Emotionality and Pleasantness of Mixed-Emotion Stimuli: The Role of Language, Modality, and Emotional Intelligence[1]

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Abstract
The present study aimed to explore how 174 Spanish first language (L1) and foreign language (LX) users perceive emotionality and pleasantness in audiovisual and purely visual material eliciting blended emotions and whether cultural background and Trait Emotional Intelligence (EI) are linked to emotion perception. Participants rated the emotionality and pleasantness of the stimuli through a 7-point semantic differential scale and completed a self-reported measure of Trait EI. Data were analysed by means of univariate and multivariate statistical tests and correlation coefficients. Overall, LX users tended to provide higher ratings of emotionality and pleasantness than L1 users. This result seems to suggest that LX users are aware of the LX detachment effect and thus overcompensate when providing emotion perception ratings. Moreover, American participants rated the stimuli as more emotional and pleasant than Asian participants regardless of modality of presentation. On the other hand, Trait EI turned out to be unrelated to emotionality and pleasantness ratings contrary to previous evidence suggesting a positive role of EI in decoding emotions.

Key words: emotionality, pleasantness, blended emotions, modality, emotional intelligence

Introduction

It is no exaggeration to claim that in modern times we are confronted with an unprecedented maelstrom of emotions the moment we turn on the radio, watch the news or read online or printed press. The emotional resonance of the image of a Syrian man, Alan Kurdi, hugging the body of his dead 2-year-old child on a beach near the Turkish resort of Bodrum in 2015 galvanised all those who saw it and boosted charitable donations and solidarity with refugees fleeing from the conflict in Syria. The black box recordings and the audio recordings of the frantic final phone calls from passengers of

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United Airlines Flight 93 that was hijacked on 9/11 made viewers and listeners shudder with empathy and horror. Watching the tragedy of the World Trade Center unfold live on television, in sound and colour, with those trapped in the building jumping towards their death, was both magnetic and unbearable. Heroic tales emerged about firefighters losing their lives while doing their job. These attacks from September 2001 filled newspapers, online fora, magazines and books, where large fonts in bold and capital typeface, exclamation marks and highly emotional language shaped public opinion, sustained outrage and prepared the US for war with Al-Qaeda, and the nations seen supporting it.

The previous examples of pictures, sounds, film recordings, and printed words are situated at the extremes of emotional intensity and unpleasantness, but of course much more material that we encounter in daily life is somewhere in the middle of that continuum. From the moment we wake up to the moment we go to sleep, we gauge emotional meaning and intensity in speech and images that bombard us (Basso Fossali & Dondero, 2011). Not all of it is extreme, nor negative, as words and images can also communicate positive and pleasant emotions, for commercial products, political parties or simply for entertainment. The cover of Michele Obama's memoir, *Becoming*, is a nice example of a multimodal representation (image and text) that conveys moderately high positive emotional intensity with the aim of convincing potential readers to buy the book. The author is leaning forward with a big smile on her face, under the title which itself is not emotion-laden but merely hints at the Obamas' intriguing and tumultuous journey to –and in– the White House.

We agree with Keltner and Shiota (2003) that emotions are experienced and communicated simultaneously on several parallel channels: "An emotion is a universal, functional reaction to an external stimulus event, *temporally integrating physiological, cognitive, phenomenological, and behavioral channels* to facilitate a fitness-enhancing, environment-shaping response to the current situation" (p. 89).[1] This definition fits perfectly with the earlier observation by Burns and Beier (1973) that emotional information is communicated firstly via the verbal channel (words), secondly via the vocal channel (pitch, timbre, rhythm, speaking rate, intensity), and thirdly via the visual channel (facial expression, gesture, body language).

How well people decode emotional information has been linked to the modality in which the stimuli are presented, as well as individuals' linguistic, cultural, and psychological profiles. For instance, communicating emotions in a foreign language is notoriously difficult because it requires mastery of pragmalinguistic and sociopragmatic rules in the new language (Dewaele, 2013) and the ability to interpret emotion cues speedily and accurately according to the context. This process can be hampered when not all the channels are available (in a telephone conversation for example) or when the information on the different channels is incongruent (as in the case of positive semantic content with negative emotional intonation) (Chen, 2009; Kyoung Cho, 2017). The linguistic difficulties of foreign language users can be exacerbated by gaps in cultural knowledge about verbal and nonverbal ways to communicate emotions, which can cause a degree of uncertainty and potential misinterpretation of the emotions being expressed (Lorette & Dewaele, 2015).

The ability to understand and express emotions in a foreign language is so vital that it has been included in the new descriptors in the Companion Volume of the 2018 version of the Common European Framework of Reference for Languages (Council of Europe, 2018). Advanced users (C1 and C2) are expected to "use language flexibly and effectively for social purposes, including emotional, allusive and joking usage" (p. 85). Independent users (B2) are supposed to be able to "convey degrees of emotion" (p. 85).

The authors also emphasize the need to be able to mediate in the foreign language, where the interaction is not ego-centred but focuses on "the party or parties for whom one is mediating" (p. 106). It requires "a well-developed emotional intelligence, or an openness to develop it, in order to have sufficient empathy for the viewpoints and emotional states of other participants in the communicative situation" (p. 106). This argument is congruent with empirical evidence suggesting that people who score high on trait emotional intelligence seem to have an advantage in decoding emotional information (Petrides & Furnham, 2001) but it is unclear to what extent this personality trait benefits first or foreign language users most.

