

Securing the Admissibility of Witness Statements: Estimating the Complexity and Comprehension of Canadian “KGB Warnings”

Kirk Luther · Brent Snook · Sarah MacDonald · Todd Barron

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Abstract The reading complexity of a sample of Canadian “KGB warnings” was assessed, along with the oral comprehension of one of those warnings. In Study 1, the complexity of 29 warnings was assessed using five readability measures. Results showed that the warnings are lengthy, are written at a high-grade level, contain complex sentences, and contain words used infrequently in our everyday language. In Study 2, university students ($N=80$) viewed a video of an individual reading the warning aloud in its entirety (Full) or in four sections (Chunked), and comprehension was assessed using recall and recognition measures. Results showed that, when collapsed across the two conditions, participants tended to comprehend less than half of the contents of the warning. Presenting the warning in chunks produced higher levels of comprehension. The likelihood of witnesses understanding the content and consequences of the KGB warning are discussed.

Keywords police · special warning · KGB · reading complexity · comprehension

In 1988, four youths were involved in a fight with two men that resulted in one of the men being murdered. Interviews with three of the youths revealed that the fourth youth (K.G.B.) admitted that he had stabbed and killed the victim.

Based in part on the statements from the three youths, K.G.B. was charged with second-degree murder. However, the three youths recanted their incriminating statements at trial and claimed that they lied to the police in order to exculpate themselves from any wrongdoing. The trial judge ruled that their original statements were inadmissible because they were contradictory with the statements provided during the trial; K.G.B. was acquitted of murder. In a five-to-two decision, the Supreme Court of Canada upheld the acquittal because there was no guarantee that the original statements were reliable. It was further stated that the best indication of reliability is if a sworn statement is taken (i.e., a statement made under oath, solemn affirmation, or solemn declaration, where a witness is made aware of the criminal sanctions for making a false statement; see *R. v. B. (K.G.)*, 1993 for additional reliability criteria).

To ensure the reliability (and thus secure the admissibility) of a witnesses’ original statement at trial, each Canadian police organization has created what is known colloquially as a KGB warning. KGB warnings are written passages of text that outline to a witness the criminal offence and the charges associated with fabricating evidence. The witnesses’ statement is typically taken under oath, solemn affirmation, or solemn declaration. A KGB warning may be administered at the discretion of the interviewing officer or prosecutor. For instance, a KGB warning may be used if there is concern that the witness may change his/her statement, or be unable to testify at a trial (e.g., severe health problems). Although it is estimated that KGB warnings are used in approximately 12 % of witness interviews (Snook & Keating, 2011), there is virtually no research on this feature of investigative interviewing in Canada. Specifically, little is known about how well KGB warnings educate witnesses (and victims) about the consequences of lying to or misleading the police (i.e., how much witnesses understand the KGB warning). If a witness does not understand the content of a KGB warning, a defence lawyer

K. Luther (✉) · B. Snook · S. MacDonald · T. Barron
Department of Psychology, Science Building, Memorial University
of Newfoundland, St. John’s, NL, Canada A1B 3X9
e-mail: kirkcluther@gmail.com

B. Snook
e-mail: bsnook@mun.ca

S. MacDonald
e-mail: smacdonald09@mun.ca

T. Barron
e-mail: toddb@mun.ca

may make the argument that the witness did not appreciate the consequences of recanting or altering their original statement; thus leading to potentially probative evidence being ruled inadmissible.

Despite the dearth of empirical research on KGB warnings, a related body of research on the comprehension of interrogation rights (as delivered via police cautions) provides a useful base from which expectations regarding the comprehension and complexity of KGB warnings can be derived. One major finding from police caution research is that the text used to administer interrogation rights is too complicated for detainees to understand. For instance, Eastwood, Snook, and Chaulk's (2010) reading complexity analysis of 38 right to legal counsel and 38 right to silence cautions revealed that interrogation rights are too difficult for the average detainee in Canada to understand (Muirhead & Rhodes, 1998). Specifically, the majority of the legal counsel cautions were written above a grade six level, contained linguistically complex sentence structure, contained words that are used infrequently in everyday language and thus are difficult to comprehend (e.g., *duty counsel*), and were overly lengthy (e.g., many of the cautions contained over 100 words). Eastwood and his colleagues also found that caution complexity varied across jurisdictions; the average grade level needed to comprehend both interrogation rights ranged from grade four to grade eight.

Comparable results regarding the complexity of youth interrogation rights have also been reported (e.g., Abramovitch, Peterson-Badali & Rohan, 1995). For example, Eastwood, Snook, and Luther (2012) found that the sample of youth waiver forms used to deliver legal rights to youths were lengthy (i.e., average length of 427 words), written at a relatively high-grade level (i.e., average of grade 9), contained complex sentences, and included numerous difficult words (e.g., *indictable*, *retain*). In addition, 80% of the forms contained at least one section that required a youth to have a post-secondary reading ability. Their results also showed that the reading complexity of the waiver forms varied across policing jurisdictions (i.e., ranged from approximately grade 6 to grade 12), which raises concerns about parity in the justice system. Similar results were reported in a follow-up study that examined the complexity of waiver forms administered to French Canadian youths (Luther, Snook, & Luther, *in press*). As with the forms delivered to English speaking Canadians, the French forms were lengthy (i.e., average length of 336 words), and contained grammatically complex and difficult to understand sentences. Similar findings regarding the reading complexity of youths and adult *Miranda* warnings have been reported in the US (Rogers et al., 2012; Rogers, Hazelwood, Sewell, Harrison, & Shuman, 2008; Rogers, Hazelwood, Sewell, Shuman, & Blackwood, 2008).

