complex; face visibility: visible or hidden) across accuracy and completeness for analyses of the full interview and the free recall section only.

	Simple (n=28)	Complex (n=27)	Visible (n=25)	Hidden (n=27)
Accuracy (full interview)	.914(.05)	.934(.05)	.927(.05)	.920(.04)
Accuracy (free recall only)	.973(.03)	.984(.03)	.980(.03)	.979 (.03)
Completeness (full interview)	.469(.14)	.492(.09)	.480(.14)	.481(.09)
Completeness (free recall only)	.191(.09)	.190(.10)	.190(.11)	.190(.08)

3.3 Disclosure of the Transgression

Relevant proportions are in Table 2. There was no significant effect of face visibility on whether or not the child disclosed the transgression in the free recall section, $X^2(1, 82) = 1.437$, $p = .231$. A *z*-test was run to examine if face visibility impacted the timing of disclosure in the free recall section only. Due to the small numbers of children

who disclosed in response to follow-up prompts 1, 2, and 3, the analyses of timings of disclosure were only possible on responses to the initial open invitation. There were no significant effects of face visibility on if children disclosed after the first invitation in the free recall, $z = 1.827$, $p = 0.068$. However, there was a trend that suggests that children who were able to see their own face were more likely to make a disclosure about the transgression after the initial open invitation than children who could not see their own face.

Table 2. Proportion of children that made a disclosure of the transgression across the two face visibility conditions during both the full interview and free recall section.

Disclosure Timing (full interview)	**Face Visible (n=54) Proportion (n)**	**Face Hidden (n=53) Proportion (n)**
Spontaneous	.91 (49)	.92 (49)
Prompted	.05 (3)	.04 (2)
Non-disclosure	.04 (2)	.04 (2)
Disclosure timing (free recall only)	**Face Visible (n=38) Proportion (n)**	**Face Hidden (n=43) Proportion (n)**
Initial invitation	.66 (25)	.46 (20)
1st follow-up prompt	.10 (4)	.14 (6)
2nd follow-up prompt	.16 (6)	.30 (13)
3rd follow-up prompt	.08 (3)	.09 (4)

***** All proportions are rounded to the nearest 100th (rounded up if the decimal point was above .5)

Chapter 4.

Discussion

Continuing to study tele-forensic interviews is particularly important because in child abuse cases, children's account of the events may be the only investigative lead (Lamb et al., 2007). However, there are limited empirically tested guidelines for how to conduct tele-forensic interviews (Brown et al., 2022; Lundon et al., 2021; Vieth et al., 2020), and no empirical evidence on how the physical background of the interviewer and other online distractions may impact a child's recall. Thus, the aim of the current project was to examine how the online environment during a tele-forensic interview, specifically the online background of the interviewer and the ability of the child to see their own face, may impact children's recall accuracy, completeness, and likelihood to disclose a transgression.

Based on research and guidelines for in-person forensic interviews, an interview room should avoid distractions such as toys, however, it should still be child-friendly to make the child feel comfortable (Muñoz et al., 2016, Orbach et al., 2000; Poole & Lamb, 1998; Saywitz & Camparo, 2014). Thus, to explore if these guidelines are relevant to tele-forensic interviews, the study employed a simple background behind the interviewer or a more complex background that had child-drawn paintings and stuffed animals that could also be used to make a child-friendly environment. Based on literature looking at the environment of in-person forensic interviews with children, we expected that during a tele-forensic interview, items in the interviewer background (complex background) would increase children's cognitive load, leading to poorer accuracy and completeness of recall (Hale & Stevenson, 1974; Mastroberardino & Vredeveldt, 2014, Perfect et al., 2012; Rodrigues & Pandeirada, 2018; Saywitz & Camparo, 2014; Saywitz et al., 2017). However, this hypothesis was not supported in the current study. The results showed the opposite trend, with higher overall interview accuracy among children with the complex interviewer background compared to children with the simple interviewer background, with weak positive support for the alternate hypothesis based on the Bayes factor.

The increase in accuracy when children were interviewed with a more complex, but child friendly, background behind the interviewer may have occurred because the child friendly background made children feel more comfortable talking to the interviewer, akin to building rapport (Perona, 2005; Poole & Lamb, 1998; Rohrabaugh et al., 2016).