We prefer to use the neutral terms first language (L1) user and foreign language (LX) user following the call by Dewaele (2018) to abandon the toxic dichotomy of "native speaker" versus "non-native speaker" which implies eternal superiority of the former and emphasizes the lasting deficit of the latter. The term "LX" refers to any language acquired after the age of three. L1 and LX users may have minimal to maximal proficiency in their L1(s) or LX(s) in various discourse domains and in various language skills. All are legitimate users of their various languages.

The present study aimed to investigate how Spanish L1 and LX users perceive emotional intensity and pleasantness in audiovisual and purely visual material eliciting blended emotions and whether cultural background and trait emotional intelligence modulate their emotion perception ratings. To this end, we used two versions of the same emotion-inducing material, a video and a picture sequence, and participants had to rate the emotionality and pleasantness of the stimuli through a 7-point semantic differential scale. Moreover, they completed the Trait Emotional Intelligence Questionnaire (Petrides, 2009), a self-reported measure that taps four branches of emotional intelligence, namely, well-being, self-control, emotionality, and sociability.

In what follows, we review the results of previous research that addressed the role of modality and culture in affective responses, the emotion recognition ability among L1 and LX users, as well as studies that examined how emotional intelligence interacts with modality and emotion perceptions.

Literature review

Emotion and modality

Relatively few studies to date have focused on emotion elicitation by multimedia and pictures. Horvat, Kukolja, and Ivanec (2015) compared affective responses to standardised pictures and videos. Their 10 participants, young college students at the University of Zagreb, were exposed to 20 images and 20 video clips eliciting happiness and fear and were asked to provide affective judgments (type and intensity of emotions, pleasure and arousal of the stimuli) using a self-assessment questionnaire. Participants' physiological signals were also registered. The results showed pronounced differences in the arousal dimensions, with video sequences as being more likely to arouse emotions of happiness and fear. Moreover, video sequences induced higher scores on both emotional dimensions (i.e., more happiness for the happiness-dominant video and more fear for the fear-dominant video).

Pursuing the same avenue of research, Sauter and Fisher (2018) examined variation in the recognition of nine emotions from spontaneous and matched posed nonverbal vocalisations, perceived through different types of cues (auditory, visual, and audiovisual) among 33 Dutch L1 users in a first experiment and 122 Dutch L1 users in a second experiment. The authors established that perceived intensity and prototypicality contributed to the forced-choice emotion recognition. Posed expressions were judged as

significantly more intense than spontaneous expressions. Furthermore, participants were able to infer emotions from different types of cues and from both spontaneous expressions and posed stimuli, which they recognised at similar levels.

The comparison of the power of pictures (single and consecutive pictures with congruent emotional and thematic content) and short film clips in inducing emotions were also at the heart of Uhrig et al.'s (2016) research design. Although the authors did not find differences among 139 students[2] between these modalities in the elicitation of positive emotions, pictures proved to be more efficient in evoking negative emotions. They attributed this finding to the fact that the films they used were quite short and contained fictitious characters, which might have diminished the films' emotional power. It is also possible that negatively valenced pictures recruit greater attention and – as previous research (Brewin & Langley, 2019) has shown– are recalled with greater perceptual detail, which may boost their emotional intensity.

Adopting a psycholinguistic perspective, Jankowiak and Korpal (2018) examined the influence of modality on emotional processing of narratives eliciting sadness in a sample of 27 late proficient Polish (L1)-English (L2) bilinguals. The authors used a Polish adaptation of the Positive and Negative Affect Schedule, eight experimental texts (4 Polish and 4 English) and four control-neutral texts (2 Polish and 2 English), as well as galvanic skin response methods. Each participant was presented with six texts, 4 experimental and 2 control texts, which were presented either visually or auditorily. Although no modality effects were observed in the self-reported ratings, the authors found decreased reactivity to L2 narratives and greater skin conductance to visual stimuli compared to auditory stimuli in L1. They interpreted these results with reference to (a) Craik and Lockhart's (1972) levels of processing theory, which posits that the deeper the information is processed the better its memorability[3]; and (b) the self-reference effect according to which information referring to ourselves is processed deeper.

Overall, these studies seem to suggest that certain contextual and psychological factors (e.g., length, modality of presentation, and degree of processing of the stimuli, degree of identification with the main characters of the story) may combine with purely linguistic variables (proficiency level in the target language) in judgments of emotional intensity.

Emotion and culture

Researchers have also focused on cross-cultural differences and similarities in the perception and expression of emotions among L1 users. For instance, Ekman et al. (1987) reported a high agreement across 552 participants from 10 countries in the interpretation of strong and intense facial expressions, which they interpreted as proof that there are universal, basic emotions. They found differences in the judgments of emotional intensity between Asian and non-Asian cultures for three basic emotions (fear, happiness, surprise), although language differences among cultures proved to be less relevant in judging the intensity of emotional expressions.

Matsumoto et al. (2002) used expressions portraying emotions of anger, happiness, sadness, and surprise which varied in intensity (four intensity levels). Their participants were 275 American and Japanese university students who provided three ratings for each expression: categorical emotion judgments, intensity ratings of the external display of the expression, and intensity ratings of the presumed internal experience of the poser. They also completed measures of cultural dimensions (individualism versus collectivism, and status differentiation). Positive emotions were more easily recognised by both groups of participants; however, Americans rated

external displays higher than internal expressions for high intensity expressions, while Japanese rated higher internal experience for low intensity expressions. The authors claimed that "when Japanese observe relatively weak expressions, they may infer that the poser is feeling emotions more strongly, compensating for the display rule that is presumed to be operating. When judging strong expressions … they interpret the poser's feelings as commensurate with the strength of the external display" (p. 743).

