



Cultural Differences in the Nonverbal Expressions of Emotion

Tilburg University

Tilburg School of Humanities and Digital Sciences (TSHD)

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Martijn Goudbeek

Group 10

Sari Pastoor, 2039997

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INTRODUCTION

As humans, we have the cognitive ability to control our emotions and influence how we express them. In the literature, this attempt to change the magnitude or duration of emotional expressions is referred to as ‘emotion regulation’ (Gross, 1998). Emotion regulation is one of the fastest-growing and most fruitful research topics within psychology (Koole, 2009) and over the years many theories, techniques, and methods have been developed to understand the cognitive and affective processes underlying it (Gross, 2013).

Display rules, or informal norms about how people should express their emotions (Ekman, 1972; Friesen, 1972), have gained considerable attention in this line of research (Izard, 1994; Safdar & Matsumoto, 2009), as studies have revealed significant cultural differences (Tsai, Knutson, & Fung, 2006; Miyamoto & Ma, 2011; Miyamoto & Ryff, 2011). For example, in Eastern countries like China, people tend to balance positive and negative emotions, while people in Western countries like the US tend to savor positive and suppress negative emotions (Fernández, Carrera, Sánchez, Paez, & Candia 2000; Peng & Nisbett, 1999; Miyamoto & Ma, 2011).

This is because in collectivistic cultures, which are clustered in Eastern countries, maintaining social harmony and promoting collective wellbeing is generally valued over individual freedom and unique self-expression. The opposite is the case in individualistic cultures, which are clustered in Western countries (Lim, 2016). Because of these differences in social values, collectivistic cultures tend to have stronger normative systems of display rules, leading to more heavily regulated emotional expressions (Fernández et al., 2000).

The current study aims to gain a better understanding of these cultural differences by investigating the nonverbal expression of positive emotions by American and Chinese individuals, representing individualistic and collectivistic cultures, respectively. The focus is on positive emotions because cultural differences in the nonverbal expressions of positive emotions might be greater than in the expressions of negative emotions (Leu, Wang, & Koo, 2011). Also, positive emotions, like joy and surprise, are easily identifiable and expressed in similar ways (Dael, Mortillaro, & Scherer, 2012; Matsumoto et al., 2008;

Sauter, 2017). This makes them suitable for investigating cultural differences in nonverbal emotional expressions.

Therefore, the following research question is proposed: Are there differences in how individualistic and collectivistic cultures nonverbally express positive emotions? Based on the literature review, it is hypothesized in general that American adults express more nonverbal cues related to positive emotions than Chinese adults during elation. Three methodological assessments were used to analyze the nonverbal expressions of positive emotions, namely facial expressions, body language, and affective behavior towards others. This division is common in emotion expression research (e.g. App, McIntosh, Reed, & Hertenstein, 2011; Sauter, 2017), and this division is shown in the sub hypotheses below.

H1a: American adults have more intense facial expressions than Chinese adults during elation.

H1b: American adults express more body language for positive emotions than Chinese adults.

H1c: Affectionate exchange in nonverbal communication is more common for American adults than for Chinese adults during elation.

METHODS

Video material coming from the TV program *The Voice* was used for this research. The total sample consisted of 50 video extracts in which the nonverbal emotional expressions of the friends and/or family members of contestants were analyzed. More specifically, we focused on their first reactions to the judge(s) ‘turning’ for the contestant, which indicates that the contestant has passed the blind audition. The corpus of 50 videos was subdivided for *The Voice USA* ($n = 25$) and *The Voice of China* ($n = 25$).

Method 1: Facial expressions

Introduction

A substantial body of cross-cultural psychological research has demonstrated a robust relationship between emotional experiences and facial expressions (e.g. Izard, 1994; Mesquita & Frijia, 1992; Russell, 1994; Scherer, Clark-Polner, & Mortillaro, 2011). The dominant view in such facial behavior research is that a limited number of prototypical emotions, or basic emotions, are expressed in relatively stable and universal facial configurations called Action Units (AU) (Ekman, 1972; Ekman; 1992; Ekman & Friesen, 1971; Friesen, 1972).

Although this view has been challenged, and alternative models have been proposed (e.g. Russell, 1997; Smith & Scott, 1997), there is still strong evidence for the universality of the facial expressions of basic emotions such as joy and anger (Elfenbein & Ambady, 2002; Matsumoto, Keltner, Shiota, O'Sullivan, & Frank, 2008). Arguably the most convincing evidence is provided by studies showing that lifelong blind individuals produced the same facial expressions as sighted individuals upon spontaneous emotional arousal (Cole, Jenkins, & Shott, 1989; Galati, Miceli, & Sini, 2001; Matsumoto & Willingham, 2009).