Based on research during in-person interviews with children, the use of child-friendly furniture and other items is recommended to help make the child feel more comfortable (Muñoz et al., 2016; Perona, 2005). In general, stuffed animals or toys are not usually recommended to be in the room during in-person interviews (Krueger, 2016; Saywitz et al., 2017), however, over Zoom the child cannot interact with the stuffed animal, thus it may provide more comfort than distraction. When a child is more comfortable, the child tends to give a better-quality interview (Orbach et al., 2000; Roberts et al., 2011; Sternberg et al., 1997). We did only see this effect in analyses of accuracy over the entire interview and not when just analyzing the free recall section. However, as seen in Table 1, the means showed the same trend in just the free recall section as well. The reason we did not see a significant difference in just the free recall section is likely because the accuracy for details remembered during the free recall section was less variable and had a ceiling effect where most children had near perfect accuracy for that first section. It is not surprising that higher accuracy was found on the first information that they presented, as it was likely what the children remembered best. However, it is important to note that the Bayes factor for this model only shows weak evidence in support of the benefit of a child friendly background; more research is necessary.

There were no other differences between the simple and complex interviewer background and there were no effects of face visibility on accuracy and completeness. These null results were supported by the Bayes factors that showed weak to substantial support for the null hypotheses. The current study is powered for a medium effect; it is possible that there are small effects that could only be seen if the sample size was larger. However, it could be argued that a medium effect is sufficient to detect practically important differences in interviewer background that should impact policy decisions for tele-forensic interviews.

There are several important factors that might explain why the expected effects of interviewer background were not observed in this study. In the current study, items that were used in the interviewer background were chosen to be similar to what you may see in an in-person forensic interview with a child. This is different from past literature. For example, the distractions used by Mastroberardino and Vredeveldt (2014) were unfamiliar such as auditory and animated visual distractions. The familiarity of background items used in the current study could be why children did not show the decrease in recall completeness that was expected in the complex background condition

based on the cognitive load hypothesis (Mastroberardino & Vredeveldt, 2014). In this study, the objective was to provide a realistic alternative to a blank background to provide real-world guidelines for tele-forensic interviews. It is possible that the background items were not distracting at all. However, before concluding that the background was not distracting (it was comforting), we consider the possibility that the background in the current study might be distracting in some circumstances.

Children have a short attention span (Lavie, 2010), so the length of the interview could impact if and when distractions affect recall. The present interviews only lasted around 30 minutes, whereas CACs indicate that forensic interviews take around 60 minutes (Dorchester CAC, n.d.), with a wide variation in durations. If the interviews were longer, any distracting effect of background items may have been magnified once the child was more fatigued. Further, in a forensic interview, Saywitz and colleagues (2017) suggest that distractions will divide attention leaving fewer resources for recall. Divided attention in addition to fatigue in a longer forensic interview could operate in ways that were not seen in the current study due to the short interviews. Therefore, more research is necessary to establish clearer conclusions on the impact of the virtual environmental distractions on recall.

Finally, distractions in the background may be particularly problematic for children in sexual or physical abuse cases who are reluctant to make a disclosure. If a child is trying to avoid talking about the topic, they are prone to more re-directions in the conversations (e.g., go off topic) as they become more uncomfortable (Ahern et al., 2019). As Ahern and colleagues note, children who are reluctant can be more distractible, so if there are more items in the background to be distracted by, it is plausible a child may focus more on those items. In the current study, it is likely that the minor transgression in the target video did not illicit the same amount of reluctance or discomfort compared to children in real abuse cases. Therefore, when the content matter is more sensitive and more likely to lead to reluctant reporters, there may be a negative effect of a complex online background of the interviewer.

