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Foreign Language Effect Reconsidered: Emotional Resonance and Decision-Making in Native and Foreign Language

Bolin Yang

Department of Psychology, New York University, New York, USA
by2300@nyu.edu

Abstract. This review takes multiple works on foreign language effects into consideration to investigate the role language selection plays in the decision making process. Early findings of FLE suggested that foreign language (L2), compared to native language (L1), promotes rational and deliberate thinking. However, the review argues against this and supports the view that changes in affective and normative processing better explain improved decision-making performance. Studies of moral judgment, reasoning, and decision biases, in the context of comparing L1 and L2, support the reduction of moral confidence, biases, deontological responses, and activation of socially learned norms. Simultaneously, a simple characterization of L2 as an emotion attenuator is partial. Emotional processing in the context of L2 may be delayed, less embodied, and less culturally grounded. The review thus proposes that FLE is a reduction in emotional resonance tied to one's learning history and neural activation time. The practical application of FLE is context-dependent. Emotional distance, relevance, and problem type may all impair or enhance decision-making performance. The core of FLE is how emotional and normative information are integrated into judgments.

Keywords: foreign language effects, bilingualism, emotional resonance, decision-making

1. Introduction

Foreign Language Effect(FLE) refers to the performance of decision making being changed, often improved, within the context of using a foreign language(L2) compared to one's native language(L1). Given that the semantic information carried by the language holds constant, FLE raises a central problem, why should changing the language change judgment? Current studies have often contrasted 2 explanations. First, using L2 can increase the use of system II and deliberate thinking due to the extra effort. Second, using L2 reduces emotional or intuitive processing because less is foreign language emotionally grounded. The review does not support a general enhanced rationality account but a complex reduced emotion account.

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2. Is FLE caused by increased system 2 or reduced emotions

The central problem in Foreign Language Effect is the accuracy of decision making in foreign language, the result of boosted rationality and deliberate thinking or the result of attenuated emotionality that hindered careful reasoning. Early decision-bias findings in foreign language effects supported the former, the enhanced deliberation account. Empirical evidence suggested that participants are more "rational" in the foreign language condition, in which they are less likely to commit classic biases, particularly framing effects and loss aversion. These findings initially labeled foreign language as a debiasing tool. A study of framing effect and risky choice in both native and foreign language revealed this property of foreign language. In the framing effect task, researchers set questions using different wording with equivalent outcomes. Participants in the native language conditions are influenced by the framing effect, showing gain-loss asymmetry. This diminishes in the foreign language condition. In the loss aversion task, researchers set different bets that scale in 0.9 to 0.1 loss/gain ratio in both languages. Foreign language condition shows less loss aversion, accepting all types of gambles more likely than in native language condition [1]. The findings are striking. They suggested that language context is able to alter people's judgments even when the semantic contents are equivalent. Changing in language, hence, is functioning beyond transmitting semantic information. Then, are people more rational in foreign languages? The authors argued with an unsolved ambiguity. They attribute the change in judgments to increased cognitive load and emotional distance but did not distinguish them. The question of this section remains unsolved but two important factors are marked.

Moral-dilemma research sharpened this ambiguity. Costa et al. [2] found that participants were more willing to endorse utilitarian actions in a foreign language than in their native language. The task was the well-known Trolley Problem. In the task, the bilingual participants were given the classic version and the emotion-intense footbridge version. The researchers carefully ruled out cultural-priming effects. The results showed that foreign language promoted utilitarian thinking in the emotion-intense footbridge version not in the classic Trolley problem. This response, killing one to save five lives, seems to be more calculative and rational. The researchers provide three mechanisms as explanations: 1. Attenuated emotions turned down emotional aversions; 2. Increased psychological distance enhanced logical thinking; 3. Less fluent foreign language leading to slower processing and analytical thinking. The authors clarified the question but did not provide a clear answer. The result of seeming more utilitarian and rational may rise from two aspects: blunted deontological thoughts and boosted utilitarian thoughts.

