

The Foreign Language Effect on Physician Decision Making

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ABSTRACT

Nearly 30% of all physicians in the US are immigrants from another country. Because of this, along with the globalization of societies today, physicians often come across decisions they have to make in their non-native language. The Foreign Language Effect (FLE) is the effect of the context of language on the decision-making process. Specifically, moral judgment may be affected depending on the language in which a medical-ethical dilemma is presented. This study examined whether the FLE was observed in native Japanese and French speakers when confronted with two medical ethical questions. Participants were given the questionnaire in a randomized order in either their L1 or L2, which was English. A FLE was observed with Japanese physicians, as there was a difference in responses to the ethical questions (p -value= 0.001); whereas with French physicians, no FLE was found (p -value= 0.23). It is possible that the use of a logographic language(Japanese) versus a non-logographic language(French) is what creates the FLE in physician decision-making. In general, the use of a logographic language compared to a non-logographic language in a clinical setting may lead to an adverse effect on the moral decision-making process.

Introduction

Every day people are faced with the need to make decisions, either big or small. With this being said, many important factors influence how we make decisions. These include past experiences, a variety of biases, and whether an individual has committed resources to a particular course of action. Other factors include individual differences and a belief in personal relevance (Dietrich 2010). Finally, the context of language, whether foreign or native, can impact the process of decision-making.

Past experiences, whether they are positive or negative, can have a significant effect on future decision-making. A learning process is involved when making decisions. People will reflect on past experiences and apply the information learned to future decisions (Juliusso, Karlsson, and Garling, 2005). Cognitive biases are patterns of thought, which can affect decision-making (Evans 1983). One example of cognitive bias is belief bias, which is characterized by an over-dependence on prior knowledge when arriving at decisions. Cognitive biases can cause people to disregard important information and not look at the bigger picture of the decision at hand (Marsh, & Hanlon, 2007; Nestler. & von Collani, 2008; Stanovich & West, 2008; see also West et al., 2008). Personal resources and individual differences can also impact decision-making. Many people make decisions irrationally for fear of losing important resources such as time, money, and effort (Juliussou et al., 2005). In regard to individual differences, research indicates that age, socioeconomic status (SES), and cognitive ability influence decision-making (Dietrich, C. (2010)). Older people may be more overconfident regarding their ability to make decisions. This affects their ability to apply strategies in making decisions.

Due to the globalization of societies today, many people come across challenges and decisions faced in a foreign language. The foreign language effect (FLE) is the effect of the context of language on the decision-making process. Very little is known on this topic, and the etiology of the FLE is not yet researched to its potential. In one study (Amos Tversky and Daniel Kahneman, 1981), subjects were presented with The Asian Disease Problem in either

a foreign language or their native language. In this dilemma, subjects were asked to imagine a scenario where people may die from an outbreak of a disease. Subjects had the choice between two medicines that would save others from this disease. The consequences of either choice in terms of lives saved were identical. When the choice was framed regarding the number of lives saved (200,000 of the 600,000 people would be saved), the subjects believed they were choosing the more risk-averse option. When the choice is framed regarding loss (400,000 of the 600,000 people die), the subjects choose the higher-risk option. This preference reversal is an example of the framing effect. This framing effect is the tendency to make different choices based on the way in which the choices are presented.

The framing effect has been shown to decrease when a choice is presented in a foreign language (L2). Del Maschio (2022) conducted a meta-analysis of research examining the Foreign Language effect. Participants using their native language (L1) chose the risk-averse option. In L2 more chose the higher-risk option; this choice demonstrates utilitarian behavior. Utilitarianism involves making a choice that benefits the greater population. In the end, the moral decisions made by the participants are chosen based on the perceived benefits of the outcome. The second point Del Maschio examined was how the FLE is shown in moral decision-making using the footbridge dilemma. To stop a runaway train, an innocent bystander on a footbridge must decide whether to sacrifice another person by pushing them in front of the train to save five people on the track. The second option would be for the bystander to let the train hit the five people. Although most chose to participate in the less violent option of letting the train hit the people, the utilitarian choice was shown to increase when L2 was used by the participants. By choosing the utilitarian decision, they would take part in the more harmful act but maximize the number of lives saved.

There are several reasons why the Foreign Language Effect is observed. One proposal is that the L1 is acquired in an emotional and natural way, usually with caregivers whom the child has a strong relationship with (Caldwell-Harris 2014). When individuals are learning a language in a formal setting, such as school, students are acquiring the language with less sentiment. Because of this, there is shown to be less of an emotional response when faced with an ethical dilemma in L2. Harris et al 2006 researched a group of Spanish English bilingual youth with an average age of 14, living in the United States. They were found to have learned Spanish from their parents, and shortly after, English. An emotional response of equal magnitude was found in both their languages (L1 and L2). Costa (2014) hypothesized that when given a dilemma in L2, moral judgments will be less affected by emotions elicited by the dilemma. This made a clear prediction that, when faced with a moral dilemma, utilitarian judgment will be more common in L2 compared to L1. A less emotional, more utilitarian behavior may explain why the risks may be perceived as smaller in a foreign language. Perception of risk is partly used to explain why when using a foreign language, the subject is more likely to take risks when presented with gambles. Other factors also contribute to an emotional response, such as the age at which the language is learned, how it is acquired, immersion in L2, and language usage (Caldwell-Harris (2014)). They are all related through social interaction in terms of communication with others. Another possible reason for the FLE is that the words from an individual's second language are processed slower (Bertram Opitza, Juliane Degnerb). This may lead to a slower activation of the emotional connection to the language (Degner et al, 2012). This may explain why a foreign language reduces framing effects because made-up scenarios could lead to a more deliberate thinking strategy (Cipolletti et al., 2016).