The current study also explored a possible connection between having the child see their own face on their screen and being less likely to lie, thus have better accuracy, and being more forthcoming to disclose a transgression in the video they watched, as suggested by the self awareness hypothesis. The self awareness hypothesis is the notion that when children can see their own faces, usually through a mirror, they are

more likely to be honest (Beaman et al., 1979). The self awareness hypothesis has been applied to forensic interviews with children by Bender et al. (2018) who found children's likelihood to disclose their own transgression increased if they were interviewed with a mirror behind the interviewer such that they could see their own face. Based on this literature we hypothesized that children who could see their own face during a tele-forensic interview would be more likely to be honest, leading to higher accuracy, and would also be more likely to disclose a transgression made by the teacher in the video. The results did not support these hypotheses, and instead the results indicated no differences between the face visible group and face hidden group in accuracy, or overall disclosure rates.

Regarding the results for accuracy, the self awareness hypothesis has only been applied to honesty about a transgression in the past literature, and not overall accuracy of recall (Beaman et al., 1979; Bender et al., 2018). Thus, the self awareness hypothesis may not extend to overall accuracy, such as what was tested in this study. We also saw no overall impact of having the child's face visible on transgression disclosure rates during the free recall section. However, this is likely due to the ceiling effect on disclosure that was found in this study. The vast majority of children spontaneously disclosed the transgression in the first free recall section and all, but four children, disclosed the transgression at some point in the interview. The ceiling effect of disclosure may have inhibited us from seeing an effect of face visibility on disclosure rates. However, there is an interesting trend in the data when looking at the timing of disclosure during the free recall section. Specifically, when examining disclosures in response to just the initial open invitation of the free recall section, the model was not significant, but children in the face visible condition disclosed the transgression earlier than children who had their face hidden. The trend suggests that children who can see their face were quicker to disclose the transgression in the interview than children who could not see their own face, which is in line with what was predicted based on the self awareness hypothesis. A larger sample size is necessary to examine this trend further.

Bender et al. (2018) found that children were more likely to disclose their own transgressions when they could see their face than when they could not. In the current study, the transgression was made by the teacher; the child did not commit a transgression nor was the child a party to the transgression. Witnessing the event over video rather than in-person further removes the child from the transgression, as they

have no relationship with the experimenter in the video. Thus, to see stronger effects of the self-awareness hypothesis it is possible that the child needs to be directly impacted by the transgression or have a more personal relationship with the adult for them to feel pressure to conceal the transgression. For example, in child abuse cases, the transgression is an act that directly impacted the child and is often committed by someone with whom they have a relationship. Under such conditions, there may be a larger positive effect of the child viewing their own face on a disclosure during the tele-forensic interview.

4.1 Limitations

There are some limitations of the research that may have inhibited us seeing the full extent of our predictions. First, the study was done at the child's own home and required a parent to be present to give consent. Due to ethical constraints, parents could not be asked to leave the room during the study, so they had the option to stay and watch the interview. Having the child's parent in the room may have impacted the likelihood that the child disclosed the teacher's transgression. Though it is a limitation of the research, it is important that we understand the impact that adult supervision may have on the child's likelihood to change their behaviour during a tele-forensic interview. With the potential of using tele-forensic interviews to reach isolated communities, it is possible that these interviews will take place in the child's home or a location where other adults are present to influence the child (Vieth et al., 2020). However, in this current study, it was not clear which parents observed the interview, thus analysis of this is not possible, but would be interesting in future research. Further, due to COVID-19, the target event had to be presented in a video. Thus, children may have been skeptical of the validity of the transgression since it could have been edited out of the video before it was uploaded. Running this study again with a live event is important to replicate and extend these research findings. One further limitation was that the child's environment could not be controlled. However, having the child in their own home makes it more realistic to events where a tele-forensic interview may need to be done at a child's home if there is no CAC or appropriate interview location available or if the child refuses to go to an alternate location.

4.2 Implications and Future Research

The current research is relevant to major world-wide events like the global pandemic of COVID-19 in 2020, but also extends far beyond that. During the pandemic, online interviews were used in various ways such as evaluations (Drogin, 2020), custody hearings (Dale & Smith, 2021) and investigative interviews (Brown et al., 2021; Vieth et al., 2020). Though there was an urgent need for this in 2020 due to the pandemic, research into tele-forensic interviews is relevant to providing quality investigative interviews to rural communities that usually would not have access to a trained forensic interviewer (Hamilton et al., 2017; Pathirana, 2018). Research by Dickinson et al. (2021), Hamilton et al. (2017) and Doherty-Sneddon and McAuley (2000) has shown that tele-forensic interviews can be as effective as in-person interviews. Allowing for forensic interviews with children who experienced maltreatment to take place over videoconferencing software could help eliminate some of the barriers to obtaining a quality forensic interview (Brown et al., 2021). Overall, investigation into the effectiveness and best practices in tele-forensic interviews should be a priority to help children who have been victims of abuse.

