

Running Head: KAMA MUTA ACROSS CULTURES

Kama Muta: Similar emotional responses to touching videos
across the US, Norway, China, Israel, and Portugal

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Abstract

Ethnographies, histories, and popular culture from many regions around the world suggest that marked moments of love, affection, solidarity or identification everywhere evoke the same emotion. Based on these observations, we developed the *kama muta model*, in which we conceptualize what people in English often label *being moved* as a culturally implemented social-relational emotion responding to and regulating communal sharing relations. We hypothesize that experiencing or observing sudden intensification of communal sharing relationships universally tends to elicit this positive emotion, which we call *kama muta*. When sufficiently intense, *kama muta* is often accompanied by tears, goosebumps or chills, and feelings of warmth in the center of the chest. We tested this model in seven samples from the US, Norway, China, Israel, and Portugal. Participants watched short heart-warming videos, and after each video reported the degree, if any, to which they were ‘moved,’ or a translation of this term, its valence, appraisals, sensations, and communal outcome. We confirmed that in each sample, indicators of increased communal sharing predicted *kama muta*; tears, goosebumps or chills, and warmth in the chest were associated sensations; and the emotion was experienced as predominantly positive, leading to feeling communal with the characters who evoked it.

Keywords: communal sharing; cross-cultural; tears; goosebumps; being moved; *kama muta*

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An American soldier being reunited with his daughter; Australian men being welcomed by their lion friend in Kenya; a Thai man's doctor cancelling his huge bill in gratitude for a kindness years before; a Norwegian singer commemorating the massacre of July 22, 2011. All of these describe brief video scenes that have gone viral on social media around the world, touted to "make you cry". It seems that the nationality and identity of protagonists and audiences matter little for evoking this response. Or do they? Certainly the cultural contexts for these emotions are diverse, but is the emotion that emerges essentially the same, even if its cultural significance varies?

We investigated whether individuals from different nations show similar responses to videos like the ones described above. Based on the kama muta model (Fiske, Schubert, & Seibt, in press; Fiske, Seibt, & Schubert, in press), we expected similar constellations of emotion terms, sensations, valence, appraisals, and outcomes across cultures. We will briefly summarize the literature, then present the kama muta model, and then report and discuss our studies collecting responses to video stimuli in seven samples from five countries.

Being moved: Phenomenology, Elicitors and Outcomes

In English, *moved* or *touched* or *heartwarming* seem to be the best descriptors of the emotion typically evoked by such video sequences. In the scientific literatures on emotions, philosophy, and on artistic expression and reception, researchers have used various labels that are more or less synonymous: *being moved* (Cova & Deonna, 2014; Menninghaus et al., 2015), *sentimentality* (Tan & Frijda, 1999), *elevation* (Haidt, 2000), *kama muta* (Fiske, Seibt, et al., in

press) or, in the musical context especially, *chills* or *thrills* (Konečni, Wanic, & Brown, 2007). A review of the literature shows some overlapping ideas and observations regarding characteristics of these emotional states.

When sufficiently intense, being moved appears to be characterized by at least three types of *bodily sensations*: goosebumps, chills, or shivers; moist eyes or even tears; and often a feeling of warmth in the center of the chest (Benedek & Kaernbach, 2011; Scherer & Zentner, 2001; Strick, Bruin, Ruiters, & Jonkers, 2015; Wassiliwizky, Wagner, & Jacobsen, 2015). The *affective character* of this emotional experience appears predominantly positive (Hanich, Wagner, Shah, Jacobsen, & Menninghaus, 2014), although it has been argued by some that the emotion entails co-activation of both positive and negative affect (Deonna, 2011; Menninghaus et al., 2015).