Observing the FLE is an important area of study as nearly 30% of all physicians in the US are immigrants from another country. There has been very little research on the FLE and its impact on decision-making in bilingual physicians. Zhao (Unpublished) examined whether physicians' affirmative responses to medical ethical questions will be different in L2 from physicians' answers to the same question in L1. Zhao studied native Mandarin-speaking physicians who also spoke English. The physicians were randomly split into two groups, then given a questionnaire in either their native or non-native language. They were given three ethical medical dilemmas and were asked to respond with either a "Yes", "No", or "It depends". There was a large difference in how the physicians responded based on whether they answered in L1 or L2. There was a statistically significant difference in responses when comparing responses between physicians' responses to the medical ethical questions. When answering the medical ethical questions in L2, physicians chose "Yes" more frequently. Zhao suggests that this is because of the FLE, and how the utilitarian choice was most favored when using the L2.

On the other hand, Kliewer (unpublished) examined whether Bilingual physicians' answers to medical ethical questions presented in L1 (Spanish) will differ from answers to the same question in L2 (English). Sixty US physicians were presented with the same medical ethical questions as Zhao (Unpublished); half of the participants were given the questions in English and the other half in Spanish. The responses were similar between Spanish and English physicians, therefore, no FLE was observed. Kliewer concluded that the nativeness of a language does not influence medical decision-making with English and Spanish-speaking physicians. Another explanation for these results could be due to familiarity with non-native languages. Zhao's and Kliewer's contrasting results could be explained by the use of a logographic language such as Mandarin (Zhao), compared to an alphabetic language such as Spanish (Kleiwier). A logographic language is where each symbol represents one word, concept, or phrase; an example of this would be Japanese. In an alphabetic language, each symbol represents a sound, such as in French. Hence, we hypothesize bilingual native French/English physicians will respond differently to medical ethical questions than their Japanese/English counterparts. This hypothesis makes a clear prediction; when faced with medical ethical dilemmas in L1, Japanese physicians will show a FLE, in comparison to Japanese physicians responding in L2 (English) and French physicians responding in L1 and L2, who will not show a FLE.

Methods

Sermo is a private social media network for physicians open to licensed M.D.s and D.O.s in 150 countries that allows clinicians to communicate about issues that are important to them and their patients (Sermo). Using this network, physicians were recruited who were fluent in their native language either French or Japanese, as well as their second language of English. The participants were also required to speak both their native language (Japanese or French) and non-native language (English). The participants also had to currently reside and work in the country corresponding with their L1 (France or Japan). If they answered no to any of these screening questions, they were discarded from the study. Study participants were given a questionnaire that consisted of 2 questions; these questions were contributed by Medscape. French and Japanese participants were randomized to receive the questionnaire either in English or their native language. The questions were, "Would you ever prescribe a treatment that was a placebo, simply because the patient wanted treatment?" and "Are there times when it is acceptable to cover up or avoid revealing a mistake if that mistake would potentially or likely harm the patient?". Available responses for the participants were, "Yes", "No", or "It Depends". The data collected from the 59 participants were then analyzed using a z-score and p-value.

RESULTS

A Foreign Language effect was observed between Japanese and English speakers confronted with an ethical dilemma/question in their native (L1) and non-native (L2) language. The first question was: "*Are there times when it is acceptable to cover up or avoid revealing a mistake if that mistake would potentially or likely harm the patient?*". Out of the 15 French physicians given the French questionnaire, 40% answered yes to this question. In Table One, out of the 15 French physicians given the English questionnaire, 20% answered yes. When comparing this data, the z-score was 1.2, and the given p-value was 0.23. Based on these results, reading Q1 in either L1 or L2 does not seem to have a statistically significant effect on the answers the physicians gave. Out of the 15 Japanese physicians given the Japanese questionnaire, only 7% selected yes. Out of the 15 Japanese physicians given the English questionnaire, 64.3% selected yes to the questionnaire. The p-value for this data is 0.001, indicating this difference is statistically significant.

Table 1:

Q1: Are there times when it is acceptable to cover up or avoid revealing a mistake if that mistake would potentially or likely harm the patient?				
	Native Language (Japanese)	Second Language (English)	Native Language (French)	Second Language (English)
Yes	6.7%	64.3%	40%	20%
	Z score = -3.26		Z score = 1.2	
	p = 0.001		p = 0.23	

There is a significant difference in the responses between native Japanese speakers and non-native English speakers ($p=0.001$). This is not observed in the responses between native French speakers and non-native English speakers ($p=0.23$).

