

When your heart is in your mouth: the effect of second language use on negative emotions

Alexandra S. Dylman & Anna Bjärtå

To cite this article: Alexandra S. Dylman & Anna Bjärtå (2018): When your heart is in your mouth: the effect of second language use on negative emotions, *Cognition and Emotion*, DOI: [10.1080/02699931.2018.1540403](https://doi.org/10.1080/02699931.2018.1540403)

To link to this article: <https://doi.org/10.1080/02699931.2018.1540403>



© 2018 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 02 Nov 2018.



Submit your article to this journal [↗](#)



Article views: 276



View Crossmark data [↗](#)

When your heart is in your mouth: the effect of second language use on negative emotions

Alexandra S. Dylman  and Anna Bjärtå

Department of Psychology, Mid Sweden University, Östersund, Sweden

ABSTRACT

Research on bilingualism and emotions has shown stronger emotional responses in the native language (L1) compared to a foreign language. We investigated the potential of purposeful second language (L2) use as a means of decreasing the experience of psychological distress. Native Swedish speakers read and answered questions about negative and neutral texts in their L1 (Swedish) and their L2 (English) and were asked to rate their level of distress before or after the questions. The texts and associated questions were either written in the same (within-language), or different languages (cross-language). We found that within-language trials when the text was written in participants' native language (Swedish–Swedish) resulted in an increase of distress, whilst cross-language trials (Swedish–English) resulted in a decrease of distress. This implies that purposeful second language use can diminish levels of distress experienced following a negative event encoded in one's first language.

ARTICLE HISTORY

Received 14 February 2018
Revised 3 September 2018
Accepted 21 October 2018

KEYWORDS

Second language processing;
L2 use; negative emotions;
bilingualism

Research on bilingualism and emotions has typically found that dominant bilinguals show stronger emotional responses in their first language (L1) compared to their second language (L2; e.g. Caldwell-Harris, 2014; Pavlenko, 2005). For example, advertisements and marketing slogans are perceived as being more emotional when expressed in one's L1 compared to L2 (Puntoni, De Langhe, & Van Osselaer, 2009), and being reprimanded in one's L1 elicits larger skin conductance reactions than in the L2 (e.g. Harris, Ayçiçeği, & Gleason, 2003). Bilinguals generally prefer to express their emotions in their L1, or use their L1 when expressing involvement and emotions (e.g. Belcher & Connor, 2001). This seems to be the case for positive emotions: highly emotional phrases such as "I love you" have the most emotional impact in L1 compared to L2, L3, and so forth (e.g. Dewaele, 2008), but it also seems to apply for negative emotions, as illustrated by Pavlenko. She cites a native speaker of Swedish who is in a relationship with a native speaker of English as saying "[We] argue in (...) English also but I can get upset and shout in Swedish even though he

does not understand me. Most important thing is to shout." (Pavlenko, 2005, p. 44).

Conversely, an increasing number of studies have shown that bilinguals' judgments and decision making are affected by the language used. In their seminal study, Keysar, Hayakawa, and An (2012) found that bilinguals presented with a problem in their second language made more rational decisions than when presented with a problem in their first language. This finding was consistent throughout a number of decision making tasks, including the Asian disease problem (see Kahneman & Tversky, 1979). These results were interpreted in terms of greater emotional distance when making decisions in the second language as compared to the native tongue.

This reduced emotionality during second language use has subsequently been replicated for several types of decisions, including risk taking (e.g. Hadjichristidis, Geipel, & Savadori, 2015) and moral dilemmas (e.g. Corey et al., 2017;). One explanation is related to the context in which native versus foreign languages are acquired. Native languages are typically acquired in

CONTACT Alexandra S. Dylman  asdylman@gmail.com

© 2018 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

emotionally rich and varied contexts, while foreign languages, even today, are usually taught, and thus learnt, in a classroom setting, an environment which tends to be considerably more emotionally neutral (Ivaz, Costa, & Duñabeitia, 2015). Another line of research is related to bilingualism and cognitive control (see, for example, Green & Abutalebi, 2013; or Luk, Green, Abutalebi, & Grady, 2012), and that of cognitive control and emotion regulation (e.g. Ochsner & Gross, 2005), and whether the cognitive control of switching between languages (or inhibiting the language not in use) can contribute to more adaptive emotion regulation in an L2, as manifested by decreased emotionality in an L2 context. In a recent study, Morawetz, Oganian, Schlickeiser, Jacobs, and Heekeren (2017) measured self-rated emotional responses to negative pictures and found that content labelling (as a means of decreasing negative emotional responses to aversive pictures) in the participants L2 (but not L1) led to decreased distress. Whether this effect was related to cognitive control, per se, remains an open, but interesting question.