The current study is one of the first to provide some empirical evidence for how to set up a tele-forensic interview to obtain the highest quality of information. A natural extension of this research is to have a live event that contains a transgression that would directly impact the child or in which they are an active participant. One example is the transgression in Dickinson et al. (2021) in which the experimenter (Mr. Germ) initiated the transgression of touching the child on the arm when they were told they were not allowed to touch each other. Using this transgression would allow the child to be directly involved or impacted by the transgression.

Chapter 5.

Conclusion

Overall, the current research is a good starting point for developing some empirically tested guidelines for setting up a tele-forensic interview. It is important to understand how the interviewer's background impacts recall. In the current study, when the interviewer had a complex background that included child-friendly items, children provided a more accurate overall interview about the experienced events. It is potentially better to have child friendly items in the background of a tele-forensic interview to comfort children rather than a stark plain background suggested in the current guidelines (Lundun et al., 2020). Further, having the child be able to see their own face on their screen during a tele-forensic interview may promote an earlier disclosure of a transgression that could be helpful to investigators.

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Appendix A.

Video Script

Hi everyone! My name is Tim and today I am going to be your teacher. I will be teaching you about chemistry, biology and physics through some very cool science demonstrations. To help me with these demonstrations I have brought a very special assistant. Please welcome Nugget, the golden retriever. [enter Nugget in bowtie]

Hi Nugget! You look great in your bowtie. Nugget is a really good puppy that knows lots of tricks. You know what? I am going to show you some of his tricks today. He's been practicing them a lot.

Let's show everyone the new trick that you learned. Nugget, sit! [Nugget sits]

Good boy Nugget. Thanks for coming and showing us your new trick. How about you go take a rest while I do some science. See you in a few minutes. [Nugget leaves room]

*Black screen with a message that reads "Please do not try any of these science demonstrations without the help and supervision of an adult" stays on the screen for 10 seconds

I hope you are all ready to do some science! For the first you will need a teabag, scissors and a lighter. It is important that you have adult help with this demonstration kids since it does involve fire and could be dangerous to do alone. The first thing you will do is cut the top off the teabag and empty out the leaves. [Demonstrate this for the camera]

Then I need to make it into a hollow tube like this and stand it up. [Demonstrate]

Finally, I will light the top of this teabag. As the bag goes up in flame you will see a ball of flame fly up in the air like a rocket. Okay, let's try it. [Demonstrate]. Woah! That's cool!

The reason that the teabag flies when it's set on fire is because hot air rises. Usually you can't see air, but since the teabag is so light, when I set it on fire the heat makes the teabag float. This demonstration is a great way to understand the characteristics of air.

Well, that was pretty cool, but let's clean up so I can do another demonstration. [moves the bowl and smashes it spilling liquid all over the floor]

Oh no! I was told I need to be particularly careful with the materials and make sure I didn't break them. If anyone finds out I am going to be in trouble. Please don't tell anyone about me dropping the bowl. I don't want to be in trouble. I should maybe edit this out later. [Looks troubled around]. Well, I guess I should clean this up. [sweeps it up]. Okay, well I don't want anyone to think something happened so better move on before anyone realizes I made a mistake.

Before our next demonstration let's welcome back my assistant Nugget. [Enter Nugget in flower lei]

Nugget, you look wonderful in your flower lei. Okay assistant let's show everyone a new trick. Nugget, lie down! [Nugget lies down]

Good boy. You are so smart. What's that Nugget? I should do some more science. Okay well I will see you later. [Nugget leaves]

Okay, the next science demonstration we're going to do is to create a lava lamp. All you need is water, vegetable oil, oil-based food colouring, and some clear container. What I will first do is add your favourite colour of food colouring to a few tablespoons of oil. I will be adding green because that is my favourite colour. [adds green to the oil]

You will see the oil now changes colour. Now fill that container with water, leaving about a quarter of it empty. [Fills contain with water]

Finally, add in the newly coloured oil to the water like this. Look at that! The oil and the water don't mix, so you get this cool lava lamp. [Shake it back and forth]. If you let it sit again you will see all the green oil will go to the top. I am able to make this cool lava lamp because the properties of the two liquids work against each other. Oil is a fat which has an outer shell that is made of cells that are scared of water, so the oil doesn't want to go near the water! If I mixed juice and water, you wouldn't be able to tell them apart, but any oil and water-based liquid you can! Pretty cool hey!

