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## Confusion in the Courtroom: The effect of confusing questions on eye-witness recall

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### Abstract

This paper examines the influence of confusing questions on the accuracy and confidence of adolescents' recall of a mock crime by answering either simple or confusing questions in written form. One hundred and twenty four adolescents (aged between 13 and 17 years) viewed a brief video of an unusual criminal event and were then asked to complete a question booklet addressing what they had seen. Half of the participants were given four categories of confusing questions (negatives, double negatives, complex syntax, and complex vocabulary – all question types typically used within courtroom examinations); the other half were asked simpler forms of the same questions. The confusing questions did reduce accurate recall of an unusual event. The results also suggested that confusing questions weakened the relationship between confidence and accuracy. Poorly worded questions, exacerbated by repetition, potentially corrupt eyewitness memory and derail investigations. The interaction of retrieval access dynamics with traditionally complicated and intimidating courtroom questioning is also addressed.

**Keywords:** *confusing questions; courtroom interviews; witness, memory; confidence-accuracy rates.*

### Introduction

Witness evidence is especially important in the courtroom and, as a result, it is vital that this evidence is clear and accurate. Any confusion or doubt on the witnesses' part could have serious ramifications. Police interviewing styles have come under intense scrutiny in the past, and have had recommendations, such as the Cognitive Interview (Fisher & Geiselman, 1992; Memon & Higham, 1999), made to improve their techniques. However, the legal interviews and questioning procedures used in court are often just as important as police interviews and yet have never been assessed in this way, nor come under any systematic scrutiny.

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Language plays a particularly important role in law. Lawyers often use a traditional, archaic form of questioning, characterized by long complex sentences, complicated jargon and sentence structure, and high usage of negatives and double negatives (Trosberg, 1994). They have the added difficulty of trying to translate complex legal terms into easily understood vocabulary without losing their meaning (Han Teck, 2004). Witnesses may well have the knowledge that the court requires; however, if they do not understand the question, they will be unable to provide a pertinent answer. In fact the issue of the language of law (and the detrimental effect of legalese or lawyerese) has been highlighted numerous times across a number of disciplines (see Mellinkoff, 1963 for a review). However, in short, the literature suggests that complicated questions can have an adverse effect on the witnesses' recall of an event, which in turn may have serious repercussions such as false confessions, false convictions or false acquittals (Gudjonsson & MacKeith, 1988; Kassin & Wrightsman, 1985; Milne & Bull, 1999).

How confident a witness sounds when delivering their evidence impacts their credibility (Cutler, Penrod, & Dexter, 1990; Cutler, Penrod, & Stuve, 1988; Fox & Walters, 1986; Lindsay, Wells, & O'Conner, 1989). If a witness has been confused by lawyers' questions, confidence in the accuracy of their answers may be reduced (Kebbell & Giles, 2000). This study evaluates the relation between accuracy and confidence in relation to the typical question types used by lawyers.

## The effects of confusing questions on cognitive processing

Some types of confusing questions (e.g., the use of negatives, double negatives, and leading questions) require witnesses to consider more than one competing alternative answer. The cognitive effort of *selecting* the correct version of events and *rejecting* the alternative answers engages mechanisms to resolve the interference from the undesired answers. Therefore, long-lasting inaccuracies in recall can be created by question styles which run a higher risk of eliciting speculation, or mere acquiescence, due to their wording. Even without being explicitly brought to mind, the unselected alternative answers are blocked from retrieval access, and even actively *suppressed* in memory in favor of the supplied answer, whether it is correct or incorrect. These cognitive tools of interference reduction reduce the retrievability of unselected responses. The well-established mechanisms include blocking (e.g., output interference; e.g., Smith, 1971; Smith, D'Agostino, & Reid, 1970) and suppression (termed retrieval-induced forgetting; Anderson, Bjork, & Bjork, 1994; Caughey & Henderson, 2006; Noreen & MacLeod, 2013).