However, this does not mean that cultural differences are non-existent or insignificant. For example, research has found that in collectivistic cultures, low-intensity emotional expressions are valued more than high-intensity emotional expressions. The opposite appears to be the case in individualistic cultures (Fernández et al., 2000; Lim, 2016). In other words, cultural differences in the facial expressions

of emotions tend to be related to their intensity, not their absolute presence or absence in particular emotional situations.

Procedure

One of the aims of the current study is, therefore, to investigate the cultural differences in the facial expressions of emotions between individuals from China and the USA. The Facial Action Coding System (FACS) developed by Ekman and Friesen (1978) was used to analyze their facial expressions. FACS is one of the few methods available that allow real-time assessment of the facial expressions of emotions and is, therefore, the most commonly used method.

We focused on facial expressions of joy. Joy can be identified by AU6 and AU12, raised cheeks, and pulled lip corners, respectively (Ekman & Friesen, 1978). The presence of both AUs results in a genuine smile, also referred to as a Duchenne smile, especially when AU intensity is high. Also, joy shares many features with other positive emotions, like amusement, pride, and elation (Sauter, 2017), making it an appropriate proxy for positive emotions in general.

AU intensity is generally assessed using a five-point scale ranging from A (trace) to E (maximum), which requires extensive training. The current study, therefore, assessed AU intensity by using a two-point scale: low and high intensity. This resulted in the following categories: AU6 low intensity, AU6 high intensity, AU12 low intensity, AU12 high intensity. A separate category was created for combinations of these categories. See the coding scheme in the appendices for a detailed description of the cues used in the current study.

Analysis

Two authors coded the participants' facial expressions in the videos. For a detailed description of the developed and used coding scheme, see *Appendix A*. To assess inter-rater reliability, Cohen's kappa was calculated in SPSS version 25 (IBM Corp, 2017). Initially, there was substantial agreement on AU6 low and high intensity ($\kappa = 0.688$, $p = 0.002$) and moderate agreement on AU12 low and high intensity (κ

= 0.524, $p = 0.019$). After discrepancies were resolved between the coders and the coding scheme was appropriately adjusted, intercoder reliability was excellent, as can be seen in *Table 1* below.

Table 1. *Cohen's Kappa scores for facial cues*

Cue	Cohen's κ	p
AU6 - low intensity	.87	< .001
AU6 - high intensity	.88	< .001
AU12 - low intensity	.82	< .001
AU12 - high intensity	.83	< .001
Combining AU6 - AU12	.83	< .001

Method 2: Body language

Introduction

While facial expressions as an isolated or primary factor of conveying emotions have been subjected to many studies on nonverbal cues, relatively less research has been done on the body as a primary source of emotion (Montepare, Koff, Zaitchik, & Albert, 1999; Planalp, 1996). An early study by Ekman (1965), in which he hypothesized on body cues carrying only the intensity and not the nature of emotion, exemplifies this phenomenon. More recent work within the domain of nonverbal communication has moved away from this perspective, with researchers acknowledging the prominent role of body cues as primary emitters of emotion. De Gelder's (2006) study on emotional body language (EBL) has been key in this innovation, stating that: "In contrast to an isolated facial expression, EBL provides the emotion as well as the associated action. EBL is a less ambiguous signal and a more direct call for attention and action in the observer". Other studies within different fields have equally contributed in extending the body of work on body cues and EBL, on which we build our argument for investigating body cues as an isolated rather than a supplemental factor for measuring emotional expression (de Gelder & Hadjikhani, 2006; Van den Stock, Peretz, Grezes, & de Gelder, 2009; Beck, Canamero, & Bard, 2010).

Procedure

This coding scheme was based on Sauter's aforementioned categorization of cues (Sauter, 2017). The body cues we selected were already established for positive emotions, such as elation, contentment, and pride. These cues, along with other supplementary cues we discovered during a preliminary investigation, were assembled and inserted in the coding scheme. Ultimately, we were able to categorize our chosen cue within three categories: head (HE), hands, and arms (HA), and whole-body (WB).

Appendix B demonstrates these parts along with the corresponding cues. Coding the cues was done in a binary manner, such that we only counted whether a certain was or was not displayed by a person.

Analysis

To check the level of agreement among the coders, the inter-coder reliability was determined by looking at the participants' different body cues. Based on these results, Cohen's kappa was calculated to check inter-coder reliability. For almost all cues, we found minimum inter-coder reliability of $\kappa > .78$, except for 'head tilted slightly backward', which had moderate reliability of $\kappa = .27$. This cue was discussed, specified, and recoded, which resulted in sufficient inter-coder reliability, $\kappa = .86$. The final reliability scores of all cues can be seen in *Table 2*.