Fernández, Carrera, Sánchez, Páez, and Candia (2000) looked for cross-cultural differences in emotional verbal and nonverbal reactions in three prototypical emotions – joy, anger, and sadness. They found that among their 4784 participants from 21 countries, Asian participants reported lower levels of emotional expression than Europeans and North Americans. In addition, lower expression of negative emotions and higher expression of positive ones –such as joy– were found in Latin Americans. According to the authors, this finding highlights the importance that the collectivistic Latin American culture attributes to sociability and sympathy.

Altogether, these studies point to both universality and culture-based differences in judgments of emotion perception and expression, particularly between Asian and non-Asian cultures, which nevertheless seem to be determined by the valence of the emotional prompt. When interpreting these differences, particular cultural and social dimensions, as well as certain personality traits (Basabe et al., 1999; Basabe & Ros, 2005), should be taken into account. As Basabe et al.'s (1999) study revealed, factors such as latitude (cold climate), high human development index, individualism, cultural femininity, high uncertainty avoidance and low power distance are linked to higher emotional intensity. These variables, in turn, interact with personal characteristics such as neuroticism (associated to cultural masculinity, high uncertainty avoidance and high power distance cultures) and anxiety (especially present in high uncertainty avoidance and high power distance cultures). Therefore, individuals from collectivistic, masculine and high power distance cultures (e.g., Japan, China) would be expected to perceive and express emotionality in a less intense way.

Emotion perception by L1 and LX users

Adopting a multilingualism perspective, Lorette and Dewaele (2015, 2018a, 2018b) investigated variation in emotion recognition ability (ERA) among a total of 1368 L1 and LX users of English who watched short video recordings of a British actress improvising monologues around six emotions. No significant differences were found between L1 and LX users in ERA, although, contrary to European LX users, Asian LX users tended to provide lower scores. The absence of visual cues affected LX users' ERA much more than L1 users' ERA, and the same held true for low proficiency LX users. Emotional intensity ratings were also influenced by modality and proficiency level, that is, average emotional intensity was higher in the audiovisual condition, among participants with lower proficiency level, and more apparent in the LX group.

Another recent study conducted by Dewaele and Moxsom-Turnbull (2019) on 97 L1 and LX users of English revealed that the amount of co-speech gestural intensity in two audiovisual stimuli affected the perceptions of emotional intensity of all participants, but particularly of English LX users who rated the emotional intensity higher than L1 users. The authors argued that LX users privileged the visual channel over the vocal and verbal channels. They also speculated that LX users were aware of the lack of emotional resonance that English had for them (see also Dewaele, 2013) and, therefore, overcompensated by adjusting their ratings upwards. Age, number of languages known, length of residence in the UK, and English proficiency level were not related to emotional intensity values among LX users, and neither did gender. This

study highlights the importance of gestures in the perceived emotionality of audiovisual input and the difficulties that LX users might face when they have to process linguistic, sociocultural, pragmatic, and kinesic information at the same time in order to gauge specific emotional states in the LX.

A similar counter-intuitive difference in ratings of emotional intensity by L1 and LX users of English was reported in Dewaele and Lorette (2019). The study focused on perceptions of emotional intensity of a British-English actress enacting six emotional events in audiovisual or audio-only clips in English. A total of 1368 participants with English as an L1 or LX watched or listened to the stimuli. Overall, the audiovisual stimuli yielded higher intensity ratings than the audio-only stimuli. Surprisingly, the 557 L1 participants' intensity ratings were significantly lower than the 811 LX participants' ratings in both conditions. English proficiency turned out to be unrelated to intensity ratings, which suggests that paralinguistic skills develop independently from linguistic skills. The authors speculated that the apparent lack of a detachment effect[4] among LX users might be linked to them overcompensating for a (conscious) lack of emotionality in the LX, meaning that LX users might report higher intensity levels than what they actually perceive (cf. Dewaele and Moxsom-Turnbull, 2019).

Emotion perception and emotional intelligence

Personality psychologists have also explored the link between emotional intelligence (EI), emotion recognition ability and attention to emotional stimuli. Petrides and Furnham (2003) conducted two experiments with 34 psychology students in a primer experiment and 30 in a second experiment to examine the impact of Trait EI in the ability to identify facial prototypical emotional expressions (happiness, sadness, fear, disgust, anger, surprise) using videos of male and female faces. The authors found that high Trait EI individuals were faster at decoding emotional facial expressions and showed greater sensitivity to mood induction procedures (video segments depicting sad and comical situations).

In a further investigation on the role of EI in emotion perception, Jacob et al. (2013) used a performance-based EI measure and a measure of perceptual nonverbal dominance in a sample of 40 L1 users of German. The authors found that both verbal and nonverbal cues had an impact on judgments concerning the emotional state of the speaker. However, they obtained a stronger link between the overall mean valence ratings and the nonverbal information compared to the verbal one. At an individual level, the higher nonverbal dominance was linked to smaller reaction time differences between emotionally incongruent and congruent stimuli. Moreover, high EI participants were more driven by nonverbal cues to perceive the target emotions. The authors attributed this result to the fact that authentic emotional states seem to be primarily communicated through nonverbal cues.

The third study pursuing this avenue of research was conducted by Lea, Qualter, Davis, and Pérez-González (2018). The researchers used eye tracking methodology with 54 UK adults. They found that high Trait EI was linked to visual preferences towards positive emotional stimuli, and this pattern of results was consistent for three EI's facets, namely, well-being, self-control, and emotionality. The authors suggested that emotional scenes, rather than isolated faces or pictures, are more socially salient and, therefore, more ecologically valid.