The durability of actively retrieved responses precipitates an additional problem for recall when witnesses consider alternative answers to these confusing questions: active retrieval from memory is itself a potent learning event (Bjork, 1975; Slamecka & Graf, 1978). Choosing an answer to a question enhances both the retrievability of a memory and the strength of its stored representation (i.e., that answer persists in memory; Bjork & Bjork, 1992). Even if later updates to that information correct inaccuracies in the witnesses' initial answer, the memory trace first produced as a response is so strongly represented in memory that it has a higher likelihood of being retrieved when the witness is asked again (Green & Kittur, 2004; Jost, 1897). Under such circumstances, witnesses are led and often *mised*, by confusing questions until the benefits of the generation process, to both retrieval accessibility and storage strength, are unintentionally activated to retain errors in memory. In fact, the issue of refreshing testimony (i.e., reminding a witness of their initial statements) is a thorny one, as there currently are no guidelines for best practice (Ainsworth & Memon, 2012).

## Age effects on suggestibility and recall

There are a number of documented age differences in memory. Firstly, information processing speed decreases as the participants get older (Myerson, Hale, Wagstaff, Poon, & Smith, 1990). Secondly, recall becomes more variable (Allen, 1990; Morse, 1993); and finally older adults can experience difficulty in the encoding of items to be recalled (Rabinowitz, 1984; Schonfield & Robertson, 1966). These effects may be due to older individuals processing information more slowly and less accurately (Schacter, Kihlström, Kaszniak, & Valdiserri, 1993). Laboratory tests often involve memorising lists of nonsense words and creating verbal analogies outside of a familiar context. However, older individuals may have better recall for concrete or high imagery items, rather than abstract or low imagery items (Witte & Freund, 1976; but see Rissenberg & Glanzer, 1986, for an exception) leading to an underestimation of older population's recall abilities.

There has been much debate on how easily younger witnesses' recall of events can be influenced by the suggestions of others, especially involving the credibility of children's evidence in courts of law (see London et al., 2013 for a review). However many researchers have found that children often find the line between reality and fantasy blurred, so may therefore be influenced by more powerful adults and so must be considered as less reliable than adults (e.g., Schuman, 1986; Underwager & Wakefield, 1990).

After reviewing the literature Ceci and Bruck (1993, 1995) concluded that there are reliable age differences in suggestibility, younger interviewees appear to be more affected by interviewer's questions. With this in mind, it is very important that child interviewers are properly trained in the most effective methods to interview this particular age group. It is especially crucial that they should be careful not to use leading or suggestive questioning. In a similar vein, the literature shows that children typically will attempt to answer nonsensical or bizarre questions; which suggests that if they are asked questions that they do not understand they may answer in error (see Ceci & Bruck, 1993, for a review). Cross-examination style questions may be inappropriate with younger interviewees as it tended to encourage them to change their initial testimony (Zajac & Hayne, 2003), engendered feelings of distress or confusion (Plotnikoff & Woolfson, 2009) and doubt (Back et al., 2011).

While cognitive development and memory capacity is essentially the same as adult capacity, the literature suggests that adolescents, especially younger adolescents, may still be suggestible when under pressure in interrogations (Calicchia & Santostefano, 2004; McLachlan et al., 2011). This interrogative suggestibility may manifest itself in terms of the young adolescent (under 15 years of age) not understanding their arrest rights (McLachlan et al., 2011). During questioning, adolescents appear to succumb to leading questions or interpersonal pressure, however they have comparable suggestibility rates to adults when not pressured in the interview (Calicchia & Santostefano, 2004), especially if the individual has suffered some form of adverse life experience (Gudjonsson et al., 2009).

In the present study, adolescent participants (between 13-17 years) viewed a brief video and completed a question booklet about what they had seen. The decision to use question booklets to test recall in the present study reduced the elements of face-to-face social persuasion and social desirability to which younger interviewees are especially vulnerable. Half of the participants were asked questions using four categories of confusing questions (negatives, double negatives, complex syntax, and complex vocabulary); the remaining half were asked for the same information using simply phrased equivalents. In effect, the participants are undergoing a form of repeated interviewing (albeit in a written format). Despite recent findings that repeated (non-suggestive) interviews may have benefits (La Rooy et al., 2009), professional guidance (e.g., see La

Rooy et al., 2009 for review) discourages repeated interviewing as an optimal method of obtaining information, for various reasons, not least of which is the tendency for interviewees to change their answers if asked about the same information multiple times. This effect is exacerbated in young or otherwise vulnerable victims and witnesses. Further caveats derive from cognitive science experiments on the effects of repeated memory retrieval that raise concerns for the integrity of information recalled as a result of multiple repeated questioning sessions (Bjork, Bjork, & Caughey, 2007; Caughey & Henderson, 2006). Key elements of recall are prone to becoming more difficult to retrieve the more that the interviewee is questioned about related information. This effect, known as retrieval-induced forgetting, extends from eye witness accounts of crime scenes to narrative information, and person descriptions. It was hypothesized that not only would confusing questions reduce accurate recall, but also reduce the participants' confidence in their answers.