In addition, the motivation of this experience appears to include *approach* tendencies, such as increased pro-social or communal behavior and strengthened bonds (Schnall, Roper, & Fessler, 2010; Schnall & Roper, 2012; Thomson & Siegel, 2013; Zickfeld, 2015). *Elevation* is assumed to motivate affiliation with others as well as moral action tendencies (Pohling & Diessner, 2016). *Being moved* is assumed to lead to a reorganization of one's values and priorities (Cova & Deonna, 2014), to approaching, bonding, helping, as well as promoting social bonds (Menninghaus et al., 2015) and to increased communal devotion (Fiske, Seibt, et al., in press).

Less consensus has been reached on what exactly evokes such emotional experiences. As the main *appraisal* pattern, researchers have posited themes of affiliation and social relations, realization of core values, or exceptional realization of shared moral values and virtues (Algoe & Haidt, 2009; Cova & Deonna, 2014; Fiske, Seibt, et al., in press; Menninghaus et al., 2015; Schnall et al., 2010). Specifically, the *elevation* framework (Haidt, 2000; see Thomson & Siegel,

2017 for a review) argues that *moving* experiences are elicited by observing acts of high moral virtue.

Cova and Deonna (2014) have theorized that the emergence of positive core values evokes *being moved*. Menninghaus and colleagues (2015) proposed that *being moved* is elicited by significant relationship or critical life events that are especially compatible with pro-social norms or self-ideals. Frijda (1988) characterized *sentimentality* as evoked by a precise sequence: attachment concerns are awakened; expectations regarding their nonfulfillment are evoked and then they are abruptly fulfilled (see also Kuehnast, Wagner, Wassiliwizky, Jacobsen, & Menninghaus, 2014; Tan, 2009). Appraised situations such as these can arouse strong feelings of *being moved* or *touched* (Konečni, 2005; Scherer & Zentner, 2001; Sloboda, 1991). These emotion constructs have typically been posited to occur empathically through narratives, theatre, movies, or music, rather than resulting from first-hand encounters.

Research assessing *moving* or *touching* experiences has been conducted using US American (Schubert, Zickfeld, Seibt, & Fiske, 2016; Thomson & Siegel, 2013), British (Schnall et al., 2010; Schnall & Roper, 2012), French-speaking Swiss (Cova & Deonna, 2014), German (Kuehnast et al., 2014; Menninghaus et al., 2015; Wassiliwizky, Jacobsen, Heinrich, Schneiderbauer, & Menninghaus, 2017), Japanese (Tokaji, 2003), Dutch (Strick et al., 2015), Norwegian (Seibt, Schubert, Zickfeld, & Fiske, 2017) and Finish (Vuoskoski & Eerola, 2017) participants. Yet each of these studies has used different elicitors and different methods, so, to date no study has systematically compared responses to moving stimuli with the same measures across a range of cultures.

The *Kama Muta* Model: Intensified Communal Sharing as a Universal Elicitor

Interviews in many different cultural contexts and languages, as well as ethnographic material from various places and times, suggest that people from a wide range of cultures and times have similar feelings and sensations in a set of situations that is broader than previously assumed, yet sharply demarcated. For example, elevation theory states that *elevation* is primarily a witnessing emotion (Algoe & Haidt, 2009; Haidt, 2000; Thomson & Siegel, 2017) yet the ethnographic material suggests that in many cultures and times, people report the typical being-moved sensations and motivations when feeling one with a divinity—or with their football team (Fiske, Seibt, et al., in press).

Further, while some theories stress prosocial norms (Menninghaus et al., 2015), moral beauty (Haidt, 2000), or core values (Cova & Deonna, 2014) as central appraisal themes, interviews and ethnographic material suggest that a person who sees a very cute sleeping infant or one who nostalgically remembers her first love can also feel this emotion. Experiments show that seeing cute kittens and puppies also evokes it (Steinnes, 2017). Rather than any specific deed, the affection itself in the perceiver seems to evoke the feeling in these cases. While some theories stress as central attributes of the emotion the coactivation of sadness and joy (Menninghaus et al., 2015), or the contrast between loss and attachment (Neale, 1986), we have found many reports where there is no apparent negative side—as when a guy who is deeply in love proposes to his girlfriend, and both feel this emotion intensely (the "Proposal" video in the current study had this theme).