Okay, let's clean this demonstration up so I can move on to the next one. [cleans up materials]

Before our next science demonstration, let's welcome back my assistant Nugget. [Enter Nugget in bug costume]

Wow Nugget you look great in that bug costume. To help us prepare for the next demonstration Nugget is going to show us another trick. Nugget, spin! [Nugget spins]

Good boy! Okay Nugget needs to go rest now, so I will go on with our next science demonstration. [Nugget leaves].

Our next science demonstration needs a glass bottle, a hard-boiled egg and a match. First, as you can see this hard-boiled egg does not fit into this glass container. However, with science I can change that. First you will want to light the match. [light match] Once again make sure you have an adult there to do this part if you want to try this at home.

Once the match is lit, put it in the bottle like this. [place match in bottle]

Now place the hard-boiled egg on top. Once the match goes out you will see the egg will slide right in. Just like that! [Show egg in container]

This happens because when I put the match in the bottle it heats up the air and eats up all the oxygen in the bottle. Hot air molecules expand, so some of the air had to escape out of the bottle past the egg to make room for the expanded air. But when the match went out and the air in the bottle cooled again it started to move those molecules closer together. Since there was less air in the bottle now it created a vacuum that sucks in the egg. Neat right!

Alright, let's clean up again so I can move on to our final demonstration. [teacher cleans up]

How about I bring my assistant Nugget out again to help us get excited for our final science demonstration [Nugget enters in Christmas hat]

Wow Nugget that hat looks great on you! Okay, let's show everyone your final trick. Nugget, shake a paw. [Nugget shakes]

Good boy! You know so many tricks! Well, I'll show the kids the last demonstration, but Iwill see you later for our goodbyes. [Nugget leaves]

Great, for our final demonstration you will need a can or juice box, tape, elastic band, toy car, straw and balloon. I am going to use a can. First you are going to tape the can to the toy car like this. [tape car and can]

Second you need to tape the straw to the can or and put the balloon opening over the straw. Secure it there with an elastic band so the air doesn't escape. [demonstrate]

Alright now let's make this car move. You will want to blow into the straw like this and inflate the balloon. Hold the end of straw to make sure air doesn't escape. Now let it go and watch your car fly! [Demonstrate]

Let's talk about the science behind motion. When you blow into the straw you build up the energy in the balloon called potential energy. Now that potential energy needs to go somewhere so when I let the balloon go it is converted into kinetic energy, which is the energy of motion, and it makes our car move. That's physics for you!

Well, those are all the demonstrations I have time for today. Thank you all for learning about science with me! [Enter Nugget no costume]

Nugget and I want to wish you good luck on your future scientific adventures. Bye!

*Blanks screen read "Thank you for watching the video. Please now return to the zoom call for further instruction".

Appendix B.

Order of Demonstrations

Table B.1. The of the order of science demonstrations and what position the transgression was shown during the video for all 8 versions of the target video.

Video version	order	Exp 1	Exp 2	Exp 3	Exp 4	Position of Transgression
1	1	Tea Rocket	Lava Lamp	Bottled Egg	Juicebox car	After exp 1
2	1	Tea Rocket	Lava Lamp	Bottled Egg	Juicebox car	After exp 2
3	1	Tea Rocket	Lava Lamp	Bottled Egg	Juicebox car	After exp 3
4	1	Tea Rocket	Lava Lamp	Bottled Egg	Juicebox car	After exp 4
5	2	Bottled Egg	Juicebox car	Tea Rocket	Lava Lamp	After exp 1
6	2	Bottled Egg	Juicebox car	Tea Rocket	Lava Lamp	After exp 2
7	2	Bottled Egg	Juicebox car	Tea Rocket	Lava Lamp	After exp 3
8	2	Bottled Egg	Juicebox car	Tea Rocket	Lava Lamp	After exp 4

Appendix C.