## Method

### Design

This study was designed to explore the effects of confusing questions on recall of an unusual event. There were two dependent variables; the individual's accuracy of recall of the unusual events (ascertained by how well they answered questions about the event) and their confidence in their response. Additionally there was one independent variable, namely the experimental condition each participant was assigned to (they were either asked confusing questions or simple questions about the unusual events).

A series of *t*-tests were conducted comparing the accuracy of participants (mean percentage correct) in the simple condition with the accuracy of participants in the confusing condition across all questions. It was predicted that the participants in the complicated condition should have a lower accuracy and reduced confidence in their answers.

### Participants

One hundred and twenty four participants took part in this experiment, ranging in age from 13 to 17 years ( $M = 15.29$  years,  $SD = 0.32$ ). The participants were randomly assigned to one of two experimental conditions, answering simple questions or confusing questions about an event. The participants were from two grammar schools, they were recruited via invitation letter and all children under the age of 16 were included in the study with parental consent. Participants were not given any monetary remuneration.

### Materials

Based on Kebbell and Johnsons' (2000) experiment, a short video-taped scene of an unusual event was used. The videotaped scene lasted approximately 6 minutes, and depicted the staged mugging and temporary abduction of a young woman by a man and his girlfriend. This film was chosen for the amount of detail involved, its' clear narrative and the fact it contained no overt violence. Two sets of questions were accordingly developed; the first set (hereafter called '*confusing questions*') include confusing questions that Kebbell and Johnson (2000) and Brennan (1995) state are commonly used by lawyers, whilst the second set (the '*simple questions*') asked the same questions but in a more straightforward way. All questions were forced-choice (yes/no) questions, with 'yes' being the correct choice for 50% of the questions, and 'no' being the correct

choice for the other 50% of the questions. The order in which the questions were presented was randomised, but matched across the two conditions. After each question participants were asked to complete a 7-point confidence scale to indicate their level of confidence in the accuracy of their answer (1 being 'not at all confident, 7 being very confident).

Given that the participants were completing the questionnaire by hand, rather than being verbally interviewed, only four of Kebbell and Johnson's (2000) original six categories were used (multipart and leading questions were excluded as it was decided that these would be easier for the participants to identify as such in the written booklet). The questions consisted of:

- *Negatives*: In the complicated condition 4 questions were designed that included the word 'not' (e.g. 'Did the victim **not** have blonde hair?' As opposed to the simpler 'Did the victim have blonde hair?').
- *Double negatives*: In the complicated condition 4 questions were designed that had 2 negative conventions (e.g. 'Is it **not** true that the couple did **not** board the train with the victim?' As opposed to 'Is it true that the couple did not board the train with the victim?').
- *Complex vocabulary*: The complicated condition had 4 questions made up of complicated vocabulary (e.g. 'Did the victim enter the lobby when the female perpetrator tried to reserve accommodation?' As opposed to 'Did the victim enter the hotel reception when the woman tried to book a room?').
- *Complex syntax*: In the complicated condition 4 questions had a complicated sentence structure (e.g. 'Did the shop assistant, who argued with the man, allow them to purchase their goods?' As opposed to 'Did the shop assistant in the off-license allow them to buy their stuff?').

## Procedure

After full ethical clearance was granted, the experiment was conducted in a quiet, comfortable environment. From the outset participants were told that the whole experiment would take 45 minutes, and during that time they would have to watch a video clip and complete an associated questionnaire. Participants were then randomly assigned to one of the two conditions, *confusing* or *simple*, (as operationalised above) and given the corresponding answer booklet. The participants were shown the video clip, but not asked specifically to memorize it. They were then asked to write down everything they remembered seeing on the video (the immediate recall; thus mirroring the "recall everything" open-ended, section of cognitive interviewing protocols). They then completed their answer booklet and, following the distraction task (an unrelated task that took approximately 15 minutes), recalled the events of the video clip again (the delayed recall). The study was carried out over multiple sessions, participants were shown the video in small groups, before individually completing the booklet (there was no time limit in answering the questions).