The fourth study to include EI in the research design, combining it with L1 and LX users, was carried out by Alqarni and Dewaele (2018). The authors focused on the emotion perception ability of 205 Arabic-English bilinguals, 71 Arabic monolinguals, and 333 English monolinguals. Participants had to recognise anger, fear, sadness,

disgust, surprise, and happiness in twelve short audiovisual clips, 6 in English and 6 in Arabic. Bilinguals were found to outperform English monolinguals in ERA in the Arabic videos. The authors attributed this result to the fact that English monolinguals had minimal knowledge of the Arabic language and culture, which made more difficult for them to decode the emotional states of the speaker. The bilingual participants also outperformed the Arabic monolinguals in the English videos, probably because of the extra conscious effort they put on in order to recognise affect in their English LX, or the extensive emotional experiences they had acquired during their stay in the UK, which had boosted their metalinguistic and metapragmatic awareness of cultural and linguistic differences in emotional expression. Another interesting finding of this study is that bilinguals scored higher on Trait EI, and these scores were correlated positively with their emotion perception scores. This finding can be taken as an indication of a (small) bilingual emotional advantage in terms of lexical richness in the use of emotion concepts.

Dewaele, Lorette, and Petrides (2019b) was the final study to combine Trait EI and different varieties of English to investigate individual differences in ERA. Participants were 150 British and 151 American L1 users of English who watched the same stimuli as in Lorette and Dewaele (2015, 2018a, 2018b) and Dewaele and Lorette (2019a). Participants with higher scores on linguistic proficiency and Trait EI were found to be significantly better at recognising emotions. Surprisingly, British participants did not outperform American participants, possibly because the effect of their in-group advantage was balanced out by the higher levels of Trait EI among the American participants. Participants who scored lower on proficiency relied more heavily on their Trait EI, suggesting that Trait EI can serve as a crutch to recognise emotions among those with weaker verbal skills.

To sum up, multilingualism studies on ERA among L1 and LX users support the idea that the ability to understand and recognise emotions is subject to both internal (individual) and external (stimuli-related) factors. However, most research has focused on English L1 and LX users, and it is important to establish whether these findings can be generalised to other languages and cultural backgrounds. Moreover, to the best of our knowledge, no studies to date have examined the role of both modality of presentation and Trait EI in perceived emotional intensity among L1 and LX users. In addition, previous empirical work has mainly studied emotion perception and recognition of emotional material reflecting a single or more *prototypical* emotions. We feel that a methodological shift towards the study of blended emotions is overdue. This would boost ecological validity as emotions are in a state of constant flux and they evolve, change, and overlap even in a short time span (cf. Lea et al., 2018). It further demands the consideration of the pleasantness dimension, as mixed-emotion stimuli might elicit more or less pleasant feelings, depending on individual's linguistic, cultural, and psychological profiles.

The present study thus addressed the following research questions:

- Do L1 and LX users of Spanish rate emotional intensity and pleasantness of the same emotion-inducing material differently?
- What is the effect of modality of presentation (audiovisual vs. visual) on perceptions of emotional intensity and pleasantness among L1 and LX users of Spanish?
- What is the effect of cultural background (Spanish, American, Asian) on perceptions of emotional intensity and pleasantness of the same emotion-inducing material presented in two different modalities?

- Is Trait EI linked to perceptions of emotional intensity and pleasantness among L1 and LX users of Spanish across different modalities of presentation of the same emotion-inducing material?

Method

Participants

A total of 174 participants took part in the study, 58 males and 116 females, aged between 18 and 28 (M = 20.12, SD = 1.79). Seventy-nine participants were L1 users of Spanish, born in Spain (n = 70) and Latin America (n = 9). There were 31 males and 48 females, aged between 18 and 25 (M = 19.27, SD = 1.48), who were studying different social sciences degrees. The remaining 95 participants were LX users of Spanish, 27 males and 68 females, aged between 18 and 28 (M = 20.83, SD = 1.71) and had the following nationalities: American (n = 52), Chinese (n = 29), Korean (n = 6), Italian (n = 2), Norwegian (n = 2), German (n = 1), Dutch (n = 1), Polish (n = 1), and British (n = 1).

All LX users had an intermediate level in Spanish –established by a placement exam[5]– and were taking short-term Spanish courses in an immersion context at the time of data collection. According to the information obtained through a brief questionnaire, the mean age of onset of the acquisition of Spanish for LX users was 15.51 years (*Median* = 17, SD = 4.59, n = 82). LX users also rated themselves in speaking, understanding, reading, and writing through a 5-point scale (from least proficient to fully fluent), and the scores they provided seemed to match their actual proficiency level in Spanish (average mean score: 11.28 over 20 points, *Median* = 12, SD = 2.52, n = 90).

Preliminary analyses showed no statistically significant differences in the distribution of male and female participants in the L1 and LX groups ($\chi(1) = 2.272$, p = .132). Some age differences were found ($t(172) = -6.381$, $p < .001$), which were mainly due to the fact that around 50% of L1 users were 18 years old. Given that the mean values of age were very similar for both groups, the range of the most frequent values was quite restrictive and the fact that all participants were young adults, it was quite unlikely that age would turn out to be a confounding variable.