Another, not mutually exclusive, explanation is related to cognitive load and resource allocation. There is some support for the notion that second language processing demands more cognitive resources than first language processing (e.g. Morishima, 2013), which could, in turn, limit resources available for emotion processing. Studies within the field of emotion-cognition research have shown effects of increases in cognitive load on emotion, with subsequent reduced reactivity to negative information (e.g. Yates, Ashwin, & Fox, 2010). The utilisation of cognitive load methods has been shown promising in the development of clinical tools, such as for preventing symptoms of posttraumatic stress (e.g. Holmes, Brewin, & Hennessy, 2004; Holmes, James, Kilford, & Deeprose, 2010). A number of existing efficient methods could be derived to such a mechanism, such as imagery rescripting or expressive writing, which are both methods used to make clients distance themselves from emotional aspects of a negative experience (e.g. Park, Ayduk, & Kross, 2016). Crucially, they are also tasks that demand cognitive resources. The ability to distance oneself from negative experiences has long been viewed as a key feature in many cognitive therapeutic methods (e.g. Alford & Beck, 1998).

The current study aimed to explore whether second language processing can reduce the experience of negative emotions. To this end, participants were asked to read text excerpts with negative and

neutral content in their native language (Swedish) and their second language (English). The text excerpts were selected from fiction books published in both English and Swedish. Participants read each of the texts either in Swedish (L1) or in English (L2). After reading each text, participants rated their experienced level of distress and answered a number of questions concerning the content of the text. All trials began with one of the texts, but the order of the self-rating versus the questions about the texts were counterbalanced so that for half the trials, the participants first rated their experienced level of distress, and thereafter answered the questions, while for the other half of the trials, participants answered the questions about the text before rating their level of distress. The language of the text and the language of the questions were counterbalanced to create conditions where either the text and its questions were in the same language (within-language), or where they were different languages (cross-language). This design allowed us to examine any potential effects of one of the two languages (first vs. second language) on self-ratings. Specifically, it allowed an investigation of within-versus cross-language processing. Crucially, we wanted to examine whether reading texts with negative content in the native language, and then processing the text in a foreign language could diminish the experience of distress.

Method

Participants

Thirty-four participants (22 women and 12 men; mean age = 28 years, $SD = 10.67$ years) partook in the experiment. All participants were native Swedish speakers with English as their second language. The mean age at which they first started learning English was 7.5 years, and overall, they rated their English language proficiency (combined from their self-reported general proficiency, as well as more specifically for reading, writing, listening, and speaking) as 7.2 ($SD = 1.2$) on a 10-point scale (see Table 1 for means and standard deviations for the separate subcategories). None of the participants reported having any reading difficulties.

Stimulus materials

Texts

The stimuli consisted of text excerpts taken from a variety of published fiction books, available in both

Table 1. Means and standard deviations for the English proficiency measures, general proficiency, reading, writing, listening, and speaking, as well as the aggregated mean from these five subcategories.

	Mean	SD
General proficiency	7.3	1.3
Reading	7.6	1.4
Writing	6.8	1.8
Listening	7.7	1.1
Speaking	6.7	1.7
Mean	7.2	1.2

Notes: These second language proficiency levels were self-reported, and were measured on a 10-point Likert scale.