## Scoring

The memory scores were derived from how much of an unusual video the participant could successfully recall. The events of this video are split into a series of set-pieces, and the participant gets one mark for each of these set-pieces that are correctly recalled.

## Results

All participants completed all tasks, therefore 62 individuals' responses in each group were included in the analysis.

### Analysis of Question Accuracy

The mean accuracy of the participants' recall over each condition is shown in Table 1.

**Table 1:** Mean accuracy of the participants across each question type (standard deviations in parenthesis).

Question type	Condition	
	Simple	Complicated
Total	81.16 (6.83)	73.24 (9.67)*
Negative	82.26 (17.17)	66.13 (23.56)*
Double negative	82.26 (16.56)	56.05 (25.88)*
Complicated vocabulary	77.42 (10.82)	75.81 (14.99)
Complicated syntax	86.29 (16.74)	86.69 (16.14)

\*significant at 0.01 level

A *t*-test was conducted on the accuracy of the participants (calculated as being the mean percentage questions correct) over the simple and the complicated condition. An overall significant difference was found in accuracy with questions in the simple condition ( $M = 81.16$ ,  $SD = 6.83$ ) being answered more accurately than those in the complicated condition ( $M = 73.24$ ,  $SD = 9.67$ ):  $t(109.71) = 5.27$ ,  $p < 0.05$ .

A series of *t*-tests were then conducted to explore the accuracy rates for each question type across the age group. The participants answer negative questions significantly less accurately in the confusing condition ( $M = 66.13$ ,  $SD = 23.56$ ) than the corresponding questions in the simple condition ( $M = 82.26$ ,  $SD = 17.17$ ):  $t(111.53) = 4.36$ ,  $p < 0.05$ . Similarly, double negatives are answered less accurately in the complicated condition ( $M = 56.05$ ,  $SD = 25.88$ ) than the corresponding questions in the simple condition ( $M = 82.26$ ,  $SD = 16.56$ ):  $t(103.79) = 6.72$ ,  $p < 0.05$ . However, there was no significant difference in accuracy between the simple and complicated conditions for any of the other question types. Therefore the hypothesis was partially confirmed.

### Confidence ratings for the correct and incorrect responses to the simple and complicated questions

Each participant was asked to report their level of confidence in the veracity of their answer. Confidence was assessed using a 7 point Likert scale, with 1 being 'not at all confident' and 7 being 'very confident'. The results are shown in Table 2.

A *t*-test found that confidence ratings were higher for the correct answers than the incorrect answers. There was a significant difference between confidence rating of simple ( $M = 5.98$ ,  $SD = 0.55$ ) and complicated ( $M = 5.69$ ,  $SD = 0.70$ ) in correct responses:  $t(122) = 2.59$ ,  $p < 0.05$ . There was no significant difference between confidence rating of simple ( $M = 5.52$ ,  $SD = 1.03$ ) and



complicated ( $M = 5.55$ ,  $SD = 0.89$ ) in incorrect responses. Therefore, partially confirming the hypothesis.

**Table 2:** Mean confidence ratings for the correct and incorrect responses (standard deviation in parenthesis).

Response type	Condition	
	Simple	Complicated
Correct	5.98 (0.55)	5.69 (0.70)*
Incorrect	5.52 (1.03)	5.55 (0.89)

\* significant at 0.05 level

## Discussion

Firstly, it was found that confusing questions weakened confidence-accuracy relationships. Here the results showed that there was a higher confidence in correct responses (across both the simple and complicated conditions), and a lower confidence in incorrect responses. Interestingly, in the incorrect responses, the participants appeared to be more confident in their answers in the complicated condition. The difference between confidence in correct and incorrect answers was larger for the simplified condition than for the confusing condition. Kebbell and Johnson (2000) suggest that this difference indicates that it is harder to distinguish accurate from inaccurate answers for confusing questions as opposed to the simpler forms. In other words, the courtroom audience (judge or jury members) will experience more difficulty ascertaining if witness evidence is accurate when testimony is given in response to a confusingly worded question.