Table 2. *Cohen's Kappa scores for body cues*

Cue	Cohen's κ	<i>p</i>
HE 1 - Head tilted slightly back	.86	< .001
HA 1 - Clapping	.92	< .001
HA 2 - One stretched arm above head	1.00	< .001
HA 3 - Both arms stretched above head	.79	< .001
HA 4 - Pointing	.81	< .001
HA 5 - Elbow bent & clenching fist - one arm	.83	< .001
HA 6 - Elbow bent & clenching fist - both arms	.88	< .001
WB 1 - Jumping	.78	< .001

Method 3: Affection towards others*Introduction*

As explained in the general introduction of this paper, people from individualistic and collectivistic cultures conceptualize the emotion of happiness differently. Lu & Gilmour (2004) investigated subjective well-being related to happiness in social situations. Euro-American people referred to the importance of social support and comfort by family and friends. Asian people mentioned this as well, but they differed in that their perceived collective world extends way beyond only family and friends. Asians emphasized the importance of maintaining harmony and balance in the bigger collective group they belong to (Lu & Gilmour, 2004).

Celebrating happiness with others might be closely related to showing affection towards others. Research investigating syntax in books found that terms describing nonverbal communication of affection (e.g., kiss, hug) are related to individualism. It was found that when more individualistic terms were used, the number of affection words in the text increased (Wu, Boyuan, Zhu & Zou, 2019).

Based on the aforementioned reasons, it is expected that Americans (in The Voice USA) will more often broadcast their happiness towards family and friends, and thus express more affectionate behavior towards others. On the contrary, it is expected that Chinese people (in The Voice China) will less often broadcast their happiness towards family and friends, and thus express less affectionate behavior.

Procedure

For the analysis, videos of The Voice USA ($n = 25$) and The Voice China ($n = 25$) were blindly annotated by two annotators. In advance, a coding scheme with relevant nonverbal affective cues was developed, to be able to objectively measure happiness in affective emotions. The cues that were coded and assessed are based on the terms describing affection in the study of Wu et al., (2019). Also, cues were based on a pretest from which we extracted the most commonly found affectionate actions in the clips.

Within the coding scheme, that can be found in Appendix C, the different cues were annotated for affective behavior and all cues were tested on inter-rater reliability using Cohen's Kappa statistic.

Analysis

The number of hugs, kisses, high-fives, shoulder touches, holding hands, and other affective activities were counted for the contestants' family members in every video. Further, the number of adults involved in an affective action, and the total number of adults in the video were counted. Reliability scores can be found in *Table 3*. Since the inter-rater reliability for all cues ranged from moderate to almost perfect, a mean coding based on the two annotators was calculated to be used for analyzing the findings.

Table 3. *Cohen's Kappa scores for affective cues*

Cue	Cohen's κ	<i>p</i>
H – Hugs	.91	<.001
K – Kisses	1.00	<.001
HF – High-fives	1.00	<.001
ST – Shoulder Touches	.82	<.001
HH – Holding Hands	.70	<.001
O – Other	.64	<.001
Number of Adults Involved	.94	<.001
Total Number of Adults	.95	<.001

RESULTS

Method 1: Facial expressions

To investigate the cultural differences in the facial expressions of emotions between individuals from China and the USA, a chi-square test was conducted with the country (USA/China) as an independent variable and presence of AU6 and AU12 (low intensity/high intensity) as dependent variables. After excluding one outlier, there were 49 participants analyzed in the videos, 24 participants were from China, and 25 participants were from the USA. In total, 8 participants had a low intensity on AU6, and 39 participants had a high intensity on AU6. For 2 of the 49 participants, the annotators had ambiguity about the coding. For AU12, 9 participants had low intensity and 37 a high intensity. There were 3 cases where the annotators had ambiguity. Although China had more participants with low intensity on both action units than participants from the USA, there was no significant association between both country and AU6 ($\chi^2 (2) = 2.62, p = .270$), and country and AU12 ($\chi^2 (2) = 4.42, p = .110$).

Also, a chi-square was conducted with the country (USA/China) and the combination of AU6 and AU12 (low-low, high-low, low-high, high-high). In total, 4 participants had a low intensity on both action units. 5 participants had a high intensity on AU6, but a low intensity on AU12. 4 participants had a low intensity on AU6, but a high intensity on AU12. Lastly, 34 participants had a high intensity on both action units. There were 2 cases with ambiguity. Although participants from the USA scored the most high-high intensity combinations (61.8%, $N = 21$), there was no significant association between country and the combination of the action units, $\chi^2 (6) = 7.67, p = .176$.