Interview Script

Ground Rules

"Now that I know you better, I want to talk about some rules for this interview.

One rule is that Idon't guess. If I ask a question and you don't know the answer,

just say, "I don't know", but tell me if you do know the answer. For example, "What is my sister's name?" [Wait for response.]

- Right: That's right; you don't know my sister's name, so "I don't know" is

the right answer.

- Wrong: Do you really know my sister's name? If you don't know the answer, just

say, "I don't know." Let's try again. What is my mom's name?

"Another rule is that if I say something you don't understand, you should tell me you

don't understand. For example, is my shirt gridelin?" [Wait for child to say "I don't

know what that means."]

- Right: Thank you for telling me you didn't understand. I'll ask a different

way. What color is my shirt? [Wait for response]. Good. While Iare talking today, will

you tell me when you don't understand? [Wait for response.]

- Wrong: Do you know what gridelin is? Actually, it is a color. If I say

something you don't understand, just tell me you don't understand. Let's

try another one. Is my shirt burnet? Thank you for telling me you didn't

understand. I'll ask a different way. What color is my shirt? [Wait for response.] Good.

While Iare talking today, will you tell me when you don't understand?

[Wait for response.]

"Sometimes people say something wrong by mistake. I want you to tell me if I say something wrong. For example, what color is this pair of scissors?" [show a cup]

- Right: That's right; this isn't a pair of scissors, so I'm glad you told me.
- Wrong: But this isn't a pair of scissors, right? I made a mistake when I said scissors. It's okay to tell me if I say something wrong. Let's try another one. What did you do at the water park today? [Wait for response.] That's right, you didn't go to a water park today, so I'm glad you told me.

Video Interview Questions

"Perfect. Now I am going to ask you some questions about the video that you just watched about the science demonstrations. I could not see the video when you are watching it, so I do not know what you saw. Also, some questions may be repeated, but please answer them to the best of your ability."

* Questions 1 – 7 will be followed up with three general open-ended prompts and then further cued prompts until it appears that the child has reported all they can remember about the topic.

Section 1: Free recall

Initial Invitation (Q1): First, tell me everything you remember about the science demonstrations, from the very beginning to the very end. No detail is too small.

Follow-up Prompt 1: Tell me more.

Follow-up Prompt 2: Tell me something else you remember.

Follow-up Prompt 3: What else can you tell me?

*Follow this general question up with cued prompts from the demonstrations that the child mentioned. For example, if the child only mentions 3 demonstrations only ask about those three. If the child is missing a demonstration, then ask Q2. (e.g., child discloses 3 demonstrations, so ask Q1a)-Q1c) and then move on to Q2).

Section 2: Cued recall

Q2a): You mentioned (use child's label) demonstration, tell me more about that.

Prompt 1: Tell me more.

Prompt 2: Tell me something else you remember.

Prompt 3: What else can you tell me?

*Use the child's words to ask about specific details they gave until they have no more information about the demonstration (e.g., you mentioned the egg thing, tell me more about that)

Q2b): You mentioned (use child's label) demonstration, tell me more about that.

Prompt 1: Tell me more.

Prompt 2: Tell me something else you remember.

Prompt 3: What else can you tell me?

*Use the child's words to ask about specific details they gave until they have no more information about the demonstration (e.g.,, you mentioned the tea rocket, tell me more about that)

Q2c): You mentioned (use child's label) demonstration, tell me more about that.

Prompt 1: Tell me more.

Prompt 2: Tell me something else you remember.

Prompt 3: What else can you tell me?

*Use the child's words to ask about specific details they gave until they have no more information about the demonstration (e.g., you mentioned the juice box car, tell me more about that)

Q2d): You mentioned (use child's label) demonstration, tell me more about that.

Prompt 1: Tell me more.

Prompt 2: Tell me something else you remember.

Prompt 3: What else can you tell me?