English and Swedish editions. The translation equivalents of each text were chosen to ensure comparable semantic content. The names of characters were altered in order to minimise recognition of the source of the texts, and prominent English names in the Swedish texts were substituted with a Swedish name (for example New York was substituted with Stockholm) or the Swedish equivalent of a name (for example Ruth was changed to Rut, which is the conventional Swedish spelling of the name). No other changes were made and care was taken to ensure that the semantic content of both versions of the text were equivalent. A pilot study validated a larger set of 51 text excerpts (17 each with positive, negative or emotionally neutral content). These texts were presented to 214 native Swedish speakers who rated the texts on the two emotional dimensions valence and arousal, using the Self-Assessment Manikin (SAM; Bradley & Lang, 1994). The eight texts that yielded the most negative valence ratings in Swedish, and the eight texts who yielded the most neutral valence ratings in Swedish were selected as stimuli for the current study. The Swedish and English texts were matched on length measured in number of words (Swedish texts: $M = 176$ words, $SD = 63$; English texts: $M = 189$ words, $SD = 70$), $t(30) = .55$, $p = .583$. Likewise, the negative and the neutral texts were matched on length (neutral texts: $M = 194$ words, $SD = 50$; negative texts: $M = 171$ words, $SD = 78$), $t(30) = 1.00$, $p = .324$.

Questions

For each text, the researchers created five open-ended questions relating to the text (e.g. "How were the men dressed", "In what way was Ruth hurt?"). These questions ensured that the participants paid attention to the texts and had comprehended the content, but importantly, they functioned as a means of ensuring active use of the target language in the conditions

where the distress ratings were made after the questions. For each text, the same five questions were created in both Swedish and English.

Rating scale

The self-rated experience of distress or discomfort after reading the text excerpts was measured using the Subjective Units of Distress Scale (SUDS; Wolpe, 1969). SUDS has been widely used as a measure of anxiety and distress (e.g. Kim, Bae, & Chon Park, 2008; Tanner, 2012) and has been shown to correlate with the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) as well as other signs of distress such as heart rate (e.g. Kaplan, Smith, & Coons, 1995). The scale ranges from a score of 0 (no distress/fear/anxiety/discomfort) to 10 (highest possible distress/fear/anxiety/discomfort).

Procedure

The experiment was programmed and run in the web-based programme ModSurvey (Palmius, 2012). The experiment was programmed so that for each experimental condition one of the texts would be randomly selected, and once a text had been presented the same text would not be shown to the same participant in the subsequent conditions. Further, each text would only be presented in either Swedish or English, ensuring that each participant only read one version of each text. In total, each participant read 16 texts: eight texts with negative and eight with emotionally neutral content. Out of each of these eight, half were in Swedish (L1) and the other half were in English (L2). Additionally, for half of the trials, participants were asked to answer the questions about the text first and then rate their level of distress, while the reverse order was used for the other half of the trials. This resulted in 16 conditions with the different variations fully counterbalanced.

The experiment was performed in a computer room with standard computers, and a maximum of four individuals participated at the same time. The computer stations in the room were separated with thick curtains to ensure privacy. The participants were asked to read each text carefully but in a natural and fluid manner. They were also informed that following each text they would be required to answer questions about the text, and were asked to answer the questions in the same language as the one in which the questions were asked. Information about the rating scale was given, and participants

were instructed to rate their levels of distress as quickly as possible, avoiding over-thinking their feelings.

Data processing and analysis

The ratings of experienced distress (SUDS) were collected from all participants' responses in each condition. Further, the answers to the questions about each text were scored (ranging from 0 to 5 with 1 point for each correct answer). Six participants were excluded from further analysis due to failure to comply with the instructions of responding to the questions in the same language as that in which the questions were asked, thereby rendering the responses from the post-question distress ratings useless.

The ratings from the remaining 29 participants were first analyzed with an omnibus ANOVA in order to investigate any effects of emotion content (negative, neutral) and text language (Swedish, English). As such, all variables were used in a 2 (emotion content) \times 2 (text language) \times 2 (question language) \times 2 (order) repeated measures ANOVA. The same analysis was conducted on accuracy scores, in order to investigate any differences in performance.