Kama muta theory predicts that *a sudden intensification of communal sharing* evokes this emotion, and that it is universal because the underlying social relational dynamic is universal. This prediction is based on Relational Models Theory (Fiske, 1991, 1992, 2004b), which posits

four culturally universal relational models to coordinate social life, implemented in culture-specific ways. These models are Communal Sharing (CS), Authority Ranking (AR), Equality Matching (EM), and Market Pricing (MP), which are based, respectively, on equivalence, legitimate hierarchy, even matching, and proportionality.

Individuals in communal sharing relations are motivated to be united and caring. Communal sharing typically underlies close relations among kin, in families, between lovers, and in close-knit teams, but is also used to construct larger and more abstract social groups and identities. Individuals in a communal sharing relation focus on what they have in common, and sense that they share some important essence such as ‘blood,’ ‘genes,’ national essence, or humanness. Communal sharing is communicated by and recognized from behavior that connects bodies or makes bodies equivalent and thus *indexes* the sharing of substance: touch, commensalism or feeding, synchronous rhythmic movement, exchange of bodily fluids, transmission of body warmth, and body modification (summarized as *consubstantial assimilation* by Fiske (2004b)). Communal sharing is also recognized from behavior that responds to the needs of the relational partner without expecting to be repaid, even among strangers.

Relational models theory thus has a broad yet precisely characterized notion of communal sharing relationships with different types of entities, such as humans, animals, deities, music or nature. Communal sharing is operating when people perceive themselves as, in some significant respect, essentially the same as these other entities, often because they have a strong experience of consubstantial assimilation, as in celebrating the Eucharist. Communal sharing relationships can be stable or transient, and perceived by both sides or not. We infer them from

acts of kindness and of consubstantial assimilation. This wide range of circumstances fits the wide range of constellations where we found evidence of kama muta experiences.

The universal importance of communal sharing makes it likely that there is a positive emotion signaling the event of a communal sharing relation suddenly intensifying (Fiske, 2002, 2010; Frijda, 1988). We posit that this is the emotion that people often call *being moved*. In a number of languages, labels for this emotion use similar metaphors of passive touch or passive movement (or stirring), or warmth in the chest or heart. In Mandarin, you might say you feel *gǎn dòng*, 感动,; in Hebrew, *noge'a lalev*, נוגע ללב; in Portuguese, *comovido/a*; and in Norwegian, *rørt*. This emotion leads in turn to an increase in communal feelings towards those who evoked the emotion. Individuals make sense of and share this emotion through culture-specific concepts and practices (Barrett, 2014; Wierzbicka, 1999).

English speakers sometimes use *moved* or *touched* for other experiences than the ones we denote as kama muta; conversely they may denote kama muta with other terms (e.g., *nostalgia*, *rapture*, *tenderness*). Also, communal sharing intensifications may sometimes go unrecognized and unlabeled, yet still evoke the same motives. However, we have found that in many languages, there exist one or more words that are *typically* used for the emotion evoked by sudden intensifications of communal sharing. For scientific purposes, we cannot rely on imprecise and inconsistently used vernacular words from living languages. In order to give this construct a precise, consistent scientific definition, we name it with a lexeme from a dead language: *kama muta* (Sanskrit, literally meaning 'moved by love'), which may or may not closely correspond to one or more emotion terms in any given language.

Kama muta as a Universal Emotion

Thus, we predict that universally, a kama muta response is elicited by a sudden intensification of communal sharing, and that the emotion in turn makes persons affectively devoted and morally committed to communal sharing with those who evoked the emotion in them, and to a lesser degree with some others. In English, communal sharing relationships are typically labeled and reported as *closeness* (Aron, Aron, & Smollan, 1992). For Norway and the US, we found indeed that an appraisal of increased *closeness* was related to *being moved* (Schubert et al., 2016; Seibt et al., 2017). However, no evidence has been presented yet on the universality claim, nor on the proposition that kama muta leads to feeling close and communal with the person who evoked it.