A second major finding is that the comprehension of interrogation rights tends to be low. For example, a study by Moore

and Gagnier (2008) that tested the comprehensibility of a right to silence caution found that only 43% of the participants understood all of their rights. Eastwood and Snook (2009) found that, when delivered verbally, only 4% and 7% of the participants understood the right to silence and right to legal counsel cautions, respectively. Eastwood et al., (2010) reported that a sample of university students comprehended approximately 30% of their right to legal counsel. A more recent study by Chaulk, Eastwood, and Snook (2013) reported that the comprehension level of cautions by ex-offenders were similar to the levels found with student populations. On average, the ex-offenders were able to recall 30% of the information in the cautions and only 12% of the ex-offenders recalled more than half of the information.

Research on the comprehension of interrogation rights by Canadian youths has produced comparable findings (Abramovitch et al., 1995). For example, Eastwood et al. (2012) found that youths tend to recall approximately 30% of the information contained in the youth waiver forms. Interestingly, participants recalled slightly more information (just over 50%) when comprehension was checked after each section of the waiver form was delivered, as opposed to when comprehension was checked after all sections had been delivered (approximately 37%). The authors concluded provisionally that chunking the information into manageable segments, and asking for a recall immediately after the chunked information is presented, is likely to be a useful way to increase comprehension. In a follow-up study, Freedman, Eastwood, Snook, and Luther (2014) examined of the comprehension of a low and a high reading complexity waiver form; the authors found that participants recalled approximately 16% and 11% of the information in those forms, respectively. Comparable findings from research on the comprehension of the *Miranda* rights have been found as well (e.g., Rogers, 2008; Rogers, Harrison, Shuman, Sewell, & Hazelwood, 2007), and for the comprehension of the police cautions utilized in the U.K. (e.g., Fenner, Gudjonsson, & Clare, 2002).

Based on the findings from the research on the comprehension of interrogation rights, we expect that similar levels of complexity and comprehensions scores will emerge when KGB warnings are subjected to a complexity analysis. We tested these expectations across two studies. In Study 1, we collected KGB warnings used across Canada and analyzed their complexity according to a number of readability measures. The accumulated knowledge on the variation and complexity of legal documents used by police organizations led to the prediction that the KGB forms are written at a level that is beyond the literacy levels of the average Canadian. In Study 2, we tested the comprehensibility of the KGB warnings using a sample of university students. Based on past research on legal rights comprehension reviewed above, we predicted that participants would understand less than half of the content of a KGB warning. We also predicted that participants who heard a

KGB warning that is chunked into smaller sections would have higher comprehension levels than those who heard a KGB warning in its entirety.

Study 1

Method

Sample of KGB Warnings Police organizations in Canada were contacted and asked to provide a copy of their KGB warnings. A total of 35 English versions of the KGB warnings were obtained from seven federal, three provincial, and 24 municipal/regional police organizations. Eleven warnings were obtained from Ontario (ON), four from Nova Scotia (NS), three warnings each from British Columbia (BC), Alberta (AB), New Brunswick (NB), Newfoundland and Labrador (NL), two warning each from Prince Edward Island (PE) and Saskatchewan (SK), and one warning each from Quebec (QC), Manitoba (MB), Nunavut (NU), and the Yukon (YT).¹ Based on the 2011 census information obtained from Statistics Canada, we estimated that nearly 85% of Canada's population is serviced by the organizations represented in our sample of KGB warnings. Twenty-nine of the 35 (82.86%) KGB warnings were unique; all subsequent analyses were conducted on the unique warnings.

Procedure All KGB warnings were typed into a word processor and the transcription of the warnings was checked for accuracy prior to analyses. Any information that did not pertain directly to the warning was removed from the transcribed document (e.g., instructions for the interviewing officers). In 11 (37.93%) warnings, there was a blank space for the police officer to insert the type of criminal charge under investigation. To ensure a conservative measure of complexity, the blank space was replaced with the one syllable word "a". In 20 (68.97%) of the warnings that contained numbers, the numbers were converted to words (e.g., *Section 140* was converted to *Section one four zero*).