In order to investigate within- versus cross-language effects more directly, change scores

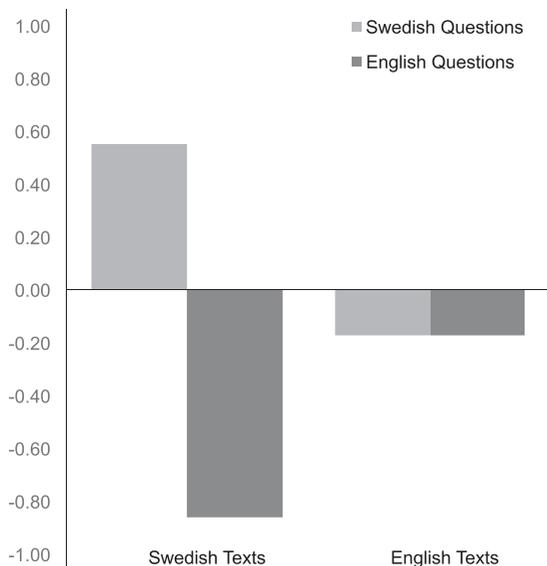


Figure 1. Mean change scores between SUDS ratings after reading and answering questions about a previously read text, and ratings directly after reading texts.

between order 2 (rating after answering questions in L1 or L2) and order 1 (rating before answering questions, i.e. directly after reading a text in L1 or L2) were calculated for all emotion \times text-language (TL) \times question-language (QL) conditions. That is, each combination of text language and question language received a change score based on the difference between rating before answering the questions (i.e. directly after reading texts in the native language or second language), or after answering questions (i.e. processing and production in the same language or in the other language). This resulted in two change score variables for each emotion category (negative, neutral), with TL (Swedish or English) and QL (Swedish or English). Change scores were analyzed by two separate 2 (TL) \times 2 (QL) ANOVAs, one for each emotion category. These analyses were conducted post hoc in order to reveal any effects in the negative condition which otherwise would be influenced by the expected undifferentiated ratings from the neutral condition.

Results

The results from the omnibus ANOVA showed a main effect of emotion content, $F(1,28) = 194.71$, $p < .001$, $\eta_p^2 = .87$, with higher SUDS ratings for negative ($M = 6.08$, $SD = 1.88$) compared to neutral texts ($M = 1.32$, $SD = 1.21$). No other significant effects were found. The 2 (TL) \times 2 (QL) ANOVAs for change scores between order 1 and 2 did not show any significant results in the neutral condition. In the negative condition, a significant text language by question language interaction was found, $F(1,28) = 6.26$, $p = .018$, $\eta_p^2 = .18$, with an increase in distress from order 1 to order 2 when both texts and questions were processed in L1 ($\Delta M = 0.55$, $SD = 2.32$) compared to a decrease when text were presented in L1 and questions were processed in L2 ($\Delta M = -0.86$, $SD = 2.37$), $p = .006$, $d = .55$, (see Figure 1).

The ANOVA for accuracy (i.e. answers to the questions asked following each text) showed main effects of text language, $F(1, 28) = 34.51$, $p < .001$, $\eta_p^2 = .55$, and question language, $F(1, 28) = 7.09$, $p = .01$, $\eta_p^2 = .20$, with better performance if texts or questions were presented in the native language (text language: $M = 3.15$ vs. 2.27 , $SD = 0.81$ vs. 0.97 ; question language: $M = 2.94$ vs. 2.48 , $SD = 0.81$ vs. 0.99 , for Swedish and English respectively). No other effects were significant.

Discussion

The current study investigated the effect of purposeful second language use on the experience of negative emotions and distress. Generally, the negative texts were perceived to be more distressing than the neutral texts. This acts as a validation of the emotional content in the two emotion categories. Further, the participants were better at correctly answering the questions regarding the text excerpts both when they read the texts in Swedish (L1) compared to English (L2), and when they answered the questions in Swedish compared to in English. These findings confirm that, while highly proficient in their second language (English), the participants' dominant language was, indeed, Swedish. The most important finding, however, was that when participants read the negative texts in their first language (Swedish), they reported lower ratings of distress after having responded to questions about the text in their second language (English), compared to when they responded in their first language (Swedish), which resulted in higher ratings of distress. The same effect of reduced distress was not found for the English texts, suggesting that mere processing of the text read is not sufficient to reduce the levels of experienced distress in this study. Rather, it was only when processing the text (which was read in the first language) in the second language that this effect was observed.

