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HOW FOREIGN LANGUAGE AFFECTS DECISIONS:

RETHINKING THE BRAIN DRAIN MODEL

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How foreign language affects decisions: Rethinking the brain drain model

Abstract

Volk, Köhler, and Pudelko (JIBS, 45, 2014, 862–885) propose that foreign language use depletes cognitive resources, thus hindering individual decision making and self-regulation. The present commentary highlights studies showing that foreign language use can also improve decision making and self-regulation. We propose that these benefits derive from two psychological factors. The first concerns the timing of cognitive depletion. Foreign language use involves an increase of memory load in the early phases of information processing, which has been shown to reduce the capture of attention by tempting stimuli. The second factor concerns the nature of human memory. Experiences and their associated emotions are coded in the language in which they occur, and thus are more accessible when the same language is used at retrieval. Therefore, certain mental constructs, such as stereotypes, which have been shaped by years of cultural learning in a native language context, may exert less influence when processing a foreign language. The present treatment indicates value in extending Volk et al.'s conceptual model, and can help develop language strategies that may ultimately improve organizational decision making.

INTRODUCTION

As a result of globalization, millions of employees use a foreign language at work on a daily basis. This practice affects both domestic and international business (IB) activities at multiple levels. For example, at the individual level, foreign language use can temporarily decrease an individual's thinking ability (Takano & Noda, 1993). At the team level, foreign language proficiency can influence the perceived competence and trustworthiness of transnational team members (Tenzer, Pudelko, & Harzing, 2014) and foster an "us versus them" dynamic (Hinds, Neeley, & Cramton, 2014). At the organizational level, foreign language use can facilitate or impede knowledge transfer (Peltokorpi & Vaara, 2014; Welch & Welch, 2008). The role of language in IB research has been recently highlighted in a special issue in Journal of International Business Studies (JIBS; Brannen, Piekkari, & Tietze, 2014), which aimed to promote a dedicated IB research domain on language.

The present paper is a commentary on Volk, Köhler, and Pudelko's (2014) conceptual article, which described the negative consequences of foreign language use on decision making and self-regulation at the individual, intrapersonal level. According to their brain-drain model, foreign language processing ties up scarce cognitive resources (P1), which in turn biases judgment and decision making (P2) and reduces self-regulation (P3). Here, we present evidence showing that foreign language use can also improve decision making (cf. P2) and self-regulation (cf. P3).[1] We argue that these beneficial consequences arise due to the timing of cognitive depletion (P1), which occurs in the early phases of information processing. The present theoretical treatment provides the rationale for future work extending Volk et al.'s model in order to capture both the positive and negative outcomes of foreign language use. The present work adds to a growing and important line of research in JIBS and IB on language differences, but even more importantly, points out some ways foreign language use may generate positive outcomes. This understanding, in turn, may help inform a company's language strategy (Luo & Shenkar, 2006).

THE BRAIN-DRAIN MODEL

The brain-drain model is founded on dual process theories of high-level cognition, which hold that mental processes fall into two types that are commonly referred to as "System 1" and "System 2" (e.g., Epstein, 1994; Kahneman & Frederick, 2002; Sloman, 1996; Stanovich & West, 2000; for a review

see Evans & Stanovich, 2013). System 1 processes are automatic, unconscious, parallel, and effortless, while System 2 processes are controlled, conscious, serial, and effortful. According to the brain-drain model, native language processing is highly automatized and thus puts little strain on cognitive resources. In contrast, foreign language processing requires cognitive effort and thus depletes working memory resources (e.g., Abutalebi, 2008; Chee, Hon, Lee & Soon, 2001).

But why does cognitive depletion hinder decision making and self-regulation? Psychologists suggest that System 1 is more error-prone and less rational than System 2 (Kahneman & Frederick, 2002). System 1 thinking is always "on," ready to jump to conclusions that under certain conditions lead to systematic errors (known as biases), which System 2 thinking may, under favorable circumstances, monitor and correct. Critically, the ability of System 2 to monitor and correct erroneous System 1 automatic responses depends on several conditions being met, including sufficient cognitive resources. By depleting cognitive resources, foreign language processing impedes System 2 from performing its monitoring and corrective functions. This, in turn, increases susceptibility to biases arising from System 1 thinking.

For similar reasons, the brain-drain model holds that foreign language processing hinders self-regulation. The ability to self-regulate, such as to choose a healthy snack over an attractive but unhealthy one, or a more advantageous delayed reward over a poor immediate one, necessitates resources, including cognitive resources, to help represent and maintain goals (Karoly, 1993). By depleting cognitive resources, foreign language processing hampers people's ability to self-regulate.