Complexity Measures The delivery format for KGB warnings has not been documented empirically; however, conversations with law enforcement officers and transcripts of witness interviews suggest that they are typically delivered verbally (Snook & Keating, 2011). We relied on measures that are more related to reading complexity because we are unaware of any metrics that directly capture oral complexity. The following complexity measures were used:

1. **Length analysis.** The total number of words was calculated using Microsoft Word. For comparative purposes, Rogers et al. (2007) recommended that the length of the passage of text that anyone is asked to comprehend at any given time should not exceed 75 words (see also Baddeley, 1994).
2. **Flesch-Kincaid Grade Level (FK Score).** The FK formula estimates the grade level needed for comprehension of a passage of text (Flesch, 1950). The formula, which uses sentence length and average number of syllables per word, predicts the grade level at which individuals would understand 75% of the information in a particular passage of text (see DuBay, 2004). For example, an FK score of 6 for a passage of text indicates that individuals with a 6th grade reading ability should be able to comprehend at least 75% of the information contained in that passage of text. It should be noted that all FK scores greater than 12 correspond to a post-secondary education reading level. The FK measure has been deemed a reliable measure of reading comprehension (Paasche-Orlow, Taylor, & Brancati, 2003), and is used widely in empirical research on the complexity of police warnings (Rogers et al., 2012). To ensure comprehension, Rogers et al. (2008b) recommend a FK grade level of ≤ 6 .
3. **Simple Measure of Gobbledygook (SMOG):** SMOG, similar to the FK formula, estimates the grade level required to comprehend a sample of text. The main difference between SMOG and the FK formula is that SMOG provides the grade level required to comprehend a complete passage of text. SMOG is used widely for checking the readability of health information (e.g., Fitzsimmons, Michael, Hulley, & Scott, 2010; Smith & Haggerty, 2003). See McLaughlin (1969) for additional information on how the SMOG formula calculates grade level.
4. **Grammatik sentence complexity.** Grammatik is a program contained in Corel WordPerfect that provides a measure of sentence complexity. The complexity score is derived from the number of words and clauses in a sentence. Scores can range from 0 to 100, with increasing scores corresponding to increasing sentence complexity. As a benchmark, Corel WordPerfect 11 provided a Grammatik score of 27 for the instructions provided by the American Internal Revenue Service for completing form 1040EZ and a score of 75 for the Gettysburg address. Rogers et al. (2008b) recommend a Grammatik score of ≤ 40 .
5. **Word frequency analysis.** The word analysis consisted of analyzing the frequency level of each unique word contained in each KGB warning. The frequency level of each word was determined by using an open-source word frequency guide from the U.S. and can be obtained from <http://subtlexus.lexique.org> (Brybaert & New, 2009). A word was classified as infrequent if the guide indicated

¹ We received multiple KGB warnings from five organizations (Fredericton, Halifax, Ontario Provincial Police, RCMP-NL, and Toronto). As we are unaware when each specific form would be used, all were included in the analyses.

that the word was used less than once in every one million spoken words.

Results

The mean (with 95% CIs) word length, FK score, SMOG score, and Grammatik score are shown in Table 1. The average word length of all 29 KGB warnings was 267.55 (CI = 217.44, 317.66) and ranged from 80 words (Halifax-2) to 683 words (Ontario Provincial Police-1). None of the warnings met the suggested word length benchmark of 75 words or less. The mean overall FK score was 13.9 (CI = 12.72, 15.08) and ranged from 3.1 (RCMP-YT) to 19.5 (Toronto-2). Nineteen (65.51%) of the warnings required a post-secondary level of education to comprehend 75% of the information. None of the warnings had

a FK score ≤ 6. The mean overall SMOG score was 14.6 (CI = 13.92, 15.28), and ranged from 11.5 (RCMP-NU) to 19.4 (Halifax-2). As with FK, none of the warnings had a SMOG score ≤ 6. The mean overall Grammatik score was 54.90 (CI = 41.63, 68.17), and ranged from 0 (Cape Breton, Ontario Provincial Police-1, RCMP-NL1, Saskatoon, Toronto-1, Toronto-2, Truro) to 94 (Peel). Eight (27.59%) of the warnings had a Grammatik score ≤ 40.

Table 2 contains the results of the word frequency analysis. There were 40 words in total that were infrequent. Three of the infrequent words were present in more than half of the KGB warnings and 26 of the infrequent words occurred, on average, once in a KGB warning. There were, on average, 5.72 infrequent words per warning (CI = 4.53, 6.91), and ranged from one infrequent word (RCMP-NU) to 15 infrequent words (RCMP-AB) per warning.

Table 1 Total Number of Words and Means for FK Score, SMOG Grade Level, and Grammatik Score for the KGB Warnings

KGB Warning	Reading Complexity Measure			
	Word Length (≤75)	FK Grade Level (≤6)	SMOG (≤6)	Grammatik (≤40)
Ontario Provincial Police (1)	683	10.8	12.6	78
RCMP AB	586	14.0	14.7	63
Toronto (1)	460	13.0	14.4	0
RCMP ON (RCMP BC, Saint John, Fredericton 2)	375	11.5	12.5	64
RCMP NU	371	11.4	11.5	91
Calgary	350	9.8	12.4	39
RCMP PEI	311	11.7	12.6	61
RCMP NL (1)	298	13.2	14.5	0
RCMP NL (2)	285	18.8	16.7	84
RCMP YT	278	8.8	12.2	56
Greater Sudbury	272	15.9	16.7	65
Cape Breton	266	15.7	16.0	0
Halton	265	14.8	15.7	91
Royal Newfoundland Constabulary	247	11.1	13.5	54
Montreal	241	11.7	13.7	60
Ontario Provincial Police (2)	240	13.1	14.0	0
Toronto (3)	222	14.1	14.3	92
Peel	213	15.0	15.6	94
Truro	206	12.2	14.4	0
Edmonton	204	13.9	14.5	93
Charlottetown	202	15.5	15.3	85
Saskatoon (Prince Albert)	189	16.8	15.3	0
Toronto (2)	182	19.5	16.4	0
Vancouver (West Vancouver, Fredericton 1)	170	19.0	16.7	90
Winnipeg	166	18.8	16.7	90
Niagara	139	10.0	13.0	46
Ottawa	133	13.6	15.5	78
Halifax (1)	125	10.4	12.7	54
Halifax (2)	80	19.3	19.4	64

Note. The values in parentheses represent the acceptable benchmarks.