Hayakawa et al. [3] addressed the ambiguity by dissociating Utilitarian-Reasoning and Deontological-Emotional thinking. Their findings showed no reliable increase in reasoning but supported blunted-deontological thinking, which set the foundation for FLE on reduced emotions not improved rational thinking. They carefully set the stimulus where they controlled utilitarian and deontological choices to agree and disagree with each other. From their findings, utilitarian responding holds similar across participants yet deontological responding is significantly more in native language than in foreign language. They strongly challenged the "foreign language makes people more rational" interpretation. The authors successfully took the two extremes off from a single continuum. The study revealed the focus of the FLE: emotions are blunted under the condition of L2.

Agreeing with the work of Hayakawa et al. [3], evidence from emotion-neutral reasoning tasks further weakens the heightened-deliberation account. If people are indeed more rational when using a foreign language, people should perform better when they face questions designed to elicit

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judgmental errors that have minimalized emotional factors. The result of Mækelæ and Pfuhl [4] negates such a statement—the performance was not significantly different in L1 and L2 conditions. They tested their participants with cognitive reflection tasks, base rate neglect tasks, ratio bias tasks, and probability matching tasks. Participants were asked to complete them in L1, L2, or language switching conditions. The only two hypotheses that held were language switching conditions had different effort than using L2, and interaction between condition and effort influenced reasoning. The study heavily damaged the board system 2 account. People are spending more time and effort in L2 conditions because they are trying hard to decode the unfamiliar language instead of pondering on the question more. With emotional factors removed, the advantages disappeared. Rather, the performance is predicted by the factors of age, education, effort, and confidence, not language condition itself.

Blunted emotion seems to be the answer but a simplistic view is not enough. Geipel et al. [5] extended the FLE beyond trolley dilemmas by examining harmless but morally condemned actions, including purity violations, fairness violations, and everyday social norm violations. These cases introduced a valuable situation: moral dumbfounding, in which people condemn an action but fail to clearly state the reason [5]. When people face these moral dilemmas, they tend to criticize them more harshly in L1 than in L2. Remarkably, the researchers also found that people showed a lower confidence rating in L2. This is informative. If the use of L2 turned participants into a more controlled and deliberative mode, they should be more confident about their own careful analysis and reasoning. The results showed one thing: people using L2 are less certain and confident about their analysis. There's likely a reduced intuitive moral signal in L2 condition instead of a deliberative thinking pattern.

Simultaneously, Geipel et al. [5] went one step deeper. They asked: Are moral judgments influenced because of attenuated emotions? In their results, even though emotion ratings were not reliably higher in L1 than in L2, participants still rated purity moral violations harsher in L1. Since emotions did not have an overall impact, there's a stronger activation of moral and social norms in L1 leading to these harsher judgments. The study marked something behind the L1. It was the richer past experience with L1 that made L1 and L2 have different effects on people. Such experiences include: praise, shame, punishment, family interaction, schooling, and childhood reprimands.

3. Why are people more emotional when they use L1 compared to L2

The end of the previous section suggested that L1 normative and affective information rooted in an individual's past experiences may be less readily available in L2. Rather than improved deliberative analytical thinking, many pieces of evidence of FLE point to affective-normative processing: weaker deontological aversion, lower rated confidence, and reduced activation of social and moral norms. Then, what are the factors that are altered in L2 that generate such FLE? A simple answer that L2 reduced emotion is not enough to accommodate the mixed evidence. This is because L2 emotional processing may be slower, less embodied, less autobiographically grounded, less socially calibrated, or less integrated into judgment.