EMPIRICAL REFLECTION

We do not dispute Volk et al.'s (2014) core proposition, which holds that foreign language use depletes working memory resources. This proposition is reasonable and Volk et al. refer to strong supporting evidence (e.g., Abutalebi, 2008). Our point of divergence concerns the anticipated consequences of this proposition, and namely that cognitive depletion necessarily hinders decision making (P2) and self-regulation (P3). Contrary to P2, we present studies demonstrating that foreign language use can reduce susceptibility to heuristically generated biases (e.g., Gao, Zika, Rogers, & Thierry, 2015; Keysar, Hayakawa, & An, 2012). Furthermore, contrary to P3, we present studies showing that foreign language use can aid self-regulation (Klesse, Levav, & Goukens, 2015). In the

rest of this section, we highlight this evidence and associate it to the specific predictions Volk et al. make about IB processes. In the following section, we lay the theoretical foundations for extending their model so that it can capture both the negative and positive outcomes of foreign language use.

Foreign Language Use Can Improve Decision Making

In relation to decision making, Volk et al. (2014) predict that foreign language processing might negatively impact an employee's ability to recognize business opportunities. Specifically, it might make an employee less willing to take risks concerning novel, innovative technologies. The rationale is that foreign language use might impede creative, out-of-the-box thinking, which presumably is needed to appreciate promising opportunities. Opposing this rationale, a recent study has shown that the use of a foreign language is associated with positive attitudes towards innovative technologies (Hadjichristidis, Geipel, & Savadori, 2015). Participants in this study were presented with 26 stimuli including innovative technologies such as biotechnology and nanotechnology. Their task was to estimate how risky and how beneficial each type of technology is for society. Some participants received the materials in their native language, while others in a foreign language. Contrary to the brain-drain model's prediction, foreign language use was associated with lower risk and higher benefit judgments. More broadly, studies support that foreign language use encourages the willingness to take 'smart' risks. For example, it increases the willingness to accept favorable gambles, which people typically decline because they weigh more potential losses than potential gains (Costa, Foucart, Arnon, Aparici, & Apesteguia, 2014; Keysar et al., 2012).

Another prediction the brain-drain model makes is that foreign language use might increase an employee's prejudice towards coworkers of a different culture, if that employee has a strong aversive automatic association (negative stereotype) against members of that culture. The idea is that the added memory load would interfere with the conscious recognition and suppression of the negative stereotype, thus reducing social judgment accuracy. Although this specific question has not yet been addressed, Geipel, Hadjichristidis, & Surian (2015a) examined a related issue: whether foreign language use affects the moral evaluation of actions, such as siblings having safe and consensual sex, which typically activate a strong aversive automatic reaction (akin to a negative stereotype) that in turn prompts a severe moral evaluation. Contrary to what the brain-drain model might predict in this

case—more severe moral evaluations due to a reduced suppression of the negative stereotype—foreign language resulted in less severe moral evaluations. Similarly, foreign language use prompted less severe moral evaluations towards other aversive actions such as selling someone a defective car (Geipel et al., 2015a) and sacrificing a person to save five others (Cipolletti, McFarlane, & Weissglass, 2016; Costa, Foucart, Hayakawa et al., 2014; Geipel, Hadjichristidis, & Surian, 2015b).

A further prediction Volk et al. (2014) make is that foreign language use might obstruct employees' cultural adaptation process by making it harder for them to overcome the natural tendency to respond in accordance to their cultural norms. One element of thought that is deep-seated in a culture is superstition. This is evidenced by the fact that a superstitious belief can have opposite valences in different cultures. The number 13, for example, is considered unlucky in many Western cultures, but lucky in Italy. A recent study addressed the impact of foreign language processing on superstitions (Hadjichristidis, Geipel, & Surian, 2016). Participants were asked to imagine performing an action (e.g., job interview) under a circumstance that is associated with either bad-luck (e.g., a black cat crossed their path) or good-luck (e.g., found a four-leaf clover), and rate how they would feel about performing the action under this circumstance. Contrary to what the brain-drain model might predict in this context—i.e., foreign language would either exacerbate or have zero influence on superstitious beliefs—it attenuated them. In relation to IB activities, a reduction in superstitious beliefs might prompt 'smarter' financial decisions (e.g., Block & Kramer, 2009). For example, it may reduce the propensity to overpay for products whose features are associated with positive superstitions.

Foreign Language Use Can Improve Self-Regulation

The brain-drain model predicts that foreign language use might impede an individual's ability to self-regulate, because self-regulation requires sufficient cognitive resources to help maintain goals. Contrary to this prediction, Klesse et al. (2015) found that processing a foreign language improves self-regulation. These authors asked diners in a restaurant to order (orally) a desert either in their native or a foreign language. The use of a foreign language promoted healthier desert selections. In other words, foreign language use increased resistance to temptation.