Table 2 Vocabulary Analysis

Word	Frequency	Number of Warnings Containing Word	Mean Occurrence/Warning
Accuses	0.61	2	1
Affirm	0.33	3	1.67
Affirmation	0.53	18	1.44
Allegation	0.53	1	2
Arising	0.31	2	1
Audio-taped	0.18	1	1
Contradictory	0.63	1	1
Declares	0.67	2	1
Defeating	0.59	1	1
Electronically	0.73	2	1
Entirety	0.47	2	1
Exceeding	0.63	2	2.5
Fabricate	0.33	3	1
Fabricates	0.04	5	1
Fabricating	0.25	19	1.21
Fabrication	0.84	1	1
Falsehood	0.2	2	1
Forging	0.78	1	1
Impede	0.51	1	1
Indictable	0.1	1	2
Intending	0.57	5	2.2
Involvements	0.12	1	1
Knowingly	0.73	1	1
Mislead	0.75	14	1.79
Misleading	0.84	6	1.67
Oaths	0.37	3	1
Obstruct	0.59	21	1.29
Obstructing	0.9	7	1.43
Offences	0.2	2	1
Penalties	0.92	2	1
Perverting	0.04	1	1
Punishable	0.82	2	1.5
Pursuant	0.43	1	1
Recant	0.53	7	1
Sanctions	0.67	2	2
Truthfulness	0.18	1	1
Untruthful	0.1	1	1
Videotaped	0.57	13	1.15
Wilfully	0.51	4	1
Wrongly	0.94	2	1

Discussion

Our findings showed that the KGB warnings are complex according to a range of readability measures. All of the KGB warnings contained more than 75 words – which exceeds the recommended amount of information that one could

process in working memory. In terms of comprehending 100% of the text, all of the warnings were above a grade 10 level of education. This is a troubling finding because research shows that nearly nine million Canadians (aged 16–65) have reading ability skills that are below the high school level (Statistics Canada, 2005). Also, over half of the warnings contained sentence structures that are more complex than what is found typically in a college textbook on financial accounting (approximately 55; Davidson, 2005). Even when we examine the lower bound of the *CI* around the *FK* scores, the results showed that a post-secondary level of education is still needed to comprehend even 75% of the information in the KGB warnings. None of the KGB warnings had acceptable levels of complexity scores for *FK*, *SMOG*, and word length. Just under a third of the KGB warnings had a *Grammatik* score lower than 40. Moreover, the KGB warnings also contained some words that adults would struggle to understand because they are used rarely in everyday language. Our results suggest that, as a first step to increasing comprehension, KGB warnings need to be rewritten in plain language; that is, at a level that requires a relatively low level of reading ability to understand.

Our findings are consistent with previous findings that have shown that the complexity of the documents used by police organizations to deliver important legal information is defies easy comprehension. In fact, it seems that the KGB warnings are more complicated than the right to silence and right to legal counsel cautions (i.e., the KGB warnings are lengthier, contain more complex sentences, require a higher level of reading ability, and contain more infrequent words). Although the results of our reading complexity analysis suggest that witnesses would fail to comprehend all of the information, this remains an assumption that requires empirical testing. Thus, the goal of Study 2 was to test the ability of adults to comprehend one of those warnings. We chose to study how well a sample of adults could understand a warning that was read aloud to them because, to our knowledge, Canadian police officers almost always follow this practice when delivering a KGB warning to adults, and almost never ask adult interviewees to read those warnings (Snook & Keating, 2011). To reiterate, we predict that participants will understand less than half of the content of a KGB warning. We also predict that participants who hear a KGB form that is chunked into smaller sections will understand more of the KGB warning than those who hear it in its entirety.

Study 2

Method

Sample Participants ($N = 80$) were undergraduate students at Memorial University of Newfoundland. Participants were

offered a bonus mark in a psychology course for their participation in this study. The sample consisted of 47 females ($M_{\text{age}} = 20.72$, $SD = 2.72$) and 33 males ($M_{\text{age}} = 22.58$, $SD = 5.07$). The average year of study for the participants was 3.16 ($SD = 2.46$).