The overall accuracy scores support Kebbell and Johnsons' (2000) study, and suggest that complicated questions reduce the participants' accuracy. Similarly, when each of the question types are analyzed, negative questions and double negative questions are answered significantly less accurately in the complicated condition. The discrepancy in accuracy for negative questions could be explained by the inconsistency between colloquial language and actual meaning. So for example, the question "Did the woman not have blonde hair?" should correctly be answered 'yes' as the woman was a brunette. However, in everyday idiomatic speech some individuals do insert an extra 'not' in their questions, and if asked in this way may say 'No' meaning 'No, she had dark hair' (Kebbell & Johnson, 2000; Walker, 1998). Again, supporting Kebbell and Johnson (2000), although participants seemed to be confused by the complicated questions they rarely asked for clarification nor added comments on their response booklet.

The high accuracy rates found in this study are attributable in large part to the brevity of the 15 minute delay. Robust memory theories (e.g., Bjork & Bjork, 1992; Jost, 1897) would predict that answers given in response to confusing questions would suffer a dramatic drop in accuracy more so than those answers provided to simple question wording. This differential forgetting rate is based on the answers given to confusing questioning holding a weaker representation in long term memory (given competitive retrieval dynamics). Thus, the detriment of confusing questioning would be compounded by a longer delay between stimuli presentation and retrieval.

This experiment also found that confidence ratings were higher for correct responses compared with incorrect responses. It is surprising, yet interesting, that participants had a higher confidence rating for the incorrect complicated questions. As with the results obtained by Kebbell and Johnson (2000), the difference between confidence in correct and incorrect answers was larger for the simplified condition than for the confusing condition. In this controlled experiment the complicated questions may have reduced the confidence accuracy rating; additional factors may be coming into play in the less controlled circumstances experienced by witnesses to crime.

For example, Leippe (1980) notes that the confidence accuracy relationship is readily affected by post-event information among other factors.

### **Bringing to mind competing versions of events**

The additional inaccuracy caused by negatively phrased questions reported in this study (see Table 1) could be generated by forgetting mechanisms engaged when alternative, competing responses must be selected against to accept or reject one version of events. As discussed above, participants may have considered different potential answers even when the answer is as simple as a yes or no, for example, “Was the woman not wearing a top with a picture of a tiger on it?” or “Would it be correct to suggest that the woman initially wearing the red cardigan was the one with the gun?”

In the latter example, the witness is forced to consider the suggested scenario (that of a woman in a red cardigan holding a gun) alongside competing scenarios (for example, those in which other protagonists may have been holding a gun). Negative questions further compound the problem by presenting a version of events in such a manner that witnesses must contemplate if that is how events actually unfolded, as opposed to being asked to retrieve the events themselves directly from memory. Even if a witness is unable to confirm the accuracy of the content of a confusing question, just the act alone of trying to select the correct answer from competing alternatives serves to suppress their memories of what actually happened (Storm, Bjork, Bjork, & Nestojko, 2006).

### **Generating persistent errors**

In the preceding section we reviewed how witnesses are asked to consider the veracity of a version of events presented in a negative question. This process is more conducive to witnesses searching their memories of recent questioning sessions, rather than going back to their original memories of the event itself. Similarly, under the strain of overloaded cognitive processes (reviewed in the next section) witnesses will also simply return to their originally provided answers to find the answer, rather than returning in memory to the witnessed event itself. As we can see, distracting the witness from the original memory yields ample opportunity for the errors generated in response to poor question wording to persist, and take precedence in the witness' mind.

### **Undesirably difficult cognitive load**

The final question types used in the present study are those featuring overly complicated jargon and syntax, (e.g., “Did the female captor acquire the victim's crimson cardigan?” slowing cognitive processing with unnecessarily complex words like *acquire*, *captor* and *crimson*). Translating specialized terminology and complex syntax takes up cognitive resources that would otherwise be helpful in discerning the correct choice among competing alternative answers, and in filtering out persistent early errors. This effortful translation also focuses cognitive processing onto the content of the confusing question, requiring the witness to reject alternative options within the negative and double negative phrasing.

As mentioned above, the act of retrieving information can itself be a potent learning episode, reinforcing the memory trace and enhancing its accessibility in memory (Bjork, 1975). When retrieval requires more effort these difficulties have been termed *desirable* in the science of learning literature because they lead to stronger representations and accessibility of the targeted information (Bjork & Bjork, 1992, 2011). Parsing through a complicated courtroom question, including the effortful rejection of suggested incorrect alternative responses, is a more potent and

difficult process than answering a straightforward, simply worded, non-suggestive question. Therefore, each confusing question fielded by a witness further acts to cement irrelevant information and inaccurate alternatives in memory.