This section supports a personal history account of reduced emotionality in L2. With the continuous socialization since childhood in L1, people developed a mature interpretive intuitional system built within the cultural context. However, in L2, particularly when the language is acquired later in life or with limited social exposure, speakers may understand the literal meanings of words but lack the rich intuitive background necessary to interpret emotional nuances. For example, a direct criticism in L2 that aims to insult may be treated as an ordinary sans phrase if it is interpreted in L1 culture. Such misinterpretation may lead to misjudgment and wrong reaction. It is risky to

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emotionally react in a culture that we don't know or unfamiliar with. Therefore, when people are surrounded by an unfamiliar culture, people may consciously or unconsciously restrain their emotions. From this perspective, what is influencing such reduction in emotion while using L2 needs careful examination. The FLE in L2 is likely reflecting an underbuilt emotional system of interpretation and reaction using unfamiliar contextual information.

Recalling our childhood, being scolded by parents and authority figures are familiar experiences. Harris et al. [6] provided strong evidence that people are more emotional when using their L1, as indicated by skin conductance. They found that taboo words and childhood reprimands both elicit high arousal in people. The strongest L1-L2 differences appeared in phrases such as "Don't do that!" or "Shame on you!." These early family or authority-based speeches are emotional only when one has had such experience encoded in memory. Their results therefore suggest a key source of L1 emotionality: memories are rooted in the L1, which provides quicker and closer access to emotions.

However, the L1-superiority account is not sufficient. Dewaele's [7] study of the phrase "I love you" complicates a simple "L1 over L2" account. They investigated whether the phrase "I love you" has the same emotional weights in a person's L1 and LX. (The study uses LX to refer to all languages acquired after L1 as the study hired participants with proficiency in more than two languages. LX hence broadens the analysis without implying a different effect from L2.) Although many multilinguals reported L1 provided the strongest emotion, a nonnegligible minority rated LX had the same or even stronger emotional value than L1. Researchers argued that dominance, context, age, socialization, interlocutors, and proficiency aspects of language are influencing people's rating of emotional weights. This is especially likely when foreign languages are also used in intimate relationships, daily social interactions, and cultural socialization. In classroom language, these sources of emotional grounding are likely limited. The pattern reframes the distinction between L1 and L2 to socially grounded language vs. socially sparse language. They provided an essential insight in FLE: Emotions that are seemingly reduced in L1 depend on one's learning history of that language.

The unique history of emotional experiences of each individual varies the magnitude of FLE between different individuals. A late-learned language used mostly in classrooms or with strangers is likely to produce a stronger FLE because its emotional and social associations are thin. Therefore, the better hypothesis is not that "foreign languages reduce emotion," but that less socially grounded languages reduce emotional resonance. The effect should weaken when the LX is acquired and regularly used similar to L1.

Rosselli et al.'s [8] review further supports this moderator-based account. Of the L1-L2 differences in emotional words, the factors they identify are: age of acquisition, proficiency, dominance, frequency of use, language context, task type, and stimulus type. The emotional stroop task mentioned by them complicates the idea that L2 lacks emotional activation. In these tasks, emotional or neutral words are shown with different colors. Identifying the colors, longer response times for emotional words indicate that processing of emotions interferes with the color-naming process. Although general results showed that people completing the task in L1 interfered with emotions more than L2, the evidence is mixed. Collectively, these findings suggest that emotional automaticity in L2 is influenced not only by proficiency, but also by the extent, context, and nature of language experience and integration into daily life.

Noticeably, their work of review underlines a word that has high emotional valence in L2 such as "death," "love," or "war" may still lack personal memories and associations. This distinction helps account for mixed findings. L2 may trigger emotions at the level of lexical valence or attention

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while still showing less emotional connection regarding embodied memory, social norms, shame, intimacy, or moral certainty.