Tasks and procedures

We used two versions of the same emotion-inducing material, a video (audiovisual condition) and a picture sequence (visual condition). In the video condition participants watched *Cuerdas*, written and directed by Pedro Solís García, which won the Goya Award in 2014 for Best Spanish Animated Short Film. The 11-minute video tells the tender story of a friendship between a girl, Maria, and a new classmate who suffers from cerebral palsy. After becoming friends, Maria tries to help her friend to adjust in the orphanage where they live. They spend a lot of time playing together and Maria uses a string ('*cuerdas*') to help her friend move his arms and legs, until one day the empty chair next to her indicates that her friend has passed away. The film ends by showing Maria a few years later, working at the same orphanage as a teacher and wearing a piece of string around her wrist in memory of her friend. The scenes presented in the story can elicit joy and sadness, as well as admiration, melancholy, empathy, confusion, etc. The film has been translated in many languages, although for the purposes of the present study the Spanish version was used. For the picture condition, a sequence of 30 images was used, which were chosen so that they represented the most important events of the

story. The images were projected using PowerPoint and with a time interval of 7 seconds per slide.

Ninety-six participants, 38 L1 and 58 LX users, watched the video, while the remaining 78 participants, 41 L1 and 37 LX users, were assigned to the picture condition.[6] Subsequently, participants were asked to rate the story on a 7-point semantic differential scale with respect to two dimensions, emotionality and pleasantness. Finally, participants were asked to complete the Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF; Petrides, 2009), a self-reported measure of EI that requires participants to indicate their level of agreement regarding 30 statements that tap four factors, namely, well-being, self-control, emotionality, and sociability, on a 7-point Likert scale Reliability analysis was conducted using Cronbach's alpha coefficient and a satisfactory value of .827 was obtained.

The study was conducted as part of a larger project [EMILIA; FFI2017-83166-C2-2-R] focusing on the interaction between emotion, memory, linguistic identity, and emotional acculturation in Spanish. Ethical approval for this study was obtained from the Research Ethics Committee at the first author's institution.

Results

Influence of language (L1/LX) and modality of presentation (audiovisual vs. visual) on perceived emotionality and pleasantness

We conducted a multivariate analysis of covariance (MANCOVA) with two fixed factors (group and condition) and Trait EI as covariate variable. The results showed that the effect of modality on perceived emotionality was very small and non-significant ($F(1, 169) = 1.099$, $p = .296$, $\eta_p^2 = .006$). However, LX users perceived the *Cuerdas* story as significantly more emotional than L1 users ($F(1, 169) = 4.401$, $p = .037$, $\eta_p^2 = .025$). This result was mainly due to the higher ratings these participants provided in the visual condition ($M = 5.95$, $SD = 1.51$, compared to $M = 5.17$, $SD = 1.94$, for L1 users). In the audiovisual condition, emotionality ratings were quite similar among L1 ($M = 5.71$, $SD = 1.64$) and LX users ($M = 5.95$, $SD = 1.31$) (see Figure 1).

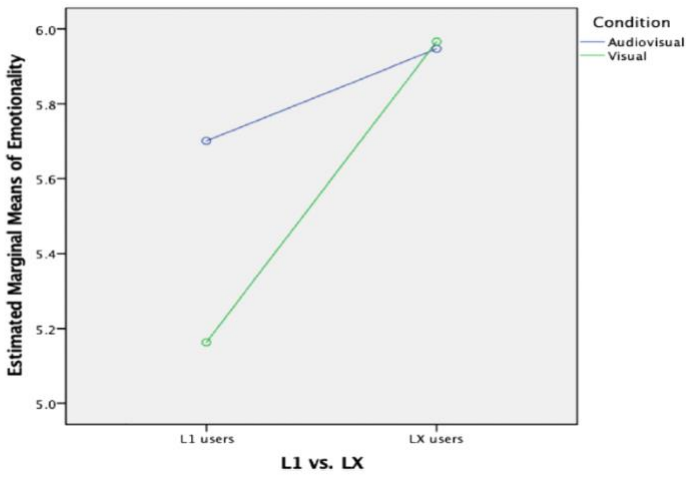

FIGURE 1 Graph plot corresponding to differences in perceived emotionality among L1 and LX users in the audiovisual and visual condition with Trait EI as covariate variable evaluated at the value of 4.96

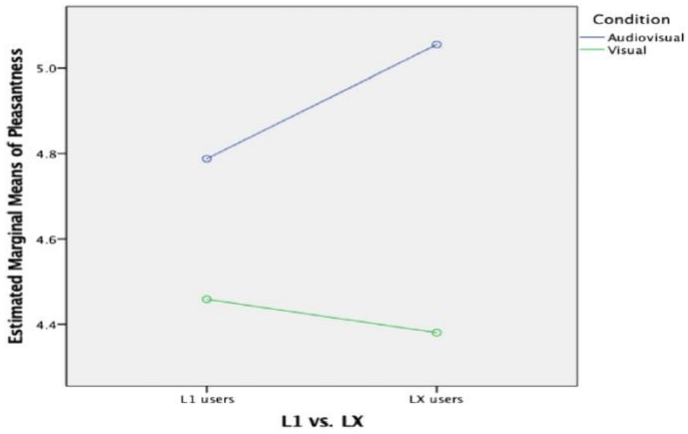

FIGURE 2 Graph plot corresponding to differences in perceived pleasantness among L1 and LX users in the audiovisual and visual condition with Trait EI as covariate variable evaluated at the value of 4.96

The analysis also yielded a statistically significant effect of modality on perceived pleasantness ($F(1, 169) = 3.991$, $p = .047$, $\eta_p^2 = .023$), with the video being perceived as more pleasant ($M = 4.76$, $SD = 1.42$, for L1 users, and $M = 5.05$, $SD = 1.47$, for LX users) than the picture sequence ($M = 4.44$, $SD = 1.79$, for L1 users, and $M = 4.43$, $SD = 1.82$, for LX users). Although LX users tended to perceive the video as slightly more pleasant than their L1 peers, this difference did not reach statistical significance (see Figure 2).

