

The Effect of Listenability Factors on the Comprehension of Police Cautions

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We examined the extent to which modifying a police caution using three listenability factors (Instructions, Listing, and Explanations) improved comprehension. A 2 (Instructions vs. No Instructions) \times 2 (Listing vs. No Listing) \times 2 (Explanations vs. No Explanations) between-participants design was used. Participants ($N = 160$) were presented verbally with one of eight cautions and asked to record their understanding of the legal rights contained in the caution. Results showed a main effect of Explanations, thus suggesting that repeating the information contained in the caution in different terms increased comprehension. Partial support was also found for the hypothesized additive interactions of modifications, as the caution containing all three modifications resulted in the highest level of comprehension. The implications of these findings for the comprehension of police cautions, and verbally delivered information in general, are discussed.

Keywords: listenability, police cautions, Miranda, investigative interviewing, legal rights

In most English-speaking Western countries, individuals facing a police interview are made aware of various legal rights through the delivery of a passage of text known as a police caution (or warning). It is imperative that interviewees understand the legal rights contained in those cautions for the dual purpose of protecting their rights during the interview and ensuring that police interviewers can successfully admit inculpatory statements into legal proceedings (e.g., Marin, 2004). Unfortunately, studies conducted across a variety of countries have shown that people struggle to understand the legal rights delivered through police cautions (Eastwood & Snook, 2009; Fenner, Gudjonsson, & Clare, 2002; Grisso, 1981). One common explanation for the lack of comprehension relates to the complex wording and structure of the cautions; which has led to suggestions that comprehension could be improved by constructing simpler cautions (Rogers, Harrison, Shuman, Sewell, & Hazelwood, 2007; Rogers, Hazelwood, Sewell, Harrison, & Shuman, 2008). Initial attempts to reduce complexity by increasing caution *readability*—writing information at a reading level that matches the reading abilities of the average individual—have not yet resulted in the desired increase in comprehension (e.g., Eastwood, Snook, & Chaulk, 2010). One facet of this problem that has not garnered much focus is the fact that interviewees do not typically read the cautions, but listen while the

interviewer delivers the caution verbally. In the current paper, we explore the possibility of increasing the comprehension of legal rights by improving the *listenability* of police cautions.

Although the legal rights afforded individuals vary across countries, English-speaking Western countries provide people being questioned about their involvement in a criminal offence with the right-to-silence and the right-to-legal counsel. As mentioned, these rights are typically delivered through the verbal delivery of police cautions or warnings. For example, *Miranda* warnings in the United States are used to inform individuals that they do not have to talk to the police but anything they do say can be used in court, are able to contact a lawyer, can get access to free legal help if they cannot afford a lawyer, and can exercise these rights at any point during the interview (*Miranda v. Arizona*, 1966). Passages of text containing similar legal rights are utilized by police organizations in Canada, Scotland, England, and Wales (Cooke & Philip, 1998; Eastwood et al., 2010; Fenner et al., 2002).

Courts within these countries have also ruled that—although the wording of cautions can vary—interviewees must be informed fully of their rights before the police can interview them (*Miranda v. Arizona*, 1966; *R v. Bartle*, 1994). Failure to ensure comprehension of cautions not only means the individual's rights are not being protected, but can also lead to subsequent statements taken from an interviewee being ruled inadmissible in court (Marin, 2004). For example, legal rulings in Canada and the U.S. dictate that the rights contained in police cautions can only be waived if the interviewee has full knowledge of those rights and a full appreciation of the consequences of giving up those rights (*Clarkson v. The Queen*, 1986; *Colorado v. Spring*, 1987; *Korponay v. Attorney General of Canada*, 1982).