Out of the 15 French physicians given the French questionnaire, 60% answered yes to this question (Table 2). Out of the 15 French physicians given the English questionnaire, 33% answered yes. When comparing this data, the given z-score was 1.5, and the given p-value was 0.144. Based on these results, it appears that there are no differences in responses to this question between the French and English physicians. Out of the 15 Japanese physicians given the Japanese questionnaire, only 26.7% selected yes. Of the 15 Japanese physicians given the English questionnaire, 64% selected yes to the questionnaire. It was shown to have a p-value of 0.04, meaning it is statistically significant. Based on the data it is clear to see that a foreign language effect appears when comparing Japanese and English, but not French and English.

Table 2.

Q2: Would you ever prescribe a treatment that was a placebo simply because the patient wanted the treatment?				
	Native Language (Japanese)	Second Language (English)	Native Language (French)	Second Language (English)
Yes	26.7%	64.3%	60%	33.33%
	Z score = -2.04		Z score = 1.46	
	p = 0.04		p = 0.14	

There is a significant difference in the responses between native Japanese speakers and non-native English speakers ($p=0.04$). This is not observed in the responses between native French speakers and non-native English speakers ($p=0.14$).

Discussion

When comparing responses to moral questions presented to physicians in their native and non-native languages, a FLE was shown. There is a large difference between responses in L1 and L2 for Japanese compared to English. This is similar to Zhao's data (Unpublished) which demonstrated a significant difference between Mandarin and English-speaking physicians confronted with the same questions used in this study. It is possible that this is occurring because participants in both studies are interpreting these questions in a less emotional, more abstract way. Tversky & Kahneman (1981), suggested the prevalence of the FLE may be because a non-native language is often learned in a classroom setting, which could lead to less of an emotional connection. Caldwell-Harris (2014) demonstrated that factors including the age of language acquisition, how it is acquired, and L2 immersion can contribute to emotional distance or lack of emotional connection. There is also an increased processing time with L2. Costa's study (2014), which studied the use of Spanish and English-speaking students, suggested that increasing psychological distance leads individuals to construe situations in more abstract terms, which in some circumstances aligns with more utilitarian decision-making. Costa (2014) hypothesized moral judgment in L2 compared to L1 will be less affected by emotional reactivity elicited by a dilemma. It is possible that a foreign language reduces emotional reactivity, promotes cost-benefit considerations, and leads to an increase in utilitarian judgments.

It is also important to note that the results found in the current study contradict Costa's 2014 research. A potential reason for these differences could be because of the types of ethical questions used in each study. Costa's questions consisted of well-known ethical dilemmas, while the current study used ethical questions physicians may face in their practice.

The current study did not show a FLE in French-English-speaking physicians. Similarly, Kleiwer (Unpublished) did not show a FLE when comparing Spanish and English physicians' ethical decision-making, using the same questions presented in this study ($p\text{-value}=1$). It is possible that the difference in results between Zhao (Unpublished) and Kleiwer (Unpublished), and the current study could be because of the structure of the language itself.

It is possible that the difference between the types and formats of characters used in these studies influences the responses to the ethical dilemmas presented. This could be explained by the use of a logographic versus a non-logographic language. A logographic language is where the characters represent an idea (such as in Mandarin and Japanese). Whereas in a non-logographic language, each character represents a sound. French is similar to English as they both use characters that represent a correlating sound. Zhao (Unpublished), and this current study use logographic languages, while Kleiwer (Unpublished), Costa (2014), and this current study use non-logographic languages. It is important to note, however, that there is a clear disagreement between the results regarding the use of Spanish for Kleiwer (Unpublished) and Costa (2014). It is possible that the use of a logographic versus non-logographic language could potentially affect the emotionality of the physician.

Conclusion

This current study shows the dependency decision-making has on the nativeness of the language, and what language an ethical question is presented in. The choices selected by the physicians show how the FLE and the use of a logographic versus alphabetic language are shown to affect this process. It appears that physicians using logographic language interpret medical ethical questions in a less emotional, more abstract way.

Limitations

Throughout the study, several factors could influence the interpretation of the data and findings from the research. The premise of the study is to see the effect language has on moral decision-making in physicians. In order to test this, the physicians read the questions on a questionnaire. However, in a clinical situation, physicians communicate with

their patients verbally, which could affect the decision-making process. An additional limitation may be, the current study was not conducted in the United States, as the previous studies conducted by Kliewer (2021) and Zhao (2020) had been. It is possible that because the physicians are in their native countries of Japan and France, the participants are not as exposed to English as much as the participants in Kliewer and Zhao's studies. One final limitation is that Japanese is not an entirely logographic language; Japanese contains three different scripts: kanji, hiragana, and katakana. Kanji derives from Chinese script (Tamaoka 2014). These limitations should be overcome by future empirical investigations.

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