Influence of cultural background on perceived emotionality and pleasantness

Because certain nationality groups were underrepresented in the two modality conditions, the dataset was pruned. Data of participants from European countries other than Spain and also of those born in Latin America were excluded. The rationale behind this decision was to create relatively homogeneous groups in terms of their cultural background.

After the adjustments in the sample sizes described above, for the audiovisual condition we conducted a one-way ANCOVA with Trait EI as control variable to determine whether there were statistically significant differences among American ($n = 25$), Spanish ($n = 35$), and Asian ($n = 26$) participants in their emotionality and pleasantness ratings. The results showed a significant effect of cultural background on the perceived pleasantness of the video ($F(2, 82) = 3.539$, $p = .034$, $\eta_p^2 = .08$), that is, American LX users found the video significantly more pleasant ($M = 5.52$, $SD = 1.12$) than Asian LX users ($M = 4.35$, $SD = 1.55$) and slightly more pleasant than Spanish L1

users (*M* = 4.69, *SD* = 1.41). In addition, American LX users provided slightly higher emotionality ratings compared to their peers, although these differences did not reach statistical significance (see Figures 3 and 4).

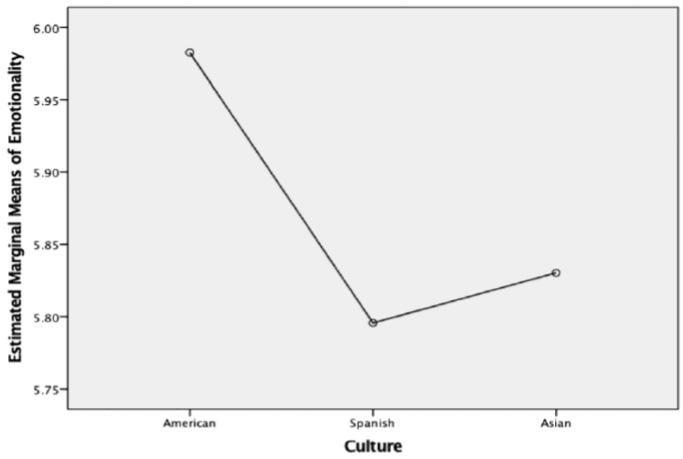

FIGURE 3 Graph plot for differences in perceived emotionality among American, Spanish, and Asian participants in the audiovisual condition (Trait EI as covariate variable at the value of 4.92)

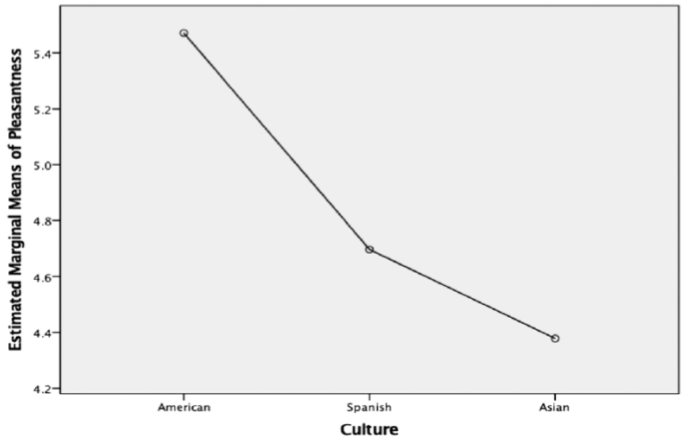

FIGURE 4 Graph plot corresponding to differences in perceived pleasantness among American, Spanish, and Asian participants in the audiovisual condition (Trait EI as covariate variable at the value of 4.92)

For the visual condition, we ran an independent samples t-test to examine differences in perceived emotionality and pleasantness between Spanish L1 users (*n* = 35) and American LX users (*n* = 27).[7] The analysis revealed that Americans perceived the picture sequence as being significantly more emotional (*M* = 6.26, *SD* = 1.26) than their Spanish peers (*M* = 5.20, *SD* = 2.00; *t*(60) = -2.550, *p* = .013).

Relation between Trait EI and perceived emotionality and pleasantness

Although Trait EI was included as control variable in the multivariate models described above, we also looked for correlation patterns between Trait EI and perceived emotionality and pleasantness by taking into account language group (L1 users vs. LX users) and modality (audiovisual vs. visual).

In the audiovisual condition, the correlation between Trait EI and emotionality ratings of all participants assigned in this condition was negligible (*r* = -.136, *p* = .186, *n* = 96). The same held true for correlations computed within each group (*r* = .008, *p* = .219, for L1 users; *r* = -.233, *p* =. 078, for LX users). No statistically significant correlations emerged either between Trait EI and pleasantness ratings in this condition (*r* = .170, *p* = .097, *n* = 96; *r* = .219, *p* = .186, for L1 users; *r* = .146, *p* = .276, for LX users).

In the visual condition, the pattern of correlations was very similar for both emotionality (*r* = .155, *p* = .177, *n* = 78) and pleasantness (*r* = -.020, *p* = .863, *n* = 78),

and for both L1 users (emotionality: r = .075, p = .642; pleasantness: r = .001, p = .993) and LX users (emotionality: r = .126, p = .458; pleasantness: r = -.044, p = .794).

Discussion

The present study aimed to explore whether L1 and LX users of Spanish perceive emotional intensity and pleasantness similarly in matched audiovisual and visual material eliciting blended emotions and whether their cultural background and Trait EI are linked to these emotional dimensions.