Despite the need to be informed fully of their legal rights, research from numerous countries has shown consistently that people fail to comprehend the content of police cautions. For example, a classic set of studies by Grisso (1981) in the United States showed that only 21% of the juveniles and 42% of the adults

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fully understood the *Miranda* warning that was presented to them. Studies conducted in the United Kingdom have also shown that the percentage of students, suspects, police officers, and the general population who understood fully the standardized English and Welsh caution ranged from 0% (suspect sample) to 48% (police officer sample; Clare, Gudjonsonn, & Harari, 1998; Fenner et al., 2002). Similarly, research examining comprehension of Canadian cautions found that less than a quarter of participants understood more than half of the information contained in the cautions (Eastwood & Snook, 2009; Eastwood et al., 2010).

One widely cited reason offered to explain the poor comprehension pertains to the overly complex content and structure of police cautions (e.g., Shepherd, Mortimer, & Mobasher, 1995). In support of this hypothesis, analyses from various countries have shown that cautions often contain many difficult and infrequent words, are overly lengthy, and are written at a relatively high readability level (Eastwood et al., 2010; Rock, 1999; Rogers et al., 2007, 2008). In an attempt to test whether or not increasing readability leads to an improvement in comprehension, Eastwood et al. (2010) presented participants with one of three legal counsel cautions that varied in reading complexity. Results from this study showed that there was no difference in comprehension across the three cautions. Although only a single study, these results suggested that the readability measures may not be valid predictors of comprehension.

Reducing reading complexity may not have increased peoples' ability to understand cautions because suspects and accused persons are not typically given a written copy of a police caution, but instead must listen while the interviewer delivers the caution. Unlike reading a passage of text, listeners often only hear the text a single time, and must retain the information in their working memory while simultaneously attempting to interpret the meaning of the information (Shohamy & Inbar, 1991). Prototypical spoken communication (i.e., oral-based discourse) helps minimize the constraints of a listening situation through the use of repetition, large verb clusters instead of noun phrases, and sentences with simple main clauses; characteristics which listeners can exploit to aid in comprehension (Rubin, 1987). Despite the ability of oral-based discourse to deal with the constraints in listening situations, however, it is often highly disjointed in its presentation and is ill-suited for situations where there are low levels of shared knowledge between sender and receiver (Rubin, 1993). Therefore, researchers have introduced the concept of "friendly" or "considerate" text, which helps ease the limitations of oral-based discourse by including features such as text organization (e.g., appropriate introductory material, internal summaries), flow of information (e.g., logical introduction of new information), and elaboration of information (e.g., explanations; Armbruster, 1984; Rubin, 1993). A passage of text that is both oral-based and considerate can be considered highly listenable¹; that is, it is particularly suited to the information processing involved in listening.

An underlying assumption of the theory of listenability is that oral-based or listenable discourse will be better understood than literate-based discourse when delivered verbally (Shohamy & Inbar, 1991). In a test of this assumption, Shohamy and Inbar (1991) investigated comprehension of passages of text that were either very literate-based (i.e., news broadcast), very oral-based (i.e., consultative dialogue—a spontaneous, unrehearsed discussion between an expert and addressee involving constant interaction), or

text that fell in between the oral/literate continuum (i.e., lecture). They found that participants' comprehension of the news broadcast was significantly worse than comprehension of the two more oral-based texts (i.e., lecture and consultative dialogue), with comprehension levels being similar for the lecture and consultative dialogue. Similarly, a study by Rubin, Hafer, and Arata (2000) revealed a tendency for oral-based discourse (i.e., speech) to be better understood than literate-based discourse (i.e., magazine article) when delivered verbally, and literate-based discourse to be better understood when delivered in written format. The findings from these studies open up the possibility of increasing the comprehension of police cautions by making them more listenable.

The fact that prototypical cautions do not contain some fundamental aspects of listenable text may explain the low level of comprehension found in previous studies. For example, each piece of information presented in cautions is immediately followed by a new piece of information, with no pauses or repetitions to allow listeners to review the initial information; a fundamental component of oral-based text. Cautions do not contain introductory information regarding the purpose of a police caution or what listeners ought to do with the information in the caution, and do not contain any explicit transitions or organizational cues to guide listeners regarding the structure and content of the caution; both of which are important features of considerate text.