The results confirm the hypothesis that second language use may reduce levels of experienced distress following a distressing event (specifically in this study, this entailed reading text excerpts with distressing negative content). The results cannot disambiguate between the two possible explanations (higher cognitive load during L2 processing vs. weaker emotional connections in L2), but may be interpreted within each account—indeed, as mentioned in the Introduction, the two accounts could both underlie the observed effect. However, the lower proficiency in L2 compared to L1, together with the relatively lower accuracy related to L2 processing and production indicates that it was, indeed, more difficult for participants to read and produce in the second language. Thus, this increase in effort implies a larger demand of processing resources. One could speculate whether the results were due to the participants being unable to understand the text/questions in their L2. However, the difference in question language is quite small ($L1-L2 = 0.36$ points of scores

ranging from 0 to 5), with a non-significant interaction indicating that irrespective of text language, accuracy when answering questions in Swedish or English were quite similar.

With regards to cognitive control and emotion regulation, studies have found cognitive re-appraisal to be an effective method of regulating, in particular, negative emotions (e.g. Ochsner & Gross, 2008). As mentioned in the Introduction, a study by Morawetz et al. (2017) found that content labelling in the L2 (but not L1) decreased negative emotional reactivity, while emotion labelling in neither L1 nor L2 decreased negative emotions. The authors concluded that no difference in cognitive re-appraisal between L1 and L2 was found, but their results are not contradictory to ours, and can easily be interpreted within a framework of resource allocation. In their emotion labelling condition, participants were directly engaging in emotion processing, as they were labelling emotions. This is a task that necessarily requires resources to be allocated to emotion processing. In contrast, when labelling content (using emotionally neutral labels), the focus of the task is on L2 processing without the direct or explicit engagement of emotion processes. Therefore, the added cognitive load of L2 use decreases the emotional reactivity. This notion is further supported by our data, suggesting that it is the added cognitive load of L2 use that decreases distress. A general effect of language switching would have been evident in the change score ANOVA with a difference between TLEnglish/QLEng and TLEng/QLSwe. As can be seen in Figure 1, that difference is non-existent.

While future research will need to investigate the underpinnings of this effect, this study has confirmed a diminishing experience of negative emotion as a consequence of second language use in a sample of native Swedish speakers, a population who are taught English from a relatively early age, and who live in a society with great influence of and a relatively large amount of exposure of English, from (American and British) music (even a large proportion of Swedish music is sang in English), and films (which are subtitled and not dubbed in Sweden). Nevertheless, the effect of L2 use on negative emotions was clearly observed. It is not unreasonable to suppose that bilinguals with a larger L1 dominance and weaker L2 may display even larger reductions of emotionality following processing of negative events in their L2. As a preliminary analysis, we conducted a multiple linear regression analysis

with distress reduction (measured as a standardised change score) as the criterion variable, and general English language proficiency, mean English language proficiency (aggregated from the self-reported proficiency for general, speech production, hearing comprehension, reading, and writing) as well as the specific self-reported proficiency measure for reading in English as predictors. The latter was chosen as the task in this experiment was to read text excerpts. The regression model approached significance ($p = .051$), and was driven by English reading proficiency as the sole significant predictor ($\beta = 1.44$, $p = .010$). Mean English language proficiency was nearly approaching significance ($p = .092$). We do want to point out that there was not a lot of variability in language proficiency scores on any of the measured dimensions (general, reading, writing, listening, and speaking), and the participants rated their English language proficiency as quite high: Language proficiency was measured on 10-point scales, and means varied between 6.7–7.7 and standard deviations varied between 1.1–1.8. Perhaps with a larger variability in scores, the effects would have been more prominent. Thus, future studies conducting systematic investigations of the optimal L1 vs. L2 proficiency (both relative and absolute) are needed in order to clarify more specifically what level of L2 proficiency is needed for it to successfully reduce distress, while ensuring sufficient L2 comprehension and production. Relating to this, we acknowledge that the use of self-reported measures of L2 proficiency instead of standardised tests of language proficiency may be a limitation in the current study, and future studies may want to compare the outcome between using the two types of L2 proficiency measures (or, indeed, use both).