Witnesses already operate under increased cognitive load from the stress of the unfamiliar and intimidating courtroom. Confusing questioning increases the pressure on cognitive processing in such a way that the witness becomes less able to monitor their own accuracy: He or she must concentrate when selecting the correct option from the myriad of choices posed by negative questioning, and at the same time, the witness must consciously reject the strong but inaccurate memory traces, which typically supersede later corrections via the process of regression (Green & Kittur, 2004; Jost, 1897). Consequently, these *undesirable difficulties* reinforce incorrect answers and make it less likely that the witness will mentally return to the source of the information, (preferring instead to fallback on their memory of answering the question when they were practicing their testimony with the lawyer, or giving information to investigators) thus propagating earlier errors in recall and entrenching them in memory.

## Retrieval confidence and coaching the witness

In addition to the cognitive load of memory monitoring, and the pressures of the courtroom environment, highly taxed cognitive resources take their toll on the confidence with which witnesses deliver their answers. As shown in Table 2, when witnesses give veridical recall their ability to be highly confident in the accuracy of their response is generally aided by simpler question wording. On the other hand, even when the witness is providing accurate information, confusing question wording will reduce their confidence in that accurate response.

Knowing the benefits of perceived credibility when witnesses sound confident (Cutler, Penrod, & Dexter, 1990; Cutler, Penrod, & Stuve, 1988; Fox & Walters, 1986; Lindsay, Wells, & O'Conner, 1989) lawyers often prepare witnesses by helping them to rehearse their answers beforehand. However, this practice comes with its own risks. A witness who is coached not to hesitate when answering and not to appear weak by asking for clarification is under even more duress and therefore even more likely to return to their answers as provided in the coaching session, rather than the original memories themselves. Retrieving information from secondary sources suppresses the initial memory in favor of the later, possibly inaccurate, secondary information. Repeating the question and answer also inflates witness fluency and confidence in their answer, regardless of the actual accuracy of the information therein (Odinet, Wolters, & Lavender, 2009) thus making witness confidence an even poorer indication of the veracity behind their statements. Furthermore, repeated retrieval further cements a wrong answer in memory, and prevents the correct answer from resurfacing (Caughey & Henderson, 2006; MacLeod & Saunders, 2005).

There are a number of issues to be taken into consideration for future research. Firstly, the brevity of the delay between viewing the video and answering the questions (approximately 15 minutes). Also, although they were instructed to pay close attention to the video clip and were not expressly told they would be tested on it, they may be expressing certain demand characteristics. This influence has often been documented in experiments carried out under laboratory conditions (Robson, 1995).

## Conclusions

With these results in mind, the most important question is why witnesses would try to answer complicated questions that they may not necessarily understand, especially in a situation with such serious consequences (i.e., a court case). The supposed gravitas of the situation is the key to answering this. The participants were tested in laboratory conditions and even in this artificial situation, the experimenter was automatically assigned a degree of authority, and the participants deferred to her accordingly. They were unwilling to ask for clarification, especially when in the presence of others, preferring to work out the meaning of the questions on their own. Additionally, in a genuine court case scenario, the individual has added trauma such as being in an alien environment (assuming they have not been to court before); completing a stressful or potentially dangerous assignment; and living up to the perceived view of justice and the courtroom. The witness should hopefully believe that justice is all knowing and all pervasive, so the truth will out no matter what happens (Perry & Wrightsman, 1991). Therefore, they may think that they should provide a detailed and definitive answer to the questions, and they should be able to adequately convey their knowledge to the courtroom (Gudjonsson, 1993). As a result stopping to ask for clarification, or showing any hesitation in answering, may be seen as doubt or an example of the individual not knowing the answer. It is this sort of attitude that needs to be addressed and the court, whilst retaining its gravitas and traditions, should also realize that it needs to become a more 'person-friendly' institution especially when dealing with younger individuals. If witnesses can be put at their ease, and questioned in simple, everyday language, their evidence will be clearer, more accurate, and miscarriages of justice may be more easily avoided.

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