There is no exhaustive list of listenability features or operational guidelines for creating listenable text. Both of the aforementioned studies examining the relationship between listenability and comprehension used naturally occurring passages of text that defined listenability in a global sense, and did not attempt to assess the impact of discrete components of listenability. An implicit assumption in that research, however, is that there ought to be a direct positive relationship between the number of listenability components in a passage of text delivered verbally and the level of comprehension of that text. In order to improve caution comprehension, and test this assumption more directly, the current study employed the following listenability modifications:

- (a) **Instructions.** Instructions informed participants, before the caution was delivered, of the nature of the upcoming information and what they were expected to do with that information after the caution was delivered (i.e., they will be asked to provide their understanding of the information contained in the caution; see Vandergrift, 1999).
- (b) **Listing.** Listing allowed the information contained in the caution to be organized into four discrete legal rights. This included explicitly informing participants that they had four legal rights and notifying them before each right was mentioned (see Rubin, 1993).

¹ We realize that the term "listenable" or "listenability" can have several meanings apart from the one that is adopted in the current paper (e.g., pleasant to listen to). To clarify, we are using the term as understood and defined by researchers such as Donald Rubin and his colleagues. That is, messages are listenable based on the degree to which they contain features of prototypical "oral-based" and "considerate" text (see Rubin, 1993).

- (c) **Explanations.** Explanations built redundancy into the caution by repeating the content of each sentence, immediately after each sentence was delivered, in a slightly different manner (see Rubin & Rafoth, 1986).

Based on the listenability research, it is hypothesized that each of these modifications will increase comprehensibility independently by allowing participants to know what to listen for and better focus their attention while listening (Instructions), logically organizing the information and explicitly separating the four rights for participants (Listing), and reducing the chance that participants would miss information and providing an explicit rehearsal mechanism (Explanations). We anticipated that each of these modifications would help relieve the constraints of listening situations in different ways (see Bostrom & Waldhart, 1988). An additive interaction is therefore hypothesized, whereby the addition of each modification will increase comprehension incrementally. Specifically, a caution with one modification will produce higher comprehension scores than a caution with no modifications, a caution with two modifications will produce higher comprehension than a caution with one modification, and the caution that contains all three modifications will produce the highest level of comprehension.

Method

Sample

Participants ($N = 160$) were undergraduate psychology students from Memorial University. The sample consisted of 59 men (mean age = 22.61, $SD = 5.94$) and 101 women (mean age = 21.31, $SD = 4.81$). The average year of study for participants was 2.72 ($SD = 1.46$).

Materials and Design

The Created caution from Eastwood et al. (2010) was used in the current study. This legal counsel caution was designed to contain all the necessary legal rights while also satisfying a series of readability measures (see Rogers et al., 2007, 2008). This caution was used because it produced the same level of comprehension as the cautions actively being used by police organizations (see Eastwood et al., 2010), but was more conducive to the listenability modifications. Unlike other Canadian police cautions, this caution had only one sentence for each of the four legal rights; which allowed each right to be listed easily and an explanation added easily after each sentence.² This base right-to-legal counsel caution was modified so that it either contained or omitted each of the modifications (i.e., Instructions, Listing, and Explanations). The Instructions modification was added to the beginning of the caution, and the Listing and Explanation modifications were integrated into the caution. The original Created caution and the details of each of the three modifications (in italics) are listed in the Appendix.

A 2 (Instructions vs. no Instructions) \times 2 (Listing vs. no Listing) \times 2 (Explanation vs. no Explanation) between-subjects design resulted in the creation of the following eight different conditions: (1) Base Caution (BC), (2) Base Caution + Instructions (BCI), (3) Base Caution + Listing (BCL), (4) Base Caution + Explanations (BCE), (5) Base Caution + Instructions +

Listing (BCIL), (6) Base Caution + Instructions + Explanations (BCIE), (7) Base Caution + Listing + Explanations (BCLE), and (8) Base Caution + Instructions + Listing + Explanations (BCLIE).