Method 2: Body language

To test whether American adults express more body language for positive emotions than Chinese adults, a Chi-square test was conducted with the country of origin (USA/China) as the independent variable and the eight body cues as the dependent variables. Four out of eight body cues showed to vary

significantly among the two countries. For the first significant cue of tilting the head slightly backward ($\chi^2 [1] = 5.69, p = .017$), we observed that 16% of American participants expressed a positive emotion with slightly tilting their head compared to only 2.1% of Chinese participants. The odds of American adults tilting their head slightly back to express positive emotion was 8.95 times higher than for Chinese adults.

The significance of clapping ($\chi^2 [1] = 16.60, p < .001$), had a converse effect, such that clapping occurred for 89.6% of the Chinese participants, while only occurring for 52% of the American participants. The outcomes showed that the odds of Chinese adults clapping to express positive emotion was 7.94 times higher than for American adults.

The third significant cue of stretching one arm above the head ($\chi^2 [1] = 5.06, p = .025$), showed a stark difference between the 10% of American participants displaying this cue against 0% of the Chinese participants, with American participants being five times as likely to display this particular cue than Chinese participants.

For the final significant cue of bending both elbows while clenching both fists ($\chi^2 [1] = 9.04, p = .003$), we observed an occurrence of this cue among 22% of the American participants compared to only 2.1% of Chinese participants. Therefore, the odds of American participants bending both elbows and clenching both fists to express positive emotion was 13.26 times higher than for Chinese participants.

Based on our observations and subsequent analysis, four cues resulted in a non-significant outcome for the comparison of the USA against China: both arms stretched above the head ($\chi^2 (1) = 2.01, p = .157$), pointing ($\chi^2 (1) = 1.96, p = .162$), bending the elbow of one arm while clenching the first of the same arm ($\chi^2 (1) = .96, p = .327$), and jumping ($\chi^2 (1) = .08, p = .782$). These outcomes are visualized in *Table 4* below.

Table 4. Outcome table for all cues against the participants' country of origin.

	Number of occurrences	
	USA	China
Head tilted slightly back	8	1
Clapping	26	43
One stretched arm above head	5	0
Both arms stretched above head	6	2
Pointing	2	0
Elbow bent & clenching fist - one arm	3	1
Elbow bent & clenching fist - both arms	11	1
Jumping	18	16
Total	79	64

Note: Significant cues are presented in boldface.

Method 3: Affection towards others

An independent samples *t*-test showed that the total number of adults in American and Chinese videos significantly differed from each other, $t(48) = 4.59$, $M_{dif} = 1.96$, $p < .001$. The number of adults in American videos was higher ($M = 5.00$, $SD = 1.45$), compared to the number of adults in Chinese videos ($M = 3.04$, $SD = 1.57$). This inequality has to be taken into account when further elaborating on the differences between the two groups.

Testing the general hypothesis, we compared the average amount of adults involved in affective behavior in both American and Chinese videos. An independent samples *t*-test showed that the number of adults involved in affective behavior was significantly different for both groups, $t(41.86) = 4.12$, $M_{dif} = 1.80$, $p < .001$. The number of adults involved in an affective action was higher in American videos ($M = 2.64$, $SD = 1.82$), compared to the number of adults involved in an affective action in Chinese videos ($M = .84$, $SD = 1.21$). A covariate ANOVA test, which controlled for the variable 'total number of adults',

showed that this effect was not explained by the fact that American videos had a higher number of adults, $F(1, 47) = 3.23, p = .079, \eta^2 = .064$. Culture, however, was significantly related to the number of people that were involved in affective behavior, $F(1, 47) = 6.35, p = .015, \eta^2 = .119$. Therefore, the finding that American people showed more affective behavior compared to Chinese people is fully explained by the cultural differences between the two groups. This effect is visualized in Figure 1 below.