LX users were found to perceive the story as being significantly more emotional in the visual condition. In the audiovisual condition, differences in both emotionality and pleasantness went in the same direction but they failed to reach statistical significance. Overall, these results lend partial support to previous findings, that is, higher ratings of perceived emotionality by LX users compared to their L1 peers (Dewaele & Lorette, 2020; Dewaele & Moxsom-Turnbull, 2019), and could be attributed to LX users being –either consciously or unconsciously– aware of their LX detachment effect and hence overcompensate when providing emotion ratings.

Regarding modality, both L1 and LX users rated the video as slightly more pleasant than the picture sequence, which is congruent with previous studies suggesting that video and other computer-generated stimuli typically induce stronger affective responses than pictures (Horvat et al., 2015). It is important to note, however, that the average pleasantness scores provided by L1 users were somewhere in the middle of the continuum (close to point 4 in the Likert scale) in both modalities, while for LX users the difference in pleasantness ratings between the two modalities was slightly more pronounced and higher for the audiovisual material.

One could argue that judging a relatively sad film (although with a message of hope) as being relatively pleasant may also illustrate a lack of the detachment effect. Another plausible explanation is that the content and the level of comprehensibility of a film are likely to determine the level of pleasantness, at least to some degree. The *Cuerdas* film contained some fast-paced dialogues, extracts where music and the voice of the characters overlapped, and certain words that would probably be less well understood by LX users of Spanish at an intermediate level. For these reasons, we speculate that our LX users were not able to catch the subtle nuances of meaning of all dialogues and perhaps their pleasantness ratings confounded with their emotionality ratings. On the other hand, it is reasonable to assume that L1 users relied more on the vocal channel to extract meaning, and their pleasantness ratings were mainly determined by the content of the story, both pleasant and unpleasant, thus resulting in intermediate pleasantness scores.

With respect to emotional intensity, LX users perceived both the picture sequence and the video as being highly emotional. This intriguing finding seems to suggest that the length of the emotional stimuli does matter, that is, visual materials can potentially induce strong emotions as long as they present a *full* story, at least in the case of LX users. Indeed, contrary to many previous studies that mainly used single images of facial expressions, the picture sequence employed in the present study reflected a complete context with varied emotional episodes and characters displaying a range of facial expressions. This kind of full-length material can more easily approximate real stories and, therefore, elicit a wider range of emotions. It thus seems that Uhrig et al. (2016) were right in claiming that “multiple images add up to an even stronger effect in the sense of ‘more images—more impact’” (p. 10).

An alternative explanation to the above finding is that the dynamic nature of the short film led Spanish LX users to provide high emotionality ratings in the audiovisual

condition just because of the more intense effect that the combination of voice, music, movement, and image are able to create. This interpretation is consistent with empirical evidence on the emotional power of the videos (Horvat et al., 2015). On the other hand, the picture sequence –lacking voice, music, and movement– could have allowed for a deeper processing of the main events of the story. Thus, comparable emotionality ratings in the two modalities by LX users could be due to different reasons: emotionality because of the combined use of different channels in the audiovisual condition and deeper processing of the characteristics of the emotional stimuli in the visual condition.

In contrast, our L1 users seemed to rely more on parallel channels to judge emotionality, at least in the video condition. When all channels are available and easily accessible (i.e., not hampered by a low linguistic proficiency), L1 users might be able to extract more information from the vocal channel (intonation contours, speech rate, volume, stress, pauses) (cf. Chen, 2009; Kyoung Cho, 2017). Furthermore, understanding the emotional-linguistic content of the story might have allowed them to establish a personal connection with the story, or to empathise to a greater degree, hence, leading them to provide higher emotionality ratings in the audiovisual compared to the visual condition.

Cultural background was also found to have an impact on our participants' emotion perceptions. Specifically, American LX users perceived the video as being more pleasant and slightly more emotional than their peers, while Asian participants provided the lowest ratings in the pleasantness scale. In addition, American LX users rated the picture sequence as significantly more emotional compared to Spanish L1 users (see Scherer, Wallbott, Matsumoto, & Kudoh, 1988, for similar results). These findings add up to empirical evidence on the differences between Asian and non-Asian cultures in the perceived emotional intensity and expression of prototypical emotions (Ekman et al., 1987; Fernández et al., 2000; Matsumoto et al., 2002) but also extend to the specific case of blended emotions presented through the audiovisual channel.

For instance, previous studies found that Americans provide higher emotional ratings for basic emotions such as happiness, sadness, surprise, anger, and fear (Ekman et al., 1987; Fernández et al., 2000) and report more intense and durable emotional feelings and more expressive and verbal reactions to emotions compared to Japanese (Matsumoto, Kudoh, Scherer, & Wallbott, 1988). It has also been argued that Americans appraise emotional situations as more pleasant and also try to create, promote and maintain situations that make them feel happy (Kitayama, Markus, & Kurokawa, 2000; Mesquita & Karasawa, 2002; Mesquita & Markus, 2003). On the other hand, individuals from non-Western cultures tend to value more low arousal emotions (Lim, 2016). According to Fernández et al. (2000), in high power distance cultures (Japan, China) expressing emotions in an intense way might be interpreted as lack of respect; thus, in these cultures emotional expression might be attenuated, contrary to low power distance cultures, such as North America, which tend to display their emotions more freely. The results of their study confirmed this assumption especially for negative emotions.