A Visual Basic program was designed using Visual Basic 5 software. This program consisted of three different forms, each of which was displayed on a computer monitor in sequence. The first form contained instructions regarding how to complete the experiment. The second form contained a video of the second author reading one of the eight legal counsel cautions in its entirety. The speeds of delivery for the eight cautions were all below 200 wpm; which should be conducive to verbal comprehension (see Carver 1982; Jester & Travers 1966). The third form contained instructions asking participants to describe, in as much detail as possible, their understanding of the caution they heard. Located below the instructions was a text box for participants to type their answers. All answers that were typed into the text boxes were saved automatically in a Microsoft Word document.

We chose to measure comprehension using a sample of high-functioning individuals under highly controlled conditions, which presumably represents the upper levels of comprehension that can be expected for the various cautions that were created. We opted for an upper-bound model because previous studies have shown consistently that comprehension is low for such samples even under these ideal situations. The goal of the current study was to create sufficiently high comprehension levels in the laboratory before testing the effect of various individual and situational differences on any modifications found to increase comprehension.

Procedure

The study was conducted in the Bounded Rationality and Law Lab at Memorial University. Each participant was greeted at the entrance to the lab and directed to one of four computer testing stations. Participants were then asked to read and sign an informed consent form, as well as complete a short demographic questionnaire. Next, the experimental instructions were outlined briefly, and it was verified that the participant understood how to complete the study. Participants were then provided with a pair of headphones to listen to the videos, assigned randomly to one of the eight caution conditions, and instructed to begin the experiment. There was no difference in participants' age, gender, or year of study across the eight conditions. Upon completion of the experiment, each participant received a debriefing form that outlined the purpose of the study. The study took approximately 10 min to complete, and participants' were either entered into a drawing for

² We chose to use a created caution over a police caution currently in use for two interrelated reasons. Firstly, the creation of police cautions in Canada lacks standardization. In other words, they are created by each agencies' legal department based on their interpretation of Canadian case law and can be modified as needed. It is therefore possible that any Canadian police agency could opt to use the Created caution used in this paper. Secondly, the ultimate goal of this line of research is to produce a highly comprehensible caution. We reasoned that the application of the listenability modifications to this caution would provide the best opportunity to achieve that goal as it, unlike all other Canadian legal counsel cautions, meets all of readability criteria for a comprehensible caution set out by Rogers and his colleagues (2007, 2008).

a \$100 prize or given a percentage point in their psychology course.

Coding participant answers. Participant's answers were coded blind by the first author using a coding guide constructed to measure participants' comprehension of the four legal requirements contained in the caution. For the first requirement, participants received one point if they stated they could *retain/hire a lawyer/counsel* (1A), one point if they stated they could *talk to/instruct a lawyer/counsel* (1B), and one point if they stated this (i.e., 1A and 1B) could be done *without delay/immediately* (1C). For the second requirement, one point was given if participants stated they could *talk to a lawyer/get legal advice* (2A), one point if they mentioned that this legal service was *free* (2B), and one point if they mentioned they could obtain this free legal service *without delay/immediately* (2C). For the third requirement, one point was given if participants stated there was *a number they could call to talk to this free lawyer/get legal advice* (3). For the fourth requirement, one point was given if participants mentioned they could *apply for legal aid* (4A), and one point was given if they mentioned that the application to legal aid was *dependent on them being charged with a crime* (4B). Scores for comprehension of the cautions could range from zero to nine, reflecting each of the nine components which underlie the four requirements. Any extra information reported by participants was not coded.