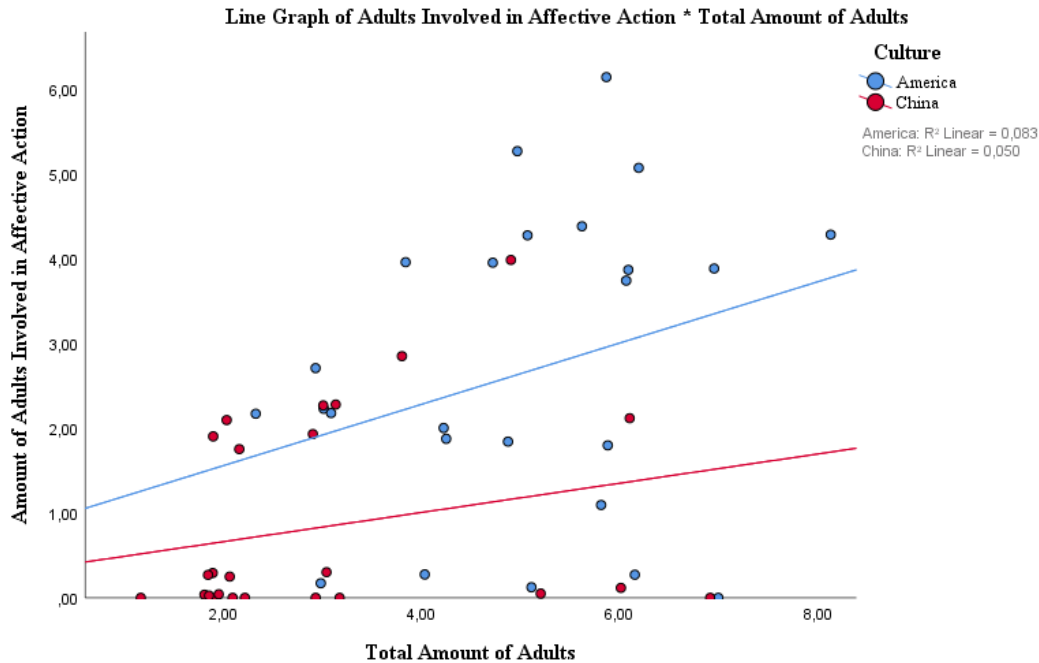


Figure 1. Visualization of Amount of Affective Behavior * Total Amount of Adults by Culture

Subsequently, the differences for each observed cue between the two cultures were more thoroughly investigated. Looking at hugs, the analysis showed that American and Chinese family members significantly differed in the number of hugs they gave to each other, $t(30.36) = 3.36, Mdif = .54, p = .002$. American family members gave each other more hugs ($M = .62, SD = .75$), compared to Chinese family members ($M = .08, SD = .28$). Covariate analysis showed that the number of hugs was not significantly explained by the total amount of people in both groups, $F(1, 47) = .009, p = .923, \eta^2 < .001$. In contrast, culture was significantly related to the number of hugs showed by both groups, $F(1, 47) = 7.99, p = .007, \eta^2 = .145$.

Further, the analysis showed that Americans and Chinese people significantly differed in the number of times that they touched each other's shoulders, $t(33.14) = 2.27$, $M_{dif} = .56$, $p = .030$. American people in the videos touched each other's shoulders more often ($M = .78$, $SD = 1.23$), compared to Chinese people in the videos ($M = .22$, $SD = .50$). However, when controlling for the number of people with a covariate ANOVA test, the initial found effect between culture and shoulder touches became non-significant, $F(1, 47) = 1.41$, $p = .241$, $\eta^2 = .029$.

Third, looking at differences in the number of times family members hold each other's hands when watching the contestant, the analysis showed that there was a slightly significant difference between American families and Chinese families, $t(24.00) = 2.13$, $M_{dif} = .38$, $p = .044$. In the American videos, although not a lot, more cases of people holding hands were observed ($M = .38$, $SD = .89$), compared to Chinese videos, in which no cases of people holding hands were found. As can be expected, covariate analysis showed that this was significantly explained by the total amount of people in both groups. When controlling for the number of people in the analysis, the initial found effect between culture and holding hands became non-significant, $F(1, 47) = .982$, $p = .327$, $\eta^2 = .020$.

Lastly, no significant differences between groups were found for high-fives, as the number of high-fives was identical for both groups ($M = .08$, $SD = .28$). No kisses were observed in the analysis. Descriptive statistics for all cues per group can be found in Table 1 below.

Table 1. *Descriptive Statistics*

	<i>M</i>	<i>SD</i>
America_Affective involvement	2.64	1.82
America_Hug	.62	.75
America_High-five	.08	.28
America_Shoulder-touch	.78	1.13
America_Holding hands	.38	.89
China_Affective involvement	.84	1.21
China_Hug	.08	.28
China_High-five	.08	.28
China_Shoulder-touch	.22	.50
China_Holding hands	.00	.00

DISCUSSION

The current study aimed to investigate the differences in the nonverbal communication of happy emotions between Western cultures and Eastern cultures, in sudden moments of joy. As stated in the introduction of this paper, a large body of literature argues that diverse cultures have divergent implicit ‘rules’ on how emotions should be expressed and experienced (e.g. Tsai et al., 2006; Miyamoto & Ma, 2011; Miyamoto & Ryff, 2011). Many previous studies indicate that people from individualistic cultures are more expressive in their nonverbal communication, compared to people from collectivistic cultures (e.g. Kitayama, Markus, & Kurokawa, 2000; Lim, 2016; Miyamoto & Ma, 2011).

To examine this expected discrepancy, this study used three different methodological assessments to look at non-vocal cues of happiness for the family members of contestants in TV program The Voice (i.e. The Voice USA and The Voice China). Differences in facial expressions, body language, and affectionate behavior towards others were analyzed.

Although not significant for every cue, all results for the three methods **pointed in the expected direction**. For every method, either analyzing facial expressions, body language, or affectionate behavior, people from the USA showed expressions of happiness emotions more often/ more intensely compared to people from China.