As explained above, communal sharing is recognized from acts of consubstantial assimilation, or from acts of great care. Consubstantial assimilation, in turn, encompasses hugs, reunions, wishing or imagining another near, kissing, holding hands, sharing food, or dancing or singing in synchrony. Acts of great care are characterized by attending to the needs of another, which can range from simple kindness to heroic sacrifice. Both should lead to *perceived closeness*. In addition, when experienced between an individual and a group, consubstantial assimilation should be perceived as *inclusion*, while acts of great care should be perceived as *moral acts*. Both should make the perceived actor seem particularly *human*. In both cases, *overcoming obstacles* on the way to closeness evokes suspense that should increase the perceived suddenness of communal sharing intensification.

To start examining the claim that kama muta is universally generated by sudden intensification of CS, we sampled from cultures in different regions of the world. These cultures differ in emotional expressivity, as well as in some factors potentially related to it (some sorts of

individualism and collectivism, gender equality, and historic heterogeneity; Matsumoto, Seung Hee Yoo, & Fontaine, 2008; Rychlowska et al., 2015). In addition, we were especially interested in comparing Western and East-Asian cultures, as these have been found to differ markedly in the configuration and dynamics of facial emotional expression (Jack, Garrod, Yu, Caldara, & Schyns, 2012). We build on two prior studies that evoked kama muta through autobiographic memories and through a video (along with other videos eliciting other emotions) in Norway and the US and measured five appraisals (Seibt et al., 2017). The research question is whether people in a wider range of cultures experience kama muta and whether these experiences are predicted by measures indicating intensified communal sharing.

Overview of the Current Studies

We conducted studies in the US, Norway, China, Israel, and Portugal. An overview over the different samples including information on their demographics, sample location and number of stimuli is provided in Table 1. Apart from being conducted in different languages, the procedures, stimuli and materials were mostly identical but differed on some occasions as highlighted below. We identified a set of labels for the kama muta experience in each of the five languages.

We presented the same set of four videos in all five countries, along with additional videos that were chosen to fit the culture where the study was run, to have both overlap and variety (we also included one comic to increase stimulus variability). We used video stimuli because they had been shown to evoke the emotion in many participants in the US and Norway (Seibt et al., 2017). We selected them based on a search for keywords such as "moving" or "heartwarming" in various languages, and based on having similar length (90-180 sec.).

Based on the universality claim of kama muta theory, we hypothesized that across all five countries we would detect kama muta experiences as a co-occurrence of using kama muta labels to describe the experience, reporting typical sensations, a positive experience and feeling communal towards the protagonist as an outcome. We further expected that participants across all five nations would experience kama muta when communal sharing relations suddenly intensify. Specifically, the intensity of kama muta as indicated using the labels identified should be predicted (1) by the judged positivity of the feeling, more than by its negativity in all five countries, and (2) by the sensations of tears, a warm feeling in the chest, and chills/goosebumps in all five countries. We further predicted (3) that the intensity of kama muta relates to feeling unity and closeness *with the protagonist* in the video in all five countries. Based on kama muta theory's claim on the central appraisal pattern, we hypothesized that the intensity of kama muta would be predicted (4) by the appraisal of increased closeness *among protagonists* in all five countries.

All studies presented here were examined and approved by the Internal Review Boards of the respective institutions at which they were performed. For all studies, participants were presented with written information about study procedures, and the contact information of the principal investigator. By proceeding with the study participants indicated their consent.