Inter-rater reliability. Agreement of the coding was assessed by having the second author code all of the answers independently. The researcher was provided with a 1-h training session that covered the practical aspects of coding the answers and the content of the nine-point coding guide. In addition, practice was gained by coding five responses before the actual coding was conducted. Any confusions pertaining to the task were resolved before the inter-rater reliability commenced. The reliability of coding was measured using Cohen's Kappa (Cohen, 1960) and percentage agreement. The second coder was also blind to the participants' condition. The Kappa and percentage agreement (in brackets) for component 1A was .73 (92%), for component 1B was .77 (88%), for component 1C was .75 (88%), for component 2A was .72 (86%), for component 2B was .77 (90%), for component 2C was .84 (93%), for component 3 was .84 (94%), for component 4A was .80 (94%), and for component 4B was .83 (92%). The average Kappa across all answers was .81 (91%), thus suggesting excellent agreement between the coders (Fleiss, 1981; Landis & Koch, 1977).

Results

The average comprehension score (out of 9), and associated 95% confidence intervals (CI), for each of the eight cautions is shown in Figure 1. As can be seen, the highest level of comprehension was achieved when all three listenability modifications were added to the Base Caution ($M = 6.60$, $SD = 1.54$, $CI = 5.88-7.32$) and the lowest level of comprehension was achieved for the Base Caution without any modifications ($M = 3.35$, $SD = 1.73$, $CI = 2.54-4.16$). The results also show that the CI for BCLIE overlapped with the CI for cautions with the next three highest scores (BCIE, BCLE, BCE) but did not overlap with the CI for cautions with the four lowest scores. Inspection of the cautions showed that the addition of the Explanations modification was contained in the cautions with the top four highest scores.

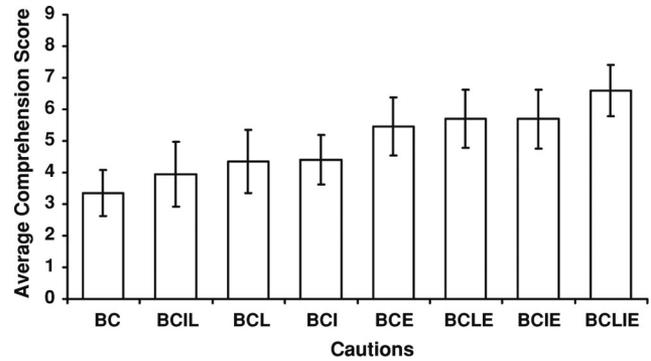


Figure 1. The average comprehension score (out of 9), and associated 95% confidence intervals, for each of the eight unique cautions. The cautions include: (1) Base Caution (BC), (2) Base Caution + Instructions + Listing (BCIL), (3) Base Caution + Listing (BCL), (4) Base Caution + Instructions (BCI), (5) Base Caution + Explanations (BCE), (6) Base Caution + Listing + Explanations (BCLE), (7) Base Caution + Instructions + Explanations (BCIE), and (8) Base Caution + Instructions + Listing + Explanations (BCLIE).

A 2 (Instructions) \times 2 (Listing) \times 2 (Explanation) analysis of variance was computed on participants' overall comprehension score. This analysis revealed only a significant main effect of Explanations, $F(1, 158) = 37.63$, $p < .001$, $d = .96$, with greater comprehension for cautions that contained Explanations ($M = 5.86$, $SD = 1.92$) than for those that did not ($M = 4.01$, $SD = 1.92$). That is, repeating each legal right in different terms greatly increased comprehension of the caution (see Figure 2). There were no main effects of Instructions, $F(1, 158) = 2.23$, $p = .14$, or Listing, $F(1, 158) = 1.99$, $p = .16$. The average comprehension scores of cautions that did and did not contain Instructions was 5.16 ($SD = 2.17$) and 4.71 ($SD = 2.07$), respectively ($d = .21$). The average comprehension scores of cautions that contained and omitted Listing was 5.15 ($SD = 2.16$) and 4.73 ($SD = 2.09$), respectively ($d = .20$). These findings suggest that adding instructions to the beginning of the caution and organizing the information in a structured fashion did not significantly facilitate greater comprehension, and the associated effect sizes were small. None of the interactions reached significance.