Naturally, the field is complex, and a range of factors may influence affect in multilinguals, such as age of L2 acquisition, proficiency, and context (e.g. Pavlenko, 2012) to mention but a few. Furthermore, there are neuroscientific studies that have shown emotional reactivity of equal magnitude from stimuli presented in L1 and L2, but have found a delay of such reactions for L2 words (e.g. Conrad, Recio, & Jacobs, 2011; Opitz & Degner, 2012), suggesting that there may exist certain circumstances where processing of emotional words can be as sensitive in a second language as in a native language. Furthermore, there is increasing support for cultural frame shifts and cross-cultural adaptation from studies that have found that bilinguals' personalities may be

affected by language context (e.g. Ramírez-Esparza, Gosling, Benet-Martínez, Potter, & Penedaker, 2006; Veltkamp, Recio, Jacobs, & Conrad, 2013). Whether this contributes (and if so, to what extent) to decreased distress remains an empirical question. Our findings will need to be complemented by other bilingual groups (e.g. a bilingual group where English is the L1).

Much remains to be investigated before we have a clear picture of the precise situations, and conditions under which a reduced emotionality in L2 use occurs. However, the current paper may contribute to our understanding in this field, and has demonstrated a possible application of purposeful second language use in diminishing the experienced emotionality of negative emotions or distress.

Acknowledgements

We thank Max Rein, Joel Ring and Emelie Zamora Forslin for assisting with data collection.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Alexandra S. Dylman  <http://orcid.org/0000-0002-5545-1058>

References

- Alford, B. A., & Beck, A. T. (1998). *The integrative power of cognitive therapy*. New York, NY: Guilford Publications.
- Belcher, D., & Connor, U. (2001). *Reflections on multiliterate lives*. Clevedon: Multilingual Matters.
- Bradley, M. M., & Lang, P. J. (1994). Measuring emotion: The self-assessment manikin and the semantic differential. *Journal of Behavior Therapy and Experimental Psychiatry*, 25, 49–59. doi:10.1016/0005-7916(94)90063-9
- Caldwell-Harris, C. (2014). Emotionality differences between a native and foreign language: Theoretical implications. *Frontiers in Psychology*, 5. doi:10.3389/fpsyg.2014.01055
- Conrad, M., Recio, G., & Jacobs, A. M. (2011). The time course of emotion effects in first and second language processing: A cross cultural ERP study with German-Spanish bilinguals. *Frontiers in Psychology*, 2, 351. doi:10.3389/fpsyg.2011.00351
- Corey, J. D., Hayakawa, S., Foucart, A., Aparici, M., Botella, J., Costa, A., & Keysar, B. (2017). Our moral choices are foreign to us. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 43, 1109–1128. doi:10.1037/xlm0000356
- Dewaele, J.-M. (2008). The emotional weight of I love you in multilinguals' languages. *Journal of Pragmatics*, 40, 1753–1780. doi:10.1016/j.pragma.2008.03.002