Studies 1-7

Method

Participants. In total 671 participants were recruited through various means at five different sites: the US, Norway, China, Portugal and Israel. An overview of the study details is presented in Table 1, and descriptive statistics for the respective samples are provided in Supplementary Tables 1 and S2. Participants were excluded based on the duration of video

presentation (see Table 1). In the Chinese sample four cases were excluded because of a computer error. Two participants were excluded because they were younger than 18. The final dataset consisted of 624 participants (407 females, 178 males, 39 unspecified gender) ranging from 18 to 74 years of age ($M = 29.90$, $SD = 11.71$). With a few exceptions in Norway and Portugal, items were completed in the languages of the respective countries hence language is ignored as a factor. We drew two samples each from the US and Norway, because we introduced a few changes after running the first wave in these two countries (see below) and decided to re-run the study in these countries with new stimulus sets and the changes in place, to broaden our evidence base. Nevertheless, the changes were small enough to justify including both samples in the final analysis.

Overview and design. The topic of the studies was introduced as emotional reactions and media. After giving informed consent, participants were told that they were going to watch a number of videos. In most samples participants were required to watch two videos and invited to continue watching (up to ten). In the Chinese sample participants were instructed to complete all seven. Stimuli were presented in random order except for the Chinese sample.

Materials. A total of 26 videos and one comic strip were utilized across all samples. An overview of the allocation and a summary of all stimuli are provided in the Supplementary Material (Table S2). We used one set of 10 videos in both the US I and NO I samples, and a different set in the US II and NO II samples. We showed three unique videos in China and two in Portugal. All other videos overlapped among the different samples, and four videos were shown in all five countries.

Following each video clip, participants were presented with the questions “How moved were you by the video?”, and “How touched were you by the video?”, on 5-point scales anchored

at “not at all” and “very much”. See Table 1 for the respective translations. In the Portuguese sample only one item was used, while the Israeli version included an additional item asking about “How stirred were you by the video?”

Valence was assessed by two items “How positive [negative] is the feeling elicited by the film?”¹ on the same 5-point scale. For bodily experiences we asked “What bodily reactions did the film elicit in you? Mark all the bodily reactions that you were or are still experiencing”. Participants answered items on goosebumps, chills, moist eyes, crying, tight throat, and a warm feeling in the chest, along with some filler items, on 5-point scales anchored at “not at all” and “very much”. In the first US and Norwegian samples these sensation items were rated on dichotomous scales and there was no item for crying.

Five appraisals were assessed in all studies: "One or several of the characters did something that was morally or ethically very right" (*moral*), "All or some characters in the movie felt closer to each other at the end (compared to at the beginning)" (*closeness*), "Somebody who was excluded at first was included at the end" (*inclusion*), "All or some of the characters overcame big obstacles during the events" (*obstacles*), and "All or some of the characters became somehow more human during the events" (*human*). These were rated on 5-point scales ranging from “not at all” to “to a high degree”. Afterwards we assessed, among some additional responses to the video clips, feelings of closeness to the main character(s) of the video clips and how much unity the video clip elicited on 5-point scales ranging from ‘not at all’ to ‘to a high degree’.

¹ We provide the original questions for all languages in the supplemental material. Here, we use the English translations, knowing that the terms have different extensions, connotations, prototypes, and context-dependent meanings, reducing direct comparability across languages.

Results

According to our hypotheses, the intensity of kama muta should be predicted in all five countries by (1) the judged positivity of the feeling, more than by its negativity, (2) the sensations of tears, a warm feeling in the chest, and chills/goosebumps, (3) feeling unity and closeness with the protagonist and (4) the appraisal of increased closeness among protagonists. We tested each of these hypotheses in separate multi-level models for each sample, regressing a kama-muta index on these various predictors. We then combined the samples meta-analytically.

General Modeling Strategy. We tested our hypotheses with multilevel regression procedures (MIXED in SPSS 23). Participant and video were added as random factors. Intercepts were allowed to vary randomly according to both participant and video in order to model different levels of the dependent variable for the different videos and participants (Judd, Westfall, & Kenny, 2012). For each sample the unstandardized regression coefficients were standardized and employed as an estimate of effect size r (Bowman, 2012). The seven effect sizes were meta-analyzed utilizing the *metafor* package (Viechtbauer, 2010) in *R*. For each relation a random effects model was fitted using a restricted maximum likelihood procedure (REML). Effect sizes were tested for differences across samples.