*Use the child's words to ask about specific details they gave until they have no more information about the demonstration (e.g., you mentioned the colorful lamp, tell me more about that)

*****Only ask Q3 if child does not spontaneously discuss one or more of the demonstrations in Q1 even after prompting.

***Q3: You mentioned (list the demonstrations they spontaneously mentioned using the child's labels), tell me about another demonstration you saw.**

*****Only ask Q4 if child still does not discuss one or more of the demonstrations even after Q3

***Q4: I heard something about the (say the key word of the game(s) that the child hasn't mentioned: egg/rocket/lamp/car) demonstration. What can you tell me about that?**

Q5. Tell me more about the teacher.

Prompt 1: Tell me more.

Prompt 2: Tell me something else you remember.

Prompt 3: What else can you tell me?

*Use the child's words to ask about specific details they gave until they have no more information about the demonstration (e.g., you mentioned the man, tell me more about him)

Q6. Tell me more about the teacher's assistant.

Prompt 1: Tell me more.

Prompt 2: Tell me something else you remember.

Prompt 3: What else can you tell me?

*Use the child's words to ask about specific details they gave until they have no more information about the demonstration (e.g., you mentioned the dog, tell me more about him).

Q7. Tell me about something you saw that you haven't told me about already

Prompt 1: Tell me more.

Prompt 2: Tell me something else you remember.

Prompt 3: What else can you tell me?

*Use the child's words to ask about specific details they gave until they have no more information about the demonstration

Q8. Tell me about something you heard that you haven't told me about already

Prompt 1: Tell me more.

Prompt 2: Tell me something else you remember.

Prompt 3: What else can you tell me?

*Use the child's words to ask about specific details they gave until they have no more information about the demonstration

Q9. Is there something else you want to tell me about the video?

***Q10. Did anything happen during the video that shouldn't have? –** only if transgression is not already disclosed.

Debriefing

"Thank you for answering all my questions and taking part in my research study to help me learn more about children's memory. Do you want to get your (mom/dad) so I can tell you a little bit more about the study?"

"In this project I did the interview with either a simple background or a more distracting background behind me. You were in the (simply/complex) group so you saw (stuff toys and paintings/no distractions), which I thought would be (more/less) distracting than the other group. I wanted to see if distractions in the background of an interview over Zoom would make it harder for you to tell me what you watched in the video."

"During the video you also saw the teacher drop a bowl and ask you to not tell me about it. The teacher will not get in trouble for breaking the bowl, and he will not be in trouble if you told me about the mistake. I wanted to see if kids that see a mistake happen would tell an adult about that mistake.

"Do you or your (mom/dad) have any questions for me about the study?".

"Great, if you wish to withdraw your child's data from this study you can do so now or email me up to a week after the end of this interview to remove it. My email is in the letter of information in case you no longer have it. After that time I will no longer have your email or name connected to your child's data, so it will not be possible to remove it."

"Awesome. Would you like to receive a summary of the results once I have finished the

study?”

If yes, write down their email in the document attached to the summary of results document.

1. **Demographic information**

   “Just before we end, I just have a few more questions about you. If you need your mom/dad can also help with these questions.”

Q1: On a scale of 1 to 7, where 1 is not at all and 7 is many hours a day, how much time do you spend on the computer using face-face video chat like, Zoom, Teams, Facetime, or Skype. Just like what we are using right now.

Q2: Now I am going to list some activities. Please say yes or no if you do these sorts of activities on the computer over face-to-face video chat, such as over Zoom, Teams, Facetime or Skype?

a). Hang out with friends

b). Attend school classes or tutoring

c). Talk to family members

d). Visit with a doctor

e). Do extracurricular activities

Q3: Are they any other activities that you do over video chat apps such as Zoom, Teams, Facetime or skype?

Q4: Can you tell me are you a boy a girl or are you not sure?

Q5: Finally, can you share with me what you identify as racially or ethnically?

Appendix D.

Consent/Assent Script

Introduction:

a. To parents and child

"Hi, my name is (name of researcher). Thank you so much for coming and meeting with me. What is your name?"

"Well it is very nice to meet you. Today we are going to be learning about science. It should be pretty cool. Just before we begin, I just need to quickly talk to your (mom/dad)."