Post hoc tests ($p < .05$) showed that there were no differences in comprehension levels between BC and BCI ($d = .57$), BCL ($d = .54$), and BCIL ($d = .32$). However, there were significant improvements in comprehension when comparing the BC to BCE ($d = 1.24$), BCLE ($d = 1.21$), BCIE ($d = 1.19$), and BCLIE ($d = 1.99$). In addition, the caution that contained all three modifications (i.e., BCLIE) produced a significantly higher comprehension score than BCI ($d = 1.25$), BCL ($d = 1.28$), and BCIL ($d = 1.49$).

Table 1 contains a breakdown of the comprehension of the nine individual caution components for each of the eight conditions. As can be seen, the majority of participants understand they could get a lawyer right away (components 1A and 1C), could get free legal advice (components 2A and 2C), and that a phone number would be provided to allow them to receive the free legal advice (component 3). By contrast, most participants did not appear to realize that the free legal advice could be obtained (component 2C) and that they had their right to apply for legal aid to help with their case (component 4A). Although the relative comprehension levels be-

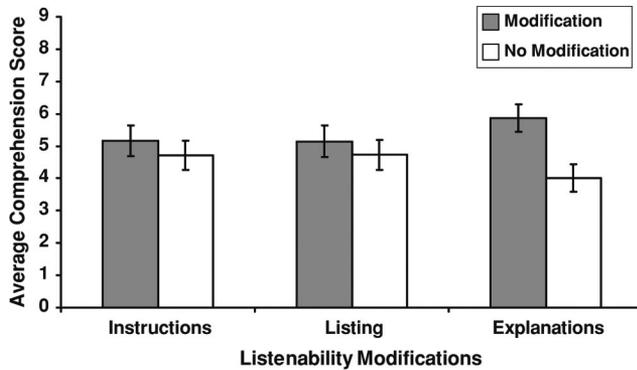


Figure 2. The average comprehension score (out of 9), and associated 95% confidence intervals, for each of the three modifications.

tween components remained similar across all eight conditions, there was a marked increase in comprehension between BC and BCLIE across the nine components (with the exception of component 1A).

The results also showed that 2.5% ($n = 4$) of participants understood all nine components contained in the caution, while 38% ($n = 60$) understood more than half of the caution (i.e., 6 or more components). Of the four participants who fully understood the caution, all received cautions that contained the Explanation modification. Of the 60 participants who understood over half of the information contained in the caution, 44 (73%) received a caution that contained the Explanation modification.

Discussion

The purpose of the current study was to test the extent to which modifying a right-to-legal counsel police caution using listenability factors (i.e., Instructions, Listing, Explanations) would increase comprehension of a caution that previously had a low level of comprehension. We found that the Explanations modification increased comprehension greatly, while the remaining two modifications only had a small effect on comprehension. Despite the

small effect of Listing and Instructions, the caution that contained all three modifications produced the highest comprehension score. These findings have implications for policing and other consequential domains (e.g., judge's instructions, medical instructions) where information being delivered verbally requires high levels of comprehension.

The four cautions that contained the Explanations modification produced the four highest scores, and overall this modification increased comprehension by over 30%. To ensure that the effect rested with the repetitive nature of the Explanation modification, and not with the content of the Explanation sentences, we presented a further 20 participants with just the four Explanation sentences. The average level of comprehension was 3.20 ($SD = 1.51$), which was significantly lower than the participants who received the Explanation modification, $t_{(38)} = 4.47, p < .001, d = 1.45$ and was not significantly higher than the participants who received the Base Caution, $t_{(38)} = .293, p = .771, d = .10$. These comparisons suggest that the Explanation sentences are not the sole contributor to the observed main effect of the Explanation modification. We suspect that this modification had such a marked impact on comprehension because it allows participants to capture any information they may have missed the first time it was mentioned (Rubin, 1987). The redundancies may have also helped ease the burden on working memory by acting as a built-in rehearsal mechanism.