Method 1 hypothesized that American adults would have more intense facial expressions than Chinese adults during elation (H1a). As stated, facial expressions are usually measured as a scale variable, which makes it possible to measure intensity more precisely. For this research, facial expressions were treated as a categorical variable. This might be the reason that no significant effect was found between culture and the analyzed action units AU6 and AU12. Although there were some observed differences between both cultures indicating that Americans showed more high-intensity expressions on both action units, these were non-significant and **hypothesis 1a cannot be accepted based on the analysis**.

Method 2 hypothesized that American adults would express more body language for positive emotions than Chinese adults (H1b). Similar to this method, cues were treated as binary variables and annotated as either being present or not present in the videos. The analysis did not account for intensity of the bodily action. Although all cues were observed more often in American videos compared to Chinese videos, only half of the cues were found to be significantly different for both countries. Surprisingly, the opposite pattern was found for the cue 'clapping hands', as this type of body language occurred significantly more often in Chinese videos. **Hypothesis 1b is only partly supported** based on the analysis.

Method 3 hypothesized that affectionate exchange in non-verbal communication would be more common for American adults than for Chinese adults during elation (H1c). This method was different from the other two, in that cues were not treated as binary variables (i.e. being present/ not present). The number of occurrences of affectionate behavior were count for every video, giving a more precise view of cultural differences. Another strength of this method is that the total number of adults in the videos was taken into account for the analysis. One could imagine that, when more family members are present, chances are bigger to observe affective behavior amongst them. In general, the analysis showed that people showed significantly more affective behavior in American videos than in Chinese videos, even when accounting for the total number of adults in a covariate analysis. In that sight, hypothesis 1c can be accepted. However, looking at each cue separately, **the analysis showed only a strong cultural differences for the observed hugs in both groups**. All other cues were in favor of the hypothesis but turned out to be non-significant (either straight away, or after the covariate analysis).

Overall, the found non-significant findings in each method could be explained by the argument that in the current modern area, the clear division between collectivistic and individualistic cultures is starting to fade. Stephan, Stephan, Saito, and Barnett (1998) argued that there are clear differences between Japanese and American cultures, but that throughout the years, the trend of Japan becoming a bit more individualistic and America becoming a bit more collectivistic is very noticeable (Stephan, Stephan, Saito, & Barnett, 1998). Note that this article is relatively old, which means that over the passing years

this division may have become even more pronounced, as also indicated by more recent studies (e.g. Wu, Li, Zhu, & Zhou, 2019).

Looking back on the three different methods used in this research, the method giving the most accurate and reliable information for investigating the cultural differences in the nonverbal expressions of happiness would be method 3. This is mainly due to the used approach, as this method counted the occurrences of cues, **not treating them as binary/ categorical variables**. Also, method 3 accounted for the total number of adults in each video as a covariate variable. Cue specifically, all methods are suitable for assessing the nonverbal communication of happy emotions. Former research indicated that all methods are reliable measures of nonverbal communication (App et al., 2011; Sauter, 2017). The current research confirmed this once again.

Although the findings in this paper are valuable and interesting, this research must be considered to be of exploratory nature. The current study has several limitations that need to be discussed. First, all three methods were objective, in which two blind coders analyzed the videos using a pre-determined coding scheme. The findings of the current study would have been more robust if the corpus videos were also **subjectively analyzed**, for example, by asking independent and naïve observants in a short survey on how they experienced the emotion of the person in the video.

Second, the number of family members for both groups was not equal. Although this was taken as a **confounding variable** in the analysis (for method 3), future research should take this into account when **making** a new study corpus. It is important to recognize that emotions are dependent on the presence of other people. The number of family members watching, and how a singular person expresses his or her emotions, could be of great influence on how other people express their emotions. Every group has its unspoken standards that act as a behavioral group norm. It is argued that people use others' actions as input for their own actions, as behavior by others is often perceived to be the most appropriate in that

given situation (Rendell et al., 2010). Future research could look into the differences in emotional reactions when people are (perceived to be) **alone vs. accompanied by others**.

Third, the arguments made in this article raise the unanswered question of whether people in these different cultures not only *express* their emotions differently, but whether they also differ in the way they **experience or feel their emotions**. A study by Lu and Gilmour (2004) would suggest this to be the case, as they found that Americans' idea of happiness is focused on being cheery and enthusiastic when being happy. The Chinese perception of happiness was much calmer and more reluctant (Lu & Gilmour, 2004). This line of thinking proposes that Western and Eastern people differ in the way they prefer to feel emotions. What this means for the inner state of Westerners versus Easterners, and the question of whether Western people *are* generally happier than Eastern people could be a topic for future research. Implicit research methods such as EEG or fMRI could give answers to these questions, as these methods overcome the problem of people finding it difficult to express the magnitude and intensity of their emotions in words.