A positive effect of foreign language use on self-regulation was also found in a recent study on cheating (Bereby-Meyer et al., 2015). Participants were asked to privately roll a die and were paid

according to the outcome they reported. Thus, participants had the opportunity to lie to inflate their profits. The authors found that, on average, participants inflated their estimates less when using a foreign language than when using their native language. As was the case with the study on diners, foreign language use increased self-regulation.

Some foreign language effects on moral judgments can also be interpreted as supporting the view that foreign language can increase self-regulation. Baumeister and Alghamdi (2015) conceive of self-control as a moral muscle that helps people resist what they want to do in favor of what they should do. To the extent that offensive but relatively inconsequential actions, such as a man eating his dead pet, activate a spontaneous desire for retribution, the increased leniency towards these actions evidenced when using a foreign language can be interpreted as improved self-control (Geipel et al., 2015a). A similar explanation can be given for evidence showing that foreign language decreases disapprovals of actions that are motivated by dubious intentions but result in positive outcomes (Geipel, Hadjichristidis, & Surian, 2016). Future research could examine whether using a foreign language might also increase self-regulation in IB-relevant activities that involve inter-temporal tradeoffs, such as investment and retirement decisions.

THE CASE FOR THEORETICAL REFINEMENT

How can Volk et al.'s (2014) model be extended as to capture both the negative and positive effects of foreign language use? We propose that future theory building should reconsider the link between working memory load and performance by taking the time-course of information processing into account. Studies manipulating working memory load by means other than language (e.g., by having participants perform a concurrent digit span task; Gilbert & Hixon, 1999; Van Dillen, Pappies, & Hoffman, 2013) reveal that its impact on performance depends on when the memory load occurs. If it occurs late—after a stereotype or biasing norm has been activated or temptation has taken its toll—then it usually hinders performance by interfering with the willful suppression of the biasing entity. However, if it occurs early then it might improve performance by reducing the likelihood that a stereotype will be activated (e.g., Gilbert & Hixon, 1999) and by diminishing the captivating power of tempting stimuli (e.g., Van Dillen, Pappies, & Hoffman, 2013; see also Kron, Schul, Cohen, & Hassin, 2010). In essence, an early application of an additional memory load may interfere directly with

System 1 thinking, rendering an intervention from System 2 superfluous. Importantly for the present purposes, foreign language use entails an early (concurrent) application of memory load—cognitive depletion is inherent in processing a foreign language.

But there is another reason foreign language use might interfere with System 1 thinking. System 1 thinking is linked to associative memory (e.g., Kahneman, 2011). This broadly refers to a repository of ideas and connections between these ideas, which are strengthened or weakened through learning. Following Kahneman (2011), we use 'ideas' in a broad sense that encompasses concrete and abstract ideas, images, and so forth. Activation spreads from ideas to other ideas that are linked to them, until a small network of ideas lights up. This network represents what is mentally accessible, or 'top-of-mind', at the time of judgment or choice and thus what might influence these activities.

The second reason foreign language might interfere with System 1 thinking is that associative memory is language-dependent. Ideas and experiences are stored in long-term memory together with the linguistic context in which they occur (e.g., Marian & Neisser, 2000; Marian & Kaushanskaya, 2004; Schrauf & Rubin, 2000). As a result, the language used at the time of encoding will probe the memories and associated emotions of these experiences more forcefully and in greater detail than any other language (Marian & Neisser, 2000; Marian & Kaushanskaya, 2004). For example, our intuitions about what is good or bad, polite or impolite are shaped at a young age through communication with peers and primary caregivers in the native language (e.g., Rottman & Young, 2015). Due to the language-dependent nature of memory, a foreign language might prompt certain mental constructs, such as gender stereotypes, less forcefully than the native language.

To summarize, the brain-drain model posits that foreign language processing influences performance by exclusively interfering with System 2 thinking. The research we reviewed above, however, suggests that foreign language use may also interfere with System 1 thinking. Because of this, the end outcome of processing information in a foreign versus a native language on an individual's performance might be more intricate than Volk et al. (2014) envisaged. In situations that elicit a conflict between System 1 and System 2 thinking, foreign language use might help or hinder performance. Since foreign language processing will tend to weaken both System 2 and System 1 type thinking, its end effect will depend on the relative effect it has on each system.

In contexts where good performance relies mostly on System 2 thinking, such as in tasks that require attention, or abstract reasoning, foreign language might hinder performance. This hypothesis is supported in a study by Geipel et al. (2015a), which examined language differences in how people respond to the tricky question: How many animals of each kind did Moses take on the Ark? (the biblical character was Noah, not Moses, but often individuals neglect this). Foreign language use reduced the rate of correct responses. In another study, Takano and Noda (1993) asked participants to perform calculations or spatial reasoning tasks (target tasks), while simultaneously answering questions posed to them in either a foreign or native language (distractor task). For both target tasks, the biggest performance drop was found when the distractor task involved a foreign language.