Likewise, the higher ratings of our American participants might be due to a cultural tendency to favour emotional responsivity in general. The same phenomenon could be at play in the masking, attenuation or control of emotional expression and feelings in the case of the Chinese participants (Matsumoto, 1990; Scherer et al., 1988) regardless of modality of presentation of the emotional material. It is also possible that the notions of emotionality and pleasantness have different meanings in different cultures depending on specific features of these cultures (Mesquita & Karasawa, 2002).

For instance, Kitayama et al. (2000) argued that because North Americans have an independent view of self, they perceive pleasantness as an "internal, subjective attribute, … pertaining directly to the inner core of the self and, as a consequence, … may be highly motivated to increase, highlight, emphasise, and cognitively elaborate these subjectively positive feelings and decrease, avoid, ignore, and cognitively reinterpret subjectively negative feelings" (p. 116).

Beyond culture-based interpretations, the characteristics of the emotional stimuli should also be taken into account. An important feature of the material used in the present study is that the most moving scene of the story concerns the death of a disabled boy, represented by a chair that is suddenly empty. Previous studies found that death-related pictures were perceived as being less unpleasant among British compared to Spanish L1 users (Martí-García et al., 2018). Scherer et al. (1988) explain that both in Europe and the United States sadness experiences provoked by death account for about 1/5 of all sadness experiences, while in Japan for about 1/12 because of the different connotations attributed to death. In Scherer et al.'s (1988) study, Americans reported higher emotional intensities for sadness, followed by European and Japanese participants, although these differences did not reach statistical significance. Consequently, differences in perceived emotional intensity might stem from a combination of cultural background influences and specific characteristics and features of the emotional cues.

The final research question focused on the role of Trait EI in perceptions of emotional intensity and pleasantness among L1 and LX users of Spanish. Previous research has shown that self-reported Trait EI is a significant predictor of the ability to identify and decode emotions in L1 (Dewaele, Lorette, & Petrides, 2019; Petrides & Furnham, 2003). Moreover, it has been suggested that bilinguals might have a small advantage, that is, they are better able to infer emotional states of others because of their higher Trait EI (Alqarni & Dewaele, 2018). In the present study, however, correlations between Trait EI and emotion perception ratings in both modalities (audiovisual and visual) and within each group (L1 and LX users) were quite negligible. These relatively weak and unexpected results are hard to explain, and further research is needed to interpret these findings.

One potential limitation of the present study is that some L1 users may have seen the short animation film previously and did not report at the moment of data collection. However, this is unlikely to have influenced their ratings, and it is also highly unlikely that LX users had seen the film previously.

Conclusion

We mentioned in the introduction how tragic events captured on film or photo can cause strong emotional reactions among viewers, boosting viewing and sales figures and galvanising public opinion. We also argued that, in daily life, emotionality and pleasantness are not static but fluctuate continuously as images, words, and sounds penetrate our consciousness. Crucially, we demonstrated that images, words and sounds are perceived differently among L1 and LX viewers depending on their linguistic and cultural profiles.

More specifically, our study examined how emotional information communicated through different channels (i.e., audiovisual and purely visual) is perceived, and particularly whether language, cultural background, and Trait EI have an impact on perceptions of emotional intensity and pleasantness. In order to boost ecological validity, we used emotional material that could elicit varied –and even divergent– feelings and emotions, similarly to those we typically experience in real life.

Indeed, the complex emotions portrayed in the award-winning short animation film had viewers reaching for their handkerchiefs and the members of the jury for the gold medal.

The primary conclusion to emerge is that LX users tend to perceive emotional intensity and pleasantness at equal or even higher levels than L1 users, particularly when the presentation of the emotional material combines image and sound. L1 users, on the other hand, seem to follow a different decoding path, more focused on the vocal channel and meaning extraction. Furthermore, our study confirms that culture-based differences in perceived emotionality and pleasantness are unavoidable because "different cultural contexts promote different *feelings*, not just different ways of expressing those feelings" (Mesquita & Markus, 2003, p. 340).

Methodologically speaking, cultural background and, when possible, linguistic distance should be taken into account when exploring emotion perception and expression in general, and specific emotional dimensions in particular. Finally, the impact of Trait EI on emotional intensity and pleasantness proved to be very limited. Whether this was an artifact of the present study is an issue that future research should address in more detail.

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DECLARATION OF CONFLICTING INTERESTS
None.

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[1] Our highlight.

[2] No information is provided about their age, context or linguistic profile.

[3] According to the conceptual framework of Craik and Lockhart (1972), depth of processing depends on factors such as the amount of attention devoted to the stimuli, individuals' processing capacity, familiarity with these stimuli and their compatibility with structures and mental schemes already developed for their analysis.

[4] Marcos (1976) coined the term *emotional-detachment effect* in the LX which he attributed to "the deflection of both attention and affect toward the more demanding second-language encoding tasks in bilinguals' communication across the language barrier" (p. 558). This language barrier allows bilinguals in psychotherapy to verbalise highly charged material as they "feel 'protected' by the linguistic detachment" (p. 558).

[5] The placement exam was comprised of a 100-item multiple-choice test that assessed grammar and vocabulary knowledge, as well as an oral exam assessing students' oral fluency, grammar and vocabulary.

[6] Intact classes were used, thus sample sizes slightly varied in the two conditions. Independent samples t-tests showed that there were no statistically significant differences in Trait EI among L1 users in the two conditions ($t(77) = -0.235$, $p = .814$), while for LX users only some slight differences were observed ($t(93) = -2.062$, $p = .042$). Moreover, no differences were found among LX users regarding their self-perceived competence in Spanish ($t(88) = 1.346$, $p = .182$).

[7] The number of Asian participants in this condition was quite small and, thus, impossible to be considered in the analysis.