Materials A copy of the KGB warning used by the Royal Newfoundland Constabulary (RNC) was used in this study. This form was chosen as it is a warning used locally, so participants could potentially be required to comprehend this particular warning. In addition, this KGB warning was of moderate reading complexity, relative to the other forms, which should provide some indication of how a waiver form with an average level of complexity is understood by adults. This KGB warning reads as follows [along with the complexity scores for the four discrete sections comprising the warning]:

This statement will be taken by oath, solemn affirmation or solemn declaration and will be videotaped. [Length = 16 words; FK = 12.2; SMOG = 14.0; Grammatik = 30; Infrequent Words = 2]

You must understand that it is a criminal offence to mislead a Police Officer during an investigation. You may be liable to prosecution under Section 140 of the Criminal Code of Canada if you mislead a Police Officer during this investigation. If convicted, you could be sentenced to up to five years in jail. [Length = 56 words; FK = 11.5; SMOG = 13.5; Grammatik = 32; Infrequent Words = 2]

You must also understand that it is a criminal offence to attempt to obstruct justice during a police investigation and if you do so, you could be prosecuted under Section 139 of the Criminal Code of Canada. If convicted, you could be sentenced to up to ten years in jail. [Length: 52 words; FK = 12.5; SMOG = 13.3; Grammatik = 74; Infrequent Words = 1]

You must further understand that you may be a witness at a trial concerning the events you describe in your statement. If at any time you change your statement or claim not to remember the events, the contents of the statement you now give may be used as evidence at the trial. In such circumstances, you may be liable to prosecution for perjury under Section 131 of the Criminal Code of Canada. If convicted, you could be sentenced to up to fourteen years in jail. In such circumstances, you may be liable to prosecution for fabricating evidence under Section 137 of the Criminal Code of Canada. If convicted, you could be sentenced to up to fourteen years in jail. [Length = 123 words; FK = 10.4; SMOG = 13.5; Grammatik = 45; Infrequent Words = 1]

Fourteen true/false questions were created to query pertinent information in the KGB warning. Thirteen multiple-

choice questions were compiled based on the content of the KGB warning. A copy of the questions can be obtained from the corresponding author. Visual Basic 5 was used to create the experimental program.

Design A single factor between-participants design was employed, whereby conditions differed by the way the KGB warning was presented (i.e., Full vs. Chunked). The warning in the Chunked condition was split into four sections (see above) and the warning in the Full condition was presented in its entirety (Length = 247 words; FK = 11.1; SMOG = 13.5; Grammatik = 54; Infrequent Words = 6). In the Chunked condition, participants were asked to recall what they had heard after each section was delivered, and participants in the Full condition were asked to recall what they had heard after the entire caution was presented. Participants in both conditions were then required to answer the true/false questions, and then the multiple-choice questions. Note that there were two versions of the true/false questions to reduce concerns about acquiescence response bias. The two versions tested the same 14 pieces of knowledge, but each version framed the item differently. For example, an item on Version 1 stated “Misinforming a police officer about witnessed events is considered a crime.” and the same item on Version 2 stated “It is not against the law to misinform a police officer about events you have witnessed.”

Procedure The study was conducted in the Psychology and Law Laboratory at Memorial University. Each participant was met at the entrance by a research assistant, assigned randomly to one of two conditions, and directed to a computer testing station. There were no significant differences between participant age, gender, or year of study across the conditions. Participants were then asked to read and sign an informed consent form as well as complete a short demographic questionnaire. Participants were then instructed to begin the experiment. Once the Visual Basic program began, participants were given specific instructions about how to complete the experiment. Participants were then presented with a video that delivered the KGB warning at a slow pace (i.e., 150 words/minute). There were two versions of the video – one that had the warning delivered in its entirety (Full) and one that had the warning delivered one section at a time (Chunked). After the free recall phase, all participants were asked to answer the true/false and multiple-choice questions. All answers were saved automatically in a Microsoft Word document. Each participant received a debriefing form outlining the purposes of the study after completing the experiment. The study took approximately fifteen minutes to complete.

Coding/Scoring Answers A research assistant, using a structured coding guide that captured the 16 pertinent components of the KGB warning, coded all free recall answers. A copy of

the coding guide can be obtained from the corresponding author. Participants received one point for each component that was described correctly in their free recall; the percentage of correct free-recall was then calculated. The percentage of correct answers on the multiple-choice questions (graded out of 13) and the percentage of correct answers on the true/false questions (graded out of 14) were also tallied.

Inter-rater reliability Agreement on coding was assessed by having a second research assistant code 25% of the results obtained from the free recall. The independent coder was provided with a training session that covered the practical aspects of the coding and coding guide. Any confusion about the task was resolved prior to coding. The reliability of the coding was measured using Cohen's Kappa (Cohen, 1960) and percentage agreement (in parentheses). The mean agreement for all components was $\kappa = .80$ (87.13%) and ranged from .35 (68.75) to 1.00 (100%). Thirteen of the 16 variables were above $\kappa = .63$, which indicates substantial agreement (see Landis & Koch, 1977). The other three variables included: *if you change statement/story and/or claim not to remember, statement may still be used as evidence in court* (moderate agreement), *prosecution for perjury* (fair agreement), and *liable for prosecution for fabricating evidence* (moderate agreement).