Lastly, the corpus for this study consisted of 25 videos per cultural group. **This relatively small** selection of videos caused the fact that for most cues in the coding schemes, only a few cases were observed. This increases the chance that contingency factors or accidentality could have caused the differences between groups. Future research with larger samples is necessary to validate the current findings.

On the topic of future research, the differences **in nonverbal vocal expressions of happiness across cultures could be investigated**, as this study only took *visual* cues into account. Second, future research should look into the intensity of emotions. According to Lim (2016), emotions can be measured on two bipolar scales, namely valence, and arousal (Lim, 2016). The current study assessed valence, determining the presence or absence of happy emotions. Studying arousal and the intensity of emotions, the current research could be expanded by measuring how long behavior lasts, or measuring the 'size' of

an action. For example, a study by Floyd (1999) looking at the effects of form and durations of an embrace, indicated that duration does influence the evaluation and the relational attributions made by observers (Floyd, 1999). However, if the goal is to study intensity by measuring the duration and size of an action, other corpus material than videos of The Voice should be selected to analyze. **Camera stance and video montage make it hard to investigate this.** Third, as suggested by Dael, Mortillaro, and Scherer (2012), emotions are not expressed by just a single action. Most emotional expressions consist of multiple patterns of actions, which together form the emotional expression of a person (Dael, Mortillaro, & Scherer, 2012). This study analyzed emotional actions as isolated movements, not taking into account the bigger picture of movement combinations. Future research should combine the three used methods, to see what the connection is between the face, body, and touch in emotional expressions. Last, **except for looking at romantic relationships, studies investigating cultural differences in affectionate behavior towards other people (method 3) have not been conducted yet.** The cues used in method 3 were based on the general behavioral differences already found between cultures, and on a pre-study looking at example videos. Therefore, this study should be seen as preliminary. The possibilities have been assessed and can be used for future research into affectionate behavior.

To conclude, the current paper contributes to the existing literature in several ways. First, a lot of research examining nonverbal communication is conducted in lab environments. The external validity of the data used in the current study is high, as people in the videos are engaged in the moment and are feeling naturally generated emotions. Second, the findings of this paper mainly support current knowledge in the area of nonverbal communication, but also provide inspiration for new issues that could be addressed in the future. Third, using three different methods to examine nonverbal communicational differences shows that there is not a singular right way to carry out research in this field. The combination of different methods has proven to be of value and should also be used when exploring other emotions in the future.

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APPENDICES

Appendix A - Method 1 (Facial Expressions)

Coding Scheme

Category	
Action Unit 6 - low intensity	<i>Definition</i> Action Unit 6 is raising the cheek. The muscle Orbicularis oculi, pars orbitalis is being moved a little. <i>Recognition</i> It is visible that there is movement of the cheek, but only to a small extent. It is not done with full conviction and the cheeks could be raised higher than shown. The eyeballs are still clearly visible. <i>Example + explanation</i>  The cheeks are raised with low intensity, as they are slightly more padded than before when his face is at rest (which you can see in the video), but this is done with little conviction.



You can see that the cheeks have raised a little, but this is done with little conviction, as there is clearly room for the male to raise them even higher.

Border line case



Although the eyeballs are almost not visible, this example still belongs to raising the cheeks in low intensity. It is visible that the cheeks are lifted up slightly, but this is not done with full conviction, as they could go much higher up. It seems the eyes of the guy are a little bit more closed itself.

Action Unit 6 - high intensity

Definition

Action Unit 6 is raising the cheek. The muscle Orbicularis oculi, pars orbitalis (muscles around the eyes) is being moved largely.

Recognition

It is clearly visible that there is upward movement of the cheeks to a large extent. It is done with full conviction, resulting in a facial expression in which the eyeballs are less visible.

Example + explanation



It belongs to category AU6 - high intensity because the cheek being raised is clearly visible and the cheeks look more padded. She used the muscles that much, that the eyeballs aren't even visible anymore.



You can clearly see that the cheeks are being raised. Also, when you watch the video you clearly see the movement of the cheeks getting high up.



The cheek is being raised with high intensity. It looks like the woman is on her maximum of raising the cheek. The eyeballs are also harder to see.

Action Unit 12 - low intensity

Definition

Action Unit 12 is pulling the lip corners. The muscles Zygomatic Major on both sides of the lips are being moved to a small extent.

Recognition

It is visible that there is movement of pulling the lip corners, but only to a small extent. It is not done with full conviction and the lip corners could be pulled up more than shown.

Example + explanation



The lip corners of the woman are slightly pulled. In the video you first see her face at rest, whereas here you see the lip corners moved up a little bit. There is no high intensity because there is more room for her lip corners to be pulled even more, so her smile is done with relatively little conviction.