Conrad et al. [9] help clarify the mechanism of emotions in L2. They found that emotional words in L2 produced ERP effects similar to L1, including the EPN, which reflects early attention to emotional information, and the LPC, which reflects later and more sustained evaluation. In L2, however, these effects are delayed by approximately 50–100 ms. This sign suggests that human brains do process emotional information but more slowly. The emotional processing, instead of entirely absent, is delayed. This seems to challenge the reduced emotion account. However, since a non-negligible advantage in System I is speed according to Kahneman [10], the brief delay could be enough late to shape early moral intuition, aversion, confidence, or strategy selection. The delay is directly undermining such an advantage. The emotional activation is neurally present but may be unable to guide the early stages of judgment. In this sense, L2 emotion is not reduced in the absolute presence but in its functional effectiveness.

Generally, the emotional differences between L1 and L2 reflect a speaker's personal history with each language. Harris et al. [6] established the fundamental pattern where L1, compared to L2, is more closely connected to one's autobiographical emotional memories. Dewaele's [7] study points out that emotional phrases vary across individuals. One's personal experience related to the language can even reverse the FLE when LX is grounded in one's cultural and emotional life. Rosselli et al. [8] further present that emotional processing is closely correlated to age of acquisition, dominance, frequency of use, and especially the type and amount of exposure. Role of proficiency in FLE is often a proxy. Conrad et al. [9] provided a valuable temporal dimension where L1 and L2 effects are similar but L2 is later in time. A potential problem therefore emerged: the delay of L2 may influence the early formation of judgments. Consequently, the central issue is not whether L2 produces more or less emotional arousal but whether the activation is sufficiently rapid, influenced by the learning history, integrated into judgments.

4. Practical implications and applications of emotional differences between L1 and L2

The practical application of FLE cannot simply be reduced to emotional distance improves decision making, for two reasons. First, emotion is not entirely harmful to judgments. While it can bias judgments, it can also signal harm and danger. Second, L2 does not merely reduce the intensity of emotion. As L2 may alter timing and normative interpretation, its consequences vary in contexts and tasks. Whether using L2 to improve decision making depends on how valuable the emotional function is to the situation. The practical significance of FLE depends on what function that emotion serves in a particular decision.

Emotion can interfere with reasoning when it consumes attention or activates irrelevant beliefs. It can also improve reasoning when the context matches, even when it is negative. Blanchette and Caparos [11] introduced a framework that provided explanations for this. The framework suggests that incidental and integral emotion determine the influence of emotion in decision making. Incidental emotion is unrelated to the context at present, while integral emotion has a high relevance level. This framework complemented the traditional model, which only stated negative emotion diminishes logicality. The main difference between the framework and the traditional model is contextual relevance of the emotion.

Authors have given an example, war veterans showed better logical reasoning for war-related syllogisms than for neutral syllogisms. From the researchers' perspective, context-relevant integral emotion may increase content utility, making the subject feel personally or socially significant, and problem utility, increasing the perceived importance of reasoning carefully about it. Therefore, when

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integral emotions are reduced by foreign language, the subjects may perform worse. In other words, emotions that are relevant to the current context matter for decision-making. Such emotions should be kept to achieve better performance.

Therefore, instead of using L2 as a simple debiasing tool, targeting L2 on incidental emotions may be useful in enhancing the decision-making process. Connecting to the early findings of FLE, foreign-language use has been associated with reducing biases such as loss aversion and framing effects [1]. The function of L2 in reducing the influence of affective information can be applied to financial and consumer contexts. This may aid people in isolating their decisions from the influence of affect, rooting their reactions to losses and gains in logic and reasoning. The findings suggest a possible application. Simply turning an emotionally appealing advertisement into a foreign language would likely lead the consumer to be less emotionally manipulated by it. Statistically unrepresentative but vivid and appealing anecdotes and rhetoric have a higher chance of being reduced in effectiveness when the native language is being translated to the foreign one. In these cases, reduced emotional resonance can separate the decision from an irrelevant, even misleading, affective frame.