Results

The percentage of participants who recalled the 16 components of the KGB warning as a function of presentation style is shown in Figure 1. The mean percentage of free recall across both groups was 45.08 (95% CI = 40.29, 49.87). Participants in the Chunked condition ($M = 60.10\%$, 95% CI = 54.85, 65.35) recalled significantly more components than those in the Full condition ($M = 30.79\%$, 95% CI = 26.95, 36.63), $t(78) = -8.31, p < .001, d = -1.88$. Across both conditions, the components that had really low levels of recall all dealt with

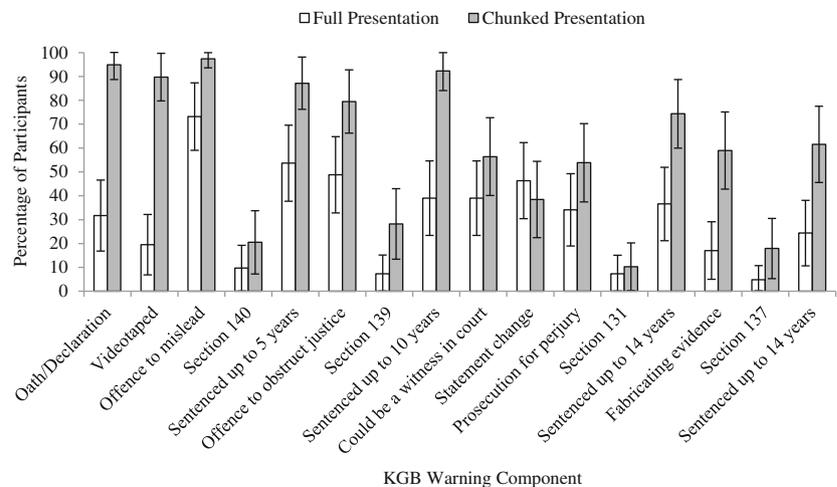
specific reference to sections of the *Criminal Code of Canada* (e.g., “liable to prosecution under Section 139 of the *Criminal Code*”; $M = 13.27$, 95% CI = 11.47, 15.07). Components dealing with specific offences (e.g., obstructing justice) and associated maximum punishment (e.g., sentenced up to ten years in prison) were recalled at a higher rate ($M = 57.93$, 95% CI = 48.65, 67.21 and $M = 58.63$, 95% CI = 49.16, 68.10, respectively).

There was no significant difference in the percentage of correct answers across the two versions of the true/false questions, $t(78) = -.472, p = .64$. Participants in the Chunked condition had a higher percentage of correct answers on the true/false questions ($M = 91.58$, 95% CI = 85.92, 97.24) than those in the Full condition ($M = 87.11$, 95% CI = 81.34, 92.88), $t(78) = -2.02, p = .05, d = 0.45$. The overall number of true/false questions answered correctly was high, and significantly greater than chance, $t(79) = 34.79, p < .001$, indicating that participants were not guessing. In terms of the multiple-choice questions, there was no significant difference in the percentage of correct answers between those in the Chunked condition ($M = 58.78$, 95% CI = 52.38, 65.18) and those in the Full condition ($M = 55.91$, 95% CI = 48.09, 63.73), $t(78) = -1.03, p = .31, d = 0.23$. When collapsed across the two conditions, the mean percentage of correct answers on the multiple-choice questions was 57.31% (95% CI = 54.45, 60.07).

Discussion

The purpose of Study 2 was to test comprehension of one KGB warning. The free recall measure revealed that the overall recall levels of the KGB warning were low, which is on par with previous tests of how well youths and adults comprehend interrogation rights (Davis, Fitzsimmons, & Moore, 2011; Eastwood & Snook, 2009; Eastwood, et al., 2010; Eastwood et al., 2012; Grisso, 1981; McLachlan, Roesch, & Douglas, 2011). In particular, we found that

Fig. 1 Percentage of participants, and associated 95% confidence intervals, who recalled each of the components of the KGB warning as a function of presentation method.



comprehension of the last section, which was the longest section, was the most difficult to comprehend. We also found that participants were able to recognize, via the true/false questions, the correct information that is contained in KGB warnings but struggled to recall the information through free recall. Taken together, these findings are troubling because it is typically left up to witnesses to rely upon unaided memory to make informed decisions during investigative interviews.

Our results also showed that checking comprehension after each section of the KGB warning resulted in higher comprehension scores than when comprehension was checked after all sections were presented. It is not surprising that chunking information led to higher comprehension levels as there is a wealth of evidence that splitting information into manageable segments leads to enhanced memory for details (e.g., Baddeley, 1994; Day, 2006; Gobet et al., 2001; Miller, 1956). Although our results suggest that it may be good practice to check comprehension after each section (as it is currently not a common practice), more research is required to examine on the effect of chunking on the comprehension of the contents of the warning after the administration of the entire warning. In fact, research on the chunking of youth interrogation rights suggests that the relatively high comprehension levels found after the presentation of each section tends to wear off when individuals are asked to recall all of the information they heard (Eastwood et al., 2012). If it were found that the effect of chunking wears off, it would be prudent to examine other procedural alteration that may maintain comprehension levels (e.g., listenability modifications; see Eastwood & Snook, 2012).