Throughout this article we report standardized effect sizes (r) and their correspondent 95% confidence intervals in brackets [a, b]. We do not present p -values for the hypothesized effects because their significance can be easily inferred from the confidence intervals. Detailed information on differences across samples, videos or gender of the participants is presented in the Supplementary Material.

Index of being moved. In order to evaluate whether ratings of being *moved* and being *touched*, or their translation in other samples, could be combined into a common index, we

estimated an unconditional three-level hierarchical model in HLM for each separate sample (Nezlek, 2016). Reliabilities at level 1 were sufficient, ranging from .90 to .96 (see Supplement for details). Therefore, ratings of being moved and touched were averaged into the main dependent variable (hereafter, “moved”) of the study after subtracting 1 so that the variable ranged from 0 to 4. For the Israeli study three items were combined, while the Portuguese sample included only one item, which was utilized as the main dependent variable.

Valence of being moved. In order to assess whether kama muta is experienced as a positive feeling (Hypothesis 1) we regressed being moved on ratings of how positive and negative the feeling was for each sample separately. The interaction of positivity and negativity was not significant in any sample and therefore dropped for the final model. The final random effects model indicated an overall effect size estimate of $r = .59$ [.53, .65] for positivity on being moved (Figure 1). The overall effect size of negativity on being moved was significantly smaller, $r = .16$ [.08, .23] (Figure 2). Effect sizes differed significantly for positivity, $Q(6) = 31.33$, $p < .001$, $I^2 = 82.15$ [56.13, 96.66], as well as negativity, $Q(6) = 25.72$, $p < .001$, $I^2 = 75.56$ [40.35, 94.85], across samples.

Sensations. To test Hypothesis 2, we combined items on goosebumps and chills into a chills score, while ratings on moist eyes, crying, and a tight throat were combined into a tear score. Being moved and touched was regressed on the chills score, on the tear score, as well as on the item on warmth in the chest, without interactions, in three separate models for each sample. The overall effect size of crying on being moved was $r = .54$ [.46, .63] (Figure 3), followed by warmth, $r = .41$ [.31, .50] (Figure 4), and finally chills, $r = .31$ [.25, .37] (Figure 5). Effect sizes for crying differed for the different samples, $Q(6) = 103.43$, $p < .001$, $I^2 = 90.33$

[76.56, 97.83]. The same held true for warmth, $Q(6) = 49.20, p < .001, I^2 = 89.51$ [73.90, 97.90], and for chills, $Q(6) = 18.21, p = .006, I^2 = 65.20$ [17.15, 92.02].

Communal outcome. Items on experiencing unity and closeness with the protagonists of the videos were combined into a communal outcome index. For each sample, being moved was regressed on communal outcome. The overall effect size of communal outcome was $r = .59$ [.51, .66], supporting Hypothesis 3 (Figure 6). Effect sizes differed for the different samples, $Q(6) = 50.33, p < .001, I^2 = 89.06$ [72.99, 97.83].

Appraisals. In order to test our fourth hypothesis, in a first model we regressed being moved on the closeness index. The overall effect size was $r = .29$ [.22, .37] (Figure 7), with effect sizes differing across samples, $Q(6) = 23.94, p < .001, I^2 = 76.83$ [42.56, 95.50].

In a second model, being moved was regressed on all five appraisal items. In this joint model being moved was predicted by increased closeness, $r = .12$ [.06, .17], perceiving actions as morally right, $B = .21$ [.17, .25], perceiving someone becoming more human, $r = .19$ [.11, .27], and perceiving that obstacles were overcome, $r = .08$ [.04, .13]. Inclusion had no overall effect $r = .02$ [-.01, .06]. For all models effect sizes differed significantly across samples, except for morality and closeness.