FLE can directly influence how people evaluate moral and social violations. Since participants using L2 sometimes judged moral violations less harshly even when explicit emotion ratings did not fully explain the difference, switching to L2 is able to alter individual reactions to unfairness and taboo violations [5]. L2 weakens one's activation of culturally inherited norms. It becomes double-edged when moral condemnation, prejudice, and intuitive judgments are driven by irrelevant disgust and one's own speaking history. The increased moral distance may help people distinguish the true intentions and actual insults. On the other hand, it turns down the sensitivity to taboos and emotions, so people may feel less bound to contain any harsher judgments. This means that judgments are changed because of language change, yet the very fact of an event and people's understanding of it stays the same. The influence of this could expand to academic integrity, workplace fairness, migration, and interpersonal cultural conflicts.

Besides moral judgments and evaluations, language choice also matters in the level of cognitive operation. Fabre and Lemaire [12], although not directly studying FLE, exhibited how emotion influences the execution process and selection of cognitive strategies in solving arithmetic tasks. In the tasks, participants viewed positive, neutral, or negative emotional pictures before deciding whether the shown multiplication equation is true or false. While true problems are mainly solved by direct calculation, false problems sometimes allow application of a shortcut— "parity matching." Using the shortcut, participants can avoid full calculation by just inspecting whether the proposed answer is odd or even. This will result in quicker answering time.

The emotion effects, however, appear to be different as the plausible cognitive operation changed. For difficult true problems that require full calculation, negative emotion significantly facilitated the execution of the problems. For false problems that allow parity matching shortcuts, negative emotion lost its speed advantage whereas positive emotion showed quicker solving speed. This suggests that negative emotion made participants more focused in direct calculation while positive emotion preserved the shortcut use. From the study, the same positive or negative emotion results in facilitation in one version yet interferes with another version of the problem. When connecting the findings to FLE, using L2 as a strategy to facilitate solving speed does not have a uniform effect on all problems. The application of FLE should consider both types of emotion and types of problems. This points out a difficulty of such application: it is hard to predict whether using L2 to attenuate emotion would help or harm a particular cognitive operation to a specific problem.

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Clinical settings illustrate both the benefits and costs of the emotional distance. Multilingual clients may use language switching techniques to express traumatic and shameful experiences [13]. With different languages, L2 creates a greater emotional distance than L1. Therefore, using L2 may make difficult situations more accessible for discussions and using L1 may help to enhance the accessibility of autobiographically grounded memories. Consequently, language switching in therapy can be considered as an emotional regulation tool rather than a simple stylistic choice.

Related concerns arise in legal and forensic contexts. Witnesses, victims, defendants, and asylum applicants may sound less emotional when speaking in L2, even when describing severe experiences. Decision-makers may hence incorrectly interpret the reduced emotional expression. Furthermore, translation may abate the original emotional force and autobiographical accessibility. The altered emotional presentation may negatively affect judicial justice. When possible, FLE should be considered as a factor, and individuals should be allowed to use L1 when events and emotions are relevant to convey the original experiences.

5. Conclusion

The evidence reviewed indicates that FLE does not represent a general shift from emotion to reason. While foreign-language use can reduce biases and moral condemnation, it does not consistently enhance deliberate reasoning. The seemingly rational decisions are the result of diminished deontological, emotional, or normative factors. Furthermore, characterizing a second language (L2) as simply less emotional is insufficient. Emotional processing in L2 may occur, but it is often delayed, less embodied, or less connected to autobiographical memory and culturally informed intuition. In contrast, socially embedded and intimate later-acquired languages can become highly emotionally resonant. FLE is therefore best conceptualized as reduced emotional resonance in less socially grounded languages, which influences the timing, density, and integration of affective and normative information into judgment. The practical consequences of FLE are context-dependent: L2 distance may enhance decision-making by reducing irrelevant framing, disgust, or loss aversion, but may hinder it when emotion conveys harm, danger, fairness, empathy, or personal relevance. The central issue is not whether L2 activates emotion, but whether that emotion is sufficiently rapid, embodied, socially attuned, and integrated to inform the decision-making process.

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