Participants received high scores overall on the true/false questions. The scores from this recognition measure indicate that participants' recognition memory for the components contained in the KGB warning was high. However, participants received much lower scores on the multiple-choice questions. The inconsistency in scores between the two recognition measures may be due to the nature of true or false questions, as these question types are typically easier to answer due to the restriction of choice. Although comprehension was higher for recognition-based questions (compared to the free recall task), recognition tests provide an inadequate measure of the comprehension necessary for the protection of constitutional rights under the *Charter of Rights and Freedoms*. Under normal interviewing situations, it is also incumbent upon the interviewee to draw upon their memory of the content of the warning when making decisions regarding their level of cooperation and willingness to divulge the truth of a witnessed event.

There are four potential limitations to Study 2. The first limitation is the artificial nature of the setting of the study. It is likely that a real-life police interrogation may involve

much more stress for interviewees and comprehension levels could be even lower than those found in the current study. Future research should examine the comprehension of a KGB warning using a more realistic setting. The second potential limitation is that the reliability of the estimate of comprehension is limited because a single KGB warning was tested. Given the variability in the complexity measures, it is possible that if we had tested the least complex warning that comprehension levels would be higher. Having said this, the warning that was used in the current study provides some indication of how a warning with an average level of complexity (relative to other waiver forms) is understood by witnesses. The third potential limitation pertains to the lack of interaction between the participant and the interviewer. As the participant viewed the KGB warning being delivered on a computer screen, they were not able to ask questions or seek clarification of the content of the warning. It is possible that giving witnesses the opportunity to ask questions may have facilitated comprehension. The fourth potential limitation pertains to our failure to measure familiarity with the KGB warning. It may be the case that the levels of comprehension may be inflated if some of the participants had heard the warning previously.

Concluding Remarks

There is no doubt that witness interviews are essential for the prosecution of crimes. Whether or not a criminal is prosecuted successfully may depend upon the ability to have evidence of probative value admitted into court. As the results of the current research has shown, however, one potentially problematic practice in interviewing witnesses in Canada is the use of a complicated warning at the outset of an interview. The inability to understand the KGB warning certainly raises questions about the extent to which the evidence elicited from sworn statements should be admissible in court. Like police warnings, the failure to comprehend the contents of a KGB warning could result in vigorous challenges to the admissibility of statements. The fact that some key components of at least one KGB warning were misunderstood provides some opportunity for lawyers to argue that sworn statements ought to be inadmissible.

The effect of KGB warnings on investigative interviewing is still unclear. Consequently, a comprehensive evaluation of the warning's complexity (and peoples' understanding of it) is warranted. It is crucial that such vital information be understood completely by those whose legal rights may be impacted. Based on the results of this research, we now know that without altering the KGB warning, comprehension could be improved if the interviewees are presented with the warning in smaller portions and are asked to paraphrase the information

following each section. The warnings could also be altered to include language that is easier to understand. In addition, incorporating listenability features into the warnings may improve comprehension (see Rubin, 1987). Furthermore, the effect that the KGB warning has on rapport remains to be examined. Future research ought to determine how the purpose of the KGB warning is perceived by interviewees and how its interpretation influences the nature of an interviewee's response, their cooperation, and (possibly) their self-censorship.