The woman clearly pulls up her lip corners, resulting in a smile. This is low intensity, because although the lip corners are clearly raised, this is not done with much conviction as her lip corners barely surpass her lip in terms of height.

Border line case



Here you can see a slight pulling of the lip corners, as a faint smile is clearly visible. However, it appears that she is pulling her lip corners back instead of up, as they don't appear raised compared to the rest of her lips. Therefore, this is considered a borderline case.

Action Unit 12 - high intensity

Definition

Action Unit 12 is pulling the lip corners. The muscles Zygomatic Major on both sides of the lips are being moved to a large extent.

Recognition

It is clearly visible that there is pulling movement of the lip corners to a large extent. The lip corners are generally pulled upwards, but also to the side, resulting in a big and wide smile. It is done with full conviction.

Example + explanation



Front view - The guy is clearly pulling the lip corners, even that much that teeth are shown.

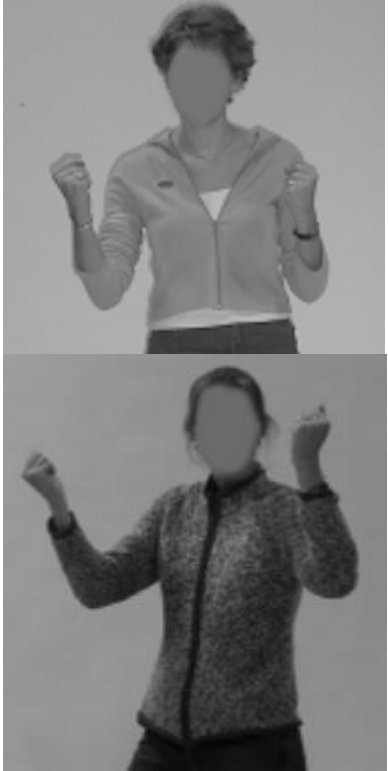
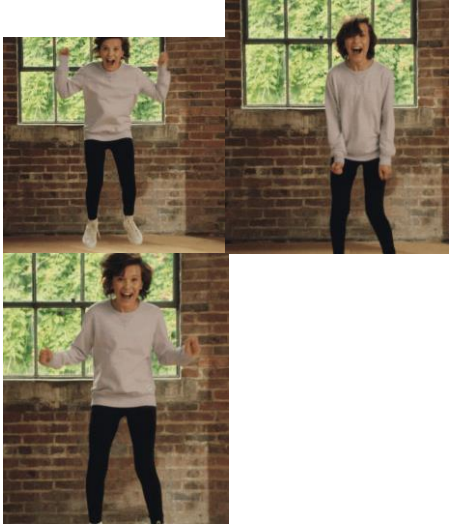


Side view - The woman has a bright smile, that pulls the lip corners higher up.

Appendix B - Method 2 (Body Language)**Coding Scheme**

Category	Cue	Description	Visual example
HE1	Head tilted slightly back	Lifting the chin and leaning the head backward for expressing achievement	
HA1	Clapping	Quickly and repetitively slapping the hands together to express approval	
HA2	One arm stretched above the head	Stretching one arms out above the head to express intense joy and/or achievement	

HA3	Both arms stretched above the head	Stretching both arms out above the head to express intense joy and/or achievement	
HA4	Pointing	Stretching the arm and pointing the index finger towards object of interest	
HA5	Elbow bent & clenching fists, one arm	Bending one elbow and clenching the fist to express victory and success.	

HA6	Elbows bent & clenching fists, two arms	Bending both elbows and clenching the fists to express victory and success.	
WB1	Jumping	Performing a single or multiple jumps during moments of elation, jumping up and down	

Appendix C - Method 3 (Affection Towards Others)**Coding scheme****Nonverbal bodily affection cues, specifications, and explanations**

General instructions: The family and friends are observed for cues, starting the moment the first coach turns and ending after the applause when the performance ends.

Because this research is about adults, children are not counted. The presenter of the program is also included in the analysis, as this person is often involved in an affective action with one of the family members.

Coding scheme

Category	Cue	Description	Visual example
H	Hug	Hug, two people holding each other, arms around each other.	
K	Kiss	Lips from two people touching	

HF	High-Five	Hands from two people touching, shorter than two seconds.	
ST	Shoulder touch	Hand on shoulder	
HH	Holding hands	Hands of two people touching for longer than two seconds	
O	Other	all other cues found where people touch one another to show affection.	-
All adults involved	Number of all adults involved in an action	All adults involved in an action are counted, so the person that has the intention and the person that is involved in the action because he/she got touched.	-
Total number of adults	All adults in the group of family and friends	All adults in the group are counted, including the presenter.	-