Somewhat contrary to our hypotheses, the Instructions and Listing modifications only produced a small positive effect on comprehension (e.g., $d = .21$ and $d = .20$, respectively). We suspect that the Instructions did not produce a larger effect because all participants, regardless of what caution they received, were made aware of the general purpose of the study through the informed consent form and the experimenter's basic instructions prior to beginning the study. The fact that all participants had basic knowledge of what the experiment entailed (i.e., listen to a caution and record what it means) prior to beginning may have pre-empted the effect that providing instructions had on comprehension. In an actual police interview situation where introductory information is not typically provided, this modification may have a larger effect. For the

Table 1
Percentage of Each of the Nine Caution Components Comprehended Across the Eight Conditions

Condition	Component								
	1A	1B	1C	2A	2B	2C	3	4A	4B
Base Caution (BC)	16 (80%)	4 (20%)	9 (45%)	8 (40%)	11 (55%)	1 (5%)	9 (45%)	2 (10%)	7 (35%)
BC + Instructions+Listing	17 (85%)	8 (40%)	8 (40%)	10 (50%)	10 (50%)	2 (10%)	15 (75%)	0 (0%)	9 (45%)
BC + Listing	19 (95%)	10 (50%)	8 (40%)	10 (50%)	13 (65%)	4 (20%)	15 (75%)	3 (15%)	5 (25%)
BC + Instructions	20 (100%)	10 (50%)	10 (50%)	11 (55%)	11 (55%)	4 (20%)	12 (60%)	3 (15%)	7 (35%)
BC + Explanations	15 (75%)	14 (70%)	15 (75%)	10 (50%)	16 (80%)	9 (45%)	18 (90%)	4 (20%)	8 (40%)
BC + Listing + Explanations	16 (80%)	9 (45%)	17 (85%)	15 (75%)	15 (75%)	10 (50%)	13 (65%)	5 (25%)	14 (70%)
BC + Instructions + Explanations	14 (70%)	11 (55%)	18 (90%)	14 (70%)	16 (80%)	11 (55%)	12 (60%)	6 (30%)	12 (60%)
BC + Instructions + Listing + Explanations	16 (80%)	12 (60%)	13 (65%)	16 (80%)	19 (95%)	13 (65%)	17 (85%)	9 (45%)	17 (85%)
Overall	133 (83%)	78 (49%)	98 (61%)	94 (59%)	111 (69%)	54 (34%)	111 (69%)	32 (20%)	79 (49%)

Note. Component 1A refers to the right to hire a lawyer; 1B refers to the right to speak to a lawyer; 1C refers to the right to have these rights without delay; 2A refers to the right to legal advice/call a lawyer; 2B refers to the fact that this service (i.e., legal advice/call a lawyer) is free; 2C refers to the fact that access to this service (i.e., legal advice/call a lawyer) can be obtained immediately; 3 refers to the provision of a toll-free number to access free legal advice; 4A refers to the right to apply to legal aid for legal help; 4B refers to the fact that the right to apply to legal aid for help is contingent upon the individual being charged with a crime.

Listing modification, an examination of participants' responses indicated that exactly half of the participants who received a caution with this modification made explicit reference to the fact that the caution contained four rights and organized their responses accordingly (e.g., "The first right I have is..."). A post hoc comparison showed that those who presented their responses in list format had higher comprehension scores than those who did not, $t_{(78)} = 2.12, p = .04, d = 0.47$. Although there was no main effect of the Listing modification, the post hoc tests suggest that this modification is effective when people organize information in a list format. We suspect that explicitly asking people to organize the information in list format may further improve comprehension.