Parental Instructions

"Before we begin, I just want to go over some aspects of the letter of information that I sent to you over email. First, I will be recording this interview and will be enabling the live transcribe on Zoom. Before I start that I just want to make sure you are okay with me starting both of those now?"

If yes, turn on recording and transcript (with the writing not visible to the participant) and proceed with the following consent statement and instructions

If no, ask them if they are just okay with recording, and do not use live transcribe.

If no, thank them for coming on and end the study (recording is necessary for the study)

"Great! I just want to go over some key points of the letter of information that I sent you. First, you will be showing your son/daughter the video that I sent you prior. Do you have that video link?"

“Great! It is important that know that having your child participate in this study is completely voluntary. If at any point you would like to stop the interview and have your child’s data withdrawn from the study, just let me know and that is completely fine. This option to withdraw your child’s data can also be done up to a week after you complete the interview. Do you have any questions about the letter of information that I sent you prior to this study?”

“Perfect. Please keep a copy of that letter of information for your records. Before I start the interview, do you (addressed to parent) consent to allowing your child to participate in this research study?

If yes, record their name on the Consent/Assent list and proceed with the following consent statement for future research

If no, thank them for coming on Zoom and end the study

“Perfect. Thank you for your help in our research. Additionally, I would like to get your consent to use your child’s data and video recording for future research projects. If you consent, I may re-analyze your child’s data for a different purpose or use your child’s video recorded interview as a stimulus for a future study. This would mean that I may show your child’s videoed interview, or parts of the recorded interview, to other participants during a future study or to researchers in our lab to help with training. Your child’s face would be visible, so their identity would not be hidden. However, I would not show their video or expose their identity in at a public conference. This is completely voluntary and by participating in this current study you are under no obligation to consent to this part. However, if you are comfortable with us using your child’s video, please say “yes” to consent to having us use your child’s recorded interview video for future research. If you do not consent to us using your child’s recorded interview video for future research studies, please say “no”. Once again this is not a requirement for doing this study.”

If yes, record their name, email, participant number and date on the “consent for future research” form and move on to parent instructions.

If no, move on to the parent instructions

"Great! Now I just have a few instructions for you (parent's name). First, I just want to make sure the Zoom interview is set up correctly. Do you see your own face on the computer screen?"

"Okay great, if you go to the right-hand corner, you should see the button view. Click that button and press speaker view. You should now see my video as the bigger screen and your video is at the top of the screen in a smaller window. Do you see that?"

***Say the following if they are in the face hidden condition**

"Okay. Can you please now go to the top right corner of the box that shows your video in it. There should be three dots. Can you see those? Great, if you press those you have the option to hide your video. Please press that. Did your video disappear from the screen?"

- Can share screen and show how to do it if necessary.

"While I am talking to your child you are welcome to stay in the room or leave. If you do stay in the room, please stay behind your child and off to the side out of camera view so that they are not looking to you for answers. "If you do leave the room, I will get you to come back for a short debriefing of the study with (child's name) at the very end. Please make sure you do not help your child with any of the questions and only offer technical support if needed. In case Ido get disconnect, could I please grab your phone number? After I end the call, your number will not be stored anywhere and will only be used if the call get's cut off prematurely."

"Great do you have any questions before I get started?"

Assent

"(Child's name), thanks for letting me talk to your mom/dad. We can get started now. First, let me tell you a bit about what I will be doing. If you agree to do take part in this study, I will ask you some questions over Zoom about a video that your mom will show you about the science demonstrations. This will take about 30-45 minutes."

“Is it okay if I show you a video and ask you some questions that video?”

If the child says “no,” thank him or her for listening and end the Zoom call.

If the child says “yes,” record his or her name on the Assent/Consent list and continue with the script below?

“That is great, thank you very much. There are a few things that are really important. First, if you decide, at any time, that you don’t want to answer the questions you can just tell me, and Iwill end the interview. You don’t have to tell me why, just that you don’t want to answer any more questions. If you ever don’t want to answer a question that is also okay. Just let me know and Ican move on to the next question. If while you are answering the questions you need to take a break, just tell me and I will stop. Finally, if at any point you can’t hear me very well just let me know. Okay?”