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References

- Abramovitch R, Peterson-Badali M, Rohan M (1995) Young people's understanding and assertion of their rights to silence and legal counsel. *Canadian Journal of Criminology* 37:1–18
- Baddeley A (1994) The magical number seven: Still magic after all these years? *Psychological Review* 101:353–356. doi:10.1037//0033-295X.101.2.353
- Brysbaert M, New B (2009) Moving beyond Kucera and Francis: A critical evaluation of current word frequency norms and the introduction of a new and improved word frequency measure for American English. *Behavior Research Methods* 41:977–990. doi:10.3758/BRM.41.4.977
- Chaulk SJ, Eastwood J, Snook B (2013) Measuring and predicting police caution comprehension in adult offenders. *Canadian Journal of Criminology and Criminal Justice*. doi:10.3138/CJCCJ.2013.E02
- Cohen J (1960) A coefficient of agreement for nominal scales. *Educational and Psychological Experiment* 20:37–46. doi:10.1177/001316446002000104
- Davidson RA (2005) Analysis of the complexity of writing used in account textbook over the past 100 years. *Accounting Education: An International Journal* 14:53–74. doi:10.1080/09639280410001695241
- Davis K, Fitzsimmons C, Moore T (2011) Improving the comprehensibility of a Canadian police caution on the right to silence. *Journal of Police and Criminal Psychology* 26:87–99. doi:10.1007/s11896-011-9086-y
- Day RS (2006) Comprehension of Prescription Drug Information: Overview of a Research Program. In *AAAI Spring Symposium: Argumentation for Consumers of Healthcare* (pp. 24–33)
- DuBay WH (2004) *The principles of readability*. Impact Information, Costa Mesa, CA
- Eastwood J, Snook B (2009) Comprehending Canadian police cautions: Are the rights to silence and legal counsel understandable? *Behavioral Sciences and the Law* 28:366–377. doi:10.1002/bsl.898
- Eastwood J, Snook B, Chaulk S (2010) Measuring reading complexity and listening comprehension of Canadian police cautions. *Criminal Justice and Behaviour* 37:453–471. doi:10.1177/0093854810362053
- Eastwood J, Snook B (2012) The effect of listenability factors on the comprehension of police cautions. *Law Hum Behav* 36:117–183. doi:10.1007/s10979-011-9275-3
- Eastwood J, Snook B, Luther K (2012) What people want from their professionals: Attitudes toward decision making strategies. *Journal of Behavioral Decision Making* 25:458–468. doi:10.1002/bdm.741
- Fitzsimmons PR, Michael BD, Hulley JL, Scott GO (2010) A readability assessment of online Parkinson's disease information. *The Journal of the Royal College of Physicians of Edinburgh* 40:292–296. doi:10.4997/JRCPE.2010.401
- Fenner S, Gudjonsson GH, Clare IH (2002) Understanding of the current police caution (England and Wales) among suspects in police detention. *Journal of Community & Applied Social Psychology* 12: 83–93. doi:10.1002/casp.658
- Flesch R (1950) Measuring the level of abstraction. *Journal of Applied Social Psychology* 34:384–390. doi:10.1037/h0058980
- Freedman S, Eastwood J, Snook B, Luther K (2014) Safeguarding youth interrogation rights: The effect of grade level and reading complexity of youth waiver forms on the comprehension of legal rights. *Applied Cognitive Psychology*. doi:10.1002/acp.3001
- Gobet F, Lane PC, Croker S, Cheng PC, Jones G, Oliver I, Pine JM (2001) Chunking mechanisms in human learning. *Trends in Cognitive Sciences* 5:236–243. doi:10.1016/S1364-6613(00)01662-4
- Grisso T (1981) *Juveniles' waiver of rights: Legal and psychological competence*. Plenum, New York, NY
- Landis JB, Koch GG (1977) The measurement of observer agreement for categorical data. *Biometrics* 33:159–174. doi:10.2307/2529310
- Luther K, Snook B, Luther E (in press) Mesure de la complexité de lecture des formulaires de déclaration et renonciation aux droits pour adolescents québécois. *Revue canadienne de criminologie et de justice pénale*
- McLaughlin GH (1969) SMOG grading: A new readability formula. *Journal of Reading* 12:639–646
- McLachlan K, Roesch R, Douglas KS (2011) Examining the role of interrogative suggestibility in Miranda rights comprehension in adolescents. *Law and Human Behavior* 35:165–177. doi:10.1007/s10979-009-9198-4
- Miller GA (1956) The magical number seven, plus or minus two: some limits on our capacity for processing information. *Psychological Review* 63:81–97. doi:10.1037//0033-295X.101.2.343
- Moore TE, Gagnier K (2008) “You can talk if you want to”: Is the police caution on the ‘right to silence’ understandable? *Criminal Reports* 51:233–249
- Muirhead JE, Rhodes R (1998) Literacy level of Canadian federal offenders. *Journal of Correctional Education* 49:59–60
- Paasche-Orlow MK, Taylor HA, Brancati FL (2003) Readability standard for informed-consent forms as compared with actual readability. *New England Journal of Medicine* 348:721–727. doi:10.1056/NEJMsa021212
- Rogers R (2008) A little knowledge is a dangerous thing... Emerging Miranda research and professional roles for psychologists. *American Psychologist* 63:776–787. doi:10.1037/0003-066X.63.8.776
- Rogers R, Blackwood HL, Fiduccia CE, Steadham JA, Drogin EY, Rogstad JE (2012) Juvenile Miranda Warnings Perfunctory Rituals or Procedural Safeguards? *Criminal Justice and Behavior* 39:229–249. doi:10.1177/0093854811431934
- Rogers R, Harrison KS, Shuman DW, Sewell KW, Hazelwood LL (2007) An analysis of Miranda warnings and waivers: Comprehension and coverage. *Law and Human Behavior* 31:177–192. doi:10.1007/s10979-006-9054-8
- Rogers R, Hazelwood LL, Sewell KW, Harrison KS, Shuman DW (2008a) The Language of Miranda Warnings in American Jurisdictions. *Law and Human Behavior* 32:124–136. doi:10.1007/s10979-007-9091-y

- Rogers R, Hazelwood LL, Sewell KW, Shuman DW, Blackwood HL (2008b) The comprehensibility and content of juvenile Miranda warnings. *Psychology, Public Policy, and Law* 14:63. doi:[10.1037/a0013102](https://doi.org/10.1037/a0013102)
- Rubin DL (1987) Divergence and convergence between oral and written communication. *Topics in Language Disorders* 7:1–18. doi:[10.1097/00011363-198709000-00003](https://doi.org/10.1097/00011363-198709000-00003)
- R. v. B. (K.G.)*, 1 S.C.R. 740 (1993)
- Smith JL, Haggerty J (2003) Literacy in primary care populations: Is it a problem? *Canadian Journal of Public Health* 94:408–412
- Snook B, Keating K (2011) A field study of adult witness interviewing practices in a Canadian police organization. *Legal and Criminological Psychology* 16:160–172. doi:[10.1348/135532510X497258](https://doi.org/10.1348/135532510X497258)
- Statistics Canada (2005) Building on our competencies: Canadian results of the International Adult Literacy and Skills Survey. Statistics Canada, Ottawa