Although the Explanations modification produced the largest impact on comprehension, adding all three modifications to the base caution almost doubled the average comprehension score. Participants understood approximately 35% of the information in the base caution—which is consistent with the finding from Eastwood et al. (2010)—and participants understood over 70% of the information in the fully modified caution. Although the fully modified caution did not increase comprehension much more than the other three cautions containing the Explanations modification, practical significance would dictate the use of a caution that maximizes comprehension.

There are at least five issues raised by our findings that need future investigation. Firstly, the current study used a legal counsel caution that was created specifically to be simple according to various readability measures. It is therefore possible that listenability modifications helped facilitate comprehension by reducing the constraints of working memory. Future research should determine the extent to which these same listenability factors can increase comprehension of the more linguistically complex police cautions (e.g., difficult words, sentences with multiple embedded clauses) currently being used around the world (see Eastwood et al., 2010). Secondly, as the modifications used in the current study also represent only some of the factors that can be used to make a passage of text more listenable, future research could attempt to examine how other listenability factors impact comprehension. Thirdly, the fact that participants did not report certain aspects of the caution does not guarantee that they did not comprehend them. Likewise, just because participants could repeat back the information contained in the caution does not ensure they actually comprehend the information. Although free recall is a commonly accepted way of measuring comprehension in a range of domains, such as law and medicine (e.g., Charrow & Charrow, 1979; Crane, 1996; Gudjonsson & Clare, 1994), we certainly advocate the development and testing of additional ways of assessing comprehension that can supplement this procedure. Fourthly, we encourage replication of our study using a sample of participants that would be likely to encounter police cautions in real-world settings (e.g., offenders) and using experimental paradigms that better match an actual police interview situation (see Rogers, Gillard, Wooley, & Fiduccia, 2010 for a recent example). Lastly, the problem of comprehending potentially complex verbally delivered information exists in other domains, such as judge's legal instructions to jurors, doctor's medical instructions to patients, etc. We encourage researchers to replicate our research in other applied areas to determine the effect that listenability modifications can have on the comprehension of verbally delivered information.

This study represents one of the first successful attempts to increase the comprehension of cautions through modification of their structure. We were able to increase comprehension levels by almost 40% (70 vs. 30% found in Eastwood et al., 2010). Although more work is needed to reach 100% comprehension levels, we believe our findings represent a positive step towards ensuring people are able to understand their legal rights. This dramatic improvement also suggests that police cautions, and passages of text being delivered verbally in other consequential domains, can be made highly comprehensible by employing listenability modifications. Despite the compelling nature of our data, the next logical step is to move beyond upper-bound research to test the extent to which our findings can be replicated using more ecologically valid samples and in more ecologically valid situations.

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Appendix

Base Legal Counsel Caution

You have the right to hire and talk to your own lawyer right away. You have the right to free legal advice from a government lawyer right away. If you want this free advice I will give you the number to call. If you are charged with a crime you can apply for a free lawyer to help with your case.

Instructions

I am going to read you the police caution. The police caution describes the rights that you have when being interviewed by the police. I want you to listen carefully to the caution as I am reading it and think about the information that you hear. This is important, as I will ask you to tell me what the caution means when I finish reading it. I will start reading the caution now.

Listing

You have four rights that you need to know about:

First, you have the right to hire and talk to your own lawyer right away.

Second, you have the right to free legal advice from a government lawyer right away.

Third, if you want this free legal advice, I will give you a telephone number to call.

Fourth, if you are charged with a crime, you can apply for a free lawyer to help with your case.

Explanations

You have the right to hire and talk to your own lawyer right away. *This means that you can hire and talk to any lawyer you want before I ask you any more questions.*

You have the right to free legal advice from a government lawyer right away. *This means that you can talk to a free lawyer and get free legal advice before I ask you any more questions.*

If you want this free legal advice, I will give you a telephone number to call. *This means that you can get a phone number from me that will let you call for the free legal advice I just mentioned.*

If you are charged with a crime, you can apply for a free lawyer to help with your case. *This means that if you do end up being charged with a crime, you can apply to get a lawyer to help you for free.*