- Green, D. W., & Abutaleb, J. (2013). Language control in bilinguals: The adaptive control hypothesis. *Journal of Cognitive Psychology, 25*, 515–530. doi:10.1080/20445911.2013.796377
- Hadjichristidis, C., Geipel, J., & Savadori, L. (2015). The effect of foreign language in judgments of risk and benefit: The role of affect. *Journal of Experimental Psychology: Applied, 21*, 117–129. doi:10.1037/xap0000044
- Harris, C. L., Ayçiçeği, A., & Gleason, J. B. (2003). Taboo words and reprimands elicit greater autonomic reactivity in a first language than in a second language. *Applied Psycholinguistics, 24*, 561–579. doi:10.1017/S0142716403000286
- Holmes, E. A., Brewin, C. R., & Hennessey, R. G. (2004). Trauma films, information processing, and intrusive memory development. *Journal of Experimental Psychology: General, 133*, 3–22. doi:10.1037/0096-3445.133.1.3
- Holmes, E. A., James, E. L., Kilford, E. J., & Deepro, C. (2010). Key steps in developing a cognitive vaccine against traumatic flashbacks: Visuospatial tetris versus verbal pub quiz. *PLoS ONE, 5*, e13706. doi:10.1371/journal.pone.0013706
- Ivaz, L., Costa, A., & Duñabeitia, J. A. (2015). The emotional impact of being myself: Emotions and foreign-language processing. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 42*, 489–496. doi:10.1037/xlm0000179
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*, 263–291. doi:10.2307/1914185
- Kaplan, D. M., Smith, T., & Coons, J. (1995). A validity study of the subjective unit of discomfort (SUD) score. *Measurement & Evaluation in Counseling & Development (American Counseling Association), 27*, 195–199.
- Keysar, B., Hayakawa, S. L., & An, S. G. (2012). The foreign-language effect: Thinking in a foreign tongue reduces decision biases. *Psychological Science, 23*, 661–668. doi:10.1177/0956797611432178
- Kim, D., Bae, H., & Chon Park, Y. (2008). Validity of the subjective units of disturbance scale in EMDR. *Journal of EMDR Practice and Research, 2*, 57–62. doi:10.1891/1933-3196.2.1.57
- Luk, G., Green, D. W., Abutaleb, J., & Grady, C. (2012). Cognitive control for language switching in bilinguals: A quantitative meta-analysis of functional neuroimaging studies. *Language and Cognitive Processes, 27*, 1479–1488. doi:10.1080/01690965.2011.613209
- Morawetz, C., Oganian, Y., Schlickeiser, U., Jacobs, A. M., & Heekeren, H. R. (2017). Second language use facilitates implicit emotion regulation via content labeling. *Frontiers in Psychology, 8*, 366. doi:10.3389/fpsyg.2017.00366
- Morishima, Y. (2013). Allocation of limited cognitive resources during text comprehension in a second language. *Discourse Processes, 50*, 577–597. doi:10.1080/0163853X.2013.846964
- Ochsner, K., & Gross, J. (2005). The cognitive control of emotion. *Trends in Cognitive Sciences, 9*, 242–249. doi:10.1016/j.tics.2005.03.010
- Ochsner, K. N., & Gross, J. J. (2008). Cognitive emotion regulation: Insights from social cognitive and affective neuroscience. *Current Directions in Psychological Science, 17*, 153–158. doi:10.1111/j.1467-8721.2008.00566.x
- Opitz, B., & Degner, J. (2012). Emotionality in a second language: It's a matter of time. *Neuropsychologia, 50*, 1961–1967. doi:10.1016/j.neuropsychologia.2012.04.021
- Palmius, J. (2012). *Mod survey for beginners*. Retrieved from http://www.modsurvey.org/text/mod_survey_for_beginners.pdf
- Park, J., Ayduk, O., & Kross, E. (2016). Stepping back to move forward: Expressive writing promotes self-distancing. *Emotion, 16*(3), 349–364. doi:10.1037/emo0000121
- Pavlenko, A. (2005). *Emotions and multilingualism*. New York, NY: Cambridge University Press. doi:10.1017/CBO9780511584305
- Pavlenko, A. (2012). Affective processing in bilingual speakers: Disembodied cognition? *International Journal of Psychology, 47*, 405–428. doi:10.1080/00207594.2012.743665
- Puntoni, S., De Langhe, B., & Van Osselaer, S. M. J. (2009). Bilingualism and the emotional intensity of advertising language. *Journal of Consumer Research, 35*, 1012–1025. doi:10.1086/595022
- Ramírez-Esparza, N., Gosling, S. D., Benet-Martínez, V., Potter, J. P., & Pennebaker, J. W. (2006). Do bilinguals have two personalities? A special case of cultural frame switching. *Journal of Research in Personality, 40*(2), 99–120. doi:10.1016/j.jrp.2004.09.001
- Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the state-trait anxiety inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Tanner, B. (2012). Validity of global physical and emotional SUDS. *Applied Psychophysiology and Biofeedback, 37*, 31–34. doi:10.1007/s10484-011-9174-x
- Veltkamp, G. M., Recio, G., Jacobs, A. M., & Conrad, M. (2013). Is personality modulated by language? *International Journal of Bilingualism, 17*, 496–504. doi:10.1177/1367006912438894
- Wolpe, J. (1969). *The practice of behavior therapy*. New York, NY: Pergamon Press.
- Yates, A., Ashwin, C., & Fox, E. (2010). Does emotion processing require attention? The effects of fear conditioning and perceptual load. *Emotion, 10*, 822–830. doi:10.1037/a0020325