In contexts where poor performance is caused by a heavily biased System 1, and particularly by tendencies that have been shaped by years of cultural learning in a native language context, foreign language processing may improve outcomes. The finding that foreign language use attenuates superstitions (Hadjichristidis et al., 2016) fits this type. To make an original prediction, foreign language use during job recruitment (e.g., having committees evaluate CVs written in a lingua franca) may help improve employee selection by reducing the likelihood of activation of gender and racial stereotypes. Future research should test this possibility and investigate whether this effect is moderated by language-specific features of the native and foreign languages, such as whether they are gender-neutral (e.g., Santacreu-Vasut, Shenkar, & Shoham, 2014; see also Malum, Shoham, & Uddin, 2016).

Notice, however, that we do not claim that the consequences of foreign language processing on System 1 will always be positive. Rather, the valence of its impact would depend on the type of tendencies at play. When the automatic tendencies are desirable, such as ones involving certain deontological or politeness norms, foreign language use may negatively impact performance. Supporting this prediction, bilingual research demonstrates that foreign language use makes individuals less hesitant to swear (e.g., Dewaele, 2004) or use politically incorrect language (Gawinkowska, Paradowski & Bilewic, 2013).

The end effect of using a foreign versus a native language use may also depend on the type of task. Consider for example hiring decisions. When a person generates a first-hand impression about a candidate based on his or her CV, reading the CV in a foreign language may lead to a less biased

impression. This is because foreign language use may attenuate the impact of an implicit attitude, such as an unconscious negative predisposition towards women. Now consider another task where a person is asked to judge a colleague's proposal to favor hiring men over women. In this case, foreign language use may lead to more biased decisions by attenuating the activation of an explicit attitude, such as the conscious belief that men and women should be treated equally. This peculiar situation arises because the relevant implicit and explicit attitudes in this context pull judgments in opposing directions.

LIMITATIONS AND FUTURE RESEARCH

The evidence presented here is mostly based on laboratory and classroom studies. These contexts differ markedly from the working environment of companies thus questioning their applicability. For example, the working environment of IB companies is likely to be more cognitively demanding than that of classrooms. This is plausible. But in this case employee performance might rely even more on System 1 processes, and so the influence of foreign language on System 1 processes that we outlined here, might turn out even more pronounced. Furthermore, employees—unlike most foreign language users surveyed—habitually use the foreign language in a real and important context. Adding to that, the work context is stressful and foreign language use is often coerced (but in a sense students are also coerced to learn and use a foreign language as this is a prerequisite for obtaining a degree). It could be that in these particular circumstances foreign language use might be associated with negative emotions (this would follow, for example, from the emotional contexts of learning theory; see Harris, Gleason, & Ayçiçeği, 2006). Because of these emotions, some of the effects that we have described (e.g., foreign language use promotes positive attitudes towards innovative technologies) might be weakened, or even reversed.

Similarly, particular norms such as work-related norms and policies might be more likely to be activated in a foreign language, if they have been learned and used in that language (see, e.g., Puntoni, de Langhe, & van Osselaer, 2009). Again, such results would strengthen the value of the present contribution. Theories of language-dependent memory might prove instrumental in explaining them. Having stated this, we invite future research to examine the role of foreign language processing in IB settings and with regards to typical tasks. Future studies should also examine the interplay between

intrapersonal and interpersonal factors in shaping decision making and self-regulation. For example, although in certain contexts foreign language use may promote less biased individual evaluations, these evaluations may not be voiced in meetings as people may feel linguistically inept to defend their opinion in a foreign language (see research on "silent boards" by Piekkari, Oxelheim, & Randøy, 2015). Ultimately, it is the outcome of this interplay that affects organizational performance.

CONCLUSION

Millions of employees use a nonnative language at work on a daily basis. Volk et al. (2014) discussed the drawbacks of this practice on individual decision making and self-regulation. Here, we highlighted some benefits, which we attributed to two psychological factors: (1) foreign language processing reduces attention to tempting stimuli (because it involves an increase of memory load in the early phases of information prosessing); (2) foreign language processing affects memory retrieval (due to the language-dependent nature of human memory). In light of this evidence, we proposed that future extensions of the brain-drain model should incorporate the assumption that foreign language processing may affect both System 2 and System 1 thinking. Importantly, we identified the conditions under which foreign language use is likely to have a positive rather than a negative impact. This understanding can help improve decision making activities that are central to IB, such as job recruitment, by developing more effective language strategies.

NOTES

[1] Please note that this evidence became available after Volk et al.'s (2014) article was published.

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