Source monitoring and false information endorsement in native and foreign language: an online study with Russian-English bilinguals

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Language is tightly connected to the information processing and memory functioning. The effect of language on memory can be drastic as even slight lexical or grammar variations in statements can alter an individual's recollection of the event and incorporate false information (Loftus & Palmer, 1974). To this day, only a handful of studies investigated false information endorsement in people speaking more than language (Calvillo & Mills, 2018). Evidence from research on bilingualism suggests that bilinguals may have enhanced executive functioning, specifically, inhibitory control, when engaged in such cognitive processes as decision-making, attention, and memory processing (Bialystok, et al., 2004). At the same time, source monitoring, which is considered crucial for false information rejection, also heavily relies on inhibitory control (Ruffman, et al., 2001). Furthermore, bilinguals can rely more on reasonable and deliberate System-2 processing than heuristic System-1 (Caldwell-Harris, 2014). This evidence suggests that bilinguals can be more analytical when processing information in their second language and thus will endorse less false information when it is presented in their second language compared to the first.

To test this suggestion, we conducted a 2 x 2 x 3 within-subjects online-experiment with the language of misleading information (Russian, English), the type of item (true or false) and the source (English, Russian, or None) as our independent variables. We recruited 56 Russian-English unbalanced bilinguals (40 females, mean age = 24.1 SD = 4.66) who demonstrated high levels of English proficiency (mean score = 20 out of 25 points). Participants completed a classical misinformation paradigm in which they watched a recording of a crime, read a pair of English and Russian narratives describing the crime, and performed a yes/no recognition task and a source monitoring test (English narrative, Russian narrative, None).

Higher accuracy for the false control items (M = .8) than false misleading information (M = .68, $p < .0001$) confirmed endorsement of misleading information. However, interaction between item type and language was not observed. Testing differences between correct source attributions (Tab.1), correct attributions to the None source were higher (M = .747) compared to two other sources (Ru (M = .275); En (M = .295)). To facilitate the interpretation of the differences, we ran univariate ANOVAs for each of the sources. While the Russian and the None sources demonstrated similar patterns of higher correct attributions and no difference between incorrect ones, for the English source significantly more (M = .1, p = .018) incorrect attributions were made in favor of the Russian source (M = .18) and not the None source (M =.08).

The study examined the influence of the foreign language on the acceptance of false information and source monitoring. We observed the misinformation effect, however, our expectations that participants would accept more false information in their native tongue was not confirmed. It is possible, that the absence of the expected interaction might be attributed to high level of foreign language proficiency in our participants, indicating that with increasing levels of foreign language proficiency bilinguals' information processing becomes similar in both languages. At the same time the analysis of source monitoring revealed that for English source participants favored the Russian source rather than the None source when they made incorrect attributions. This suggests that our participants might have used more resources to process the information in English, which led to better recognition, although wrong attribution. Together the results in misinformation and source monitoring infer that people proficient in a second language might be susceptible to particular types of memory errors but not all of them.

Supplementary materials

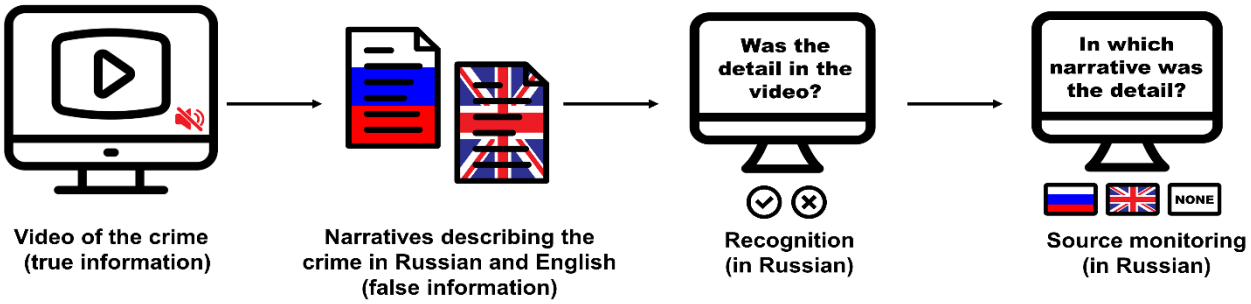

Figure 1. Experimental design. Stage 1: encoding of true information from a video. Stage 2: introduction of misinformation from 2 narratives (Russian and English). Stage 3: true/false recognition + source monitoring (Russian narrative, English narrative, none)

Table 1. Mean (standard deviation) of the proportions in the source monitoring for selected sources and actual sources.

Correct source	Source attribution		
	Russian narrative	English narrative	None (for true and false control items)
Russian narrative	.393 (.275)	.154 (.166)	.109 (.063)
English narrative	.182 (.149)	.482 (.295)	.081 (.061)
None (for true and false control items)	.131 (.114)	.123 (.102)	.747 (.178)

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