General Discussion

In seven samples from five countries in East Asia, the Middle East, North America, Northern and Southern Europe, we measured responses to videos. We used a total of 26 videos, and measured the amount of kama muta evoked using appropriate terms translating *moved* and *touched* in five languages. In addition, we assessed the valence of the experience, a set of sensations, appraisals and communal outcomes. As predicted, in each sample we found that the kama muta index was related to experiencing the emotion as positive when controlling for

negativity, and, to a much smaller extent, also as negative when controlling for positivity. Kama muta covaried most strongly with tears, then with a feeling of warmth in the chest, and least strongly with chills or goosebumps. The kama muta index was predicted by judged increases of closeness among the characters in the video and by three other appraisals. It was related with feeling unity and closeness with the characters.

We focused in the current study on identifying kama muta across cultures, rather than on explaining differences among cultures. In discussing our results, we will thus focus on the overall picture. We briefly discuss the cultural heterogeneity again in the section on limitations at the end. While there was significant variation in all effects across samples, the effects were positive and significant in each sample individually. The kama muta model derives a universal emotion with many names from a universal relational model (Fiske, 1991; Fiske, Schubert, et al., in press; Fiske, Seibt, et al., in press). Other models of being moved do not discuss the question of cultural differences or similarities regarding this emotion; nor do other models address the issue of the differences in meaning of vernacular lexemes in different languages (Wierzbicka, 1999). Our cultural comparisons revealed similar appraisals, sensations, valence, and outcomes of kama muta across the five countries. This lends support to the prediction that kama muta is a universal emotion, however it is (or is not) labelled in vernacular usage.

Valence

Two aspects are noteworthy about our findings regarding valence: The first is the strong and consistent characterization of kama muta as a positive feeling across all samples. The second is the value in assessing positivity and negativity separately. Across all samples, we found that greater negativity predicted greater kama muta when its shared variance with positivity was

controlled for. However, this effect was much smaller than the one for positivity. We would not have found this pattern if we had assessed valence on only one dimension.

It is possible that the instances where negativity contributed to being moved were, in fact, not kama muta experiences, but resulted from a broader usage of the terms we used to assess kama muta. It is also possible that some negativity *prior to the eliciting event* increased kama muta (Fiske, Seibt, et al., in press). Supporting this reasoning, Schubert et al. (2016) found that when removing the linear and quadratic trends, ratings of sadness had no cross-correlation with ratings of being moved for a continuous measure of both along watching videos like the ones shown in the present study. Finally, the valence of the feeling may be complex for some people watching some videos. The larger picture is, however, that kama muta is predominantly a positive emotion, elicited by a positive appraisal. Our valence results fit several being moved models that predict being moved to be a predominantly positive emotion (Cova & Deonna, 2014; Hanich et al., 2014; Kuehnast et al., 2014; Tokaji, 2003), yet are at odds with others that see it as predominantly negative (Neale, 1986).

Sensations

Across five different regions, languages and cultures, we found the same three sensations to be predictive of kama muta. This supports our model of kama muta as a universal emotion with coordinated changes across several systems, resulting in an experience consisting of several components. We measured tears with a combination of *moist eyes*, *crying*, and *tight throat*; and chills as a combination of *chills* and *goosebumps*. Overall, tears were most strongly correlated with being moved. This, along with the fact that being moved was characterized as a predominantly positive feeling, suggests that kama muta weeping is different from sadness weeping. This is no consensus in the literature on crying, and several authors make an argument

that negative components in the being moved experience such as helplessness provoke the tears (Miceli & Castelfranchi, 2003; Vingerhoets & Bylsma, 2015). However, the present data do not support that argument.

A feeling of warmth in the chest was the second sensation. At this point it is unclear what causes this sensation, possibly changes in cardiac activity, vagal tone (Keltner, 2009), or feedback from them. This feeling may be related to a gesture we often observe when people are strongly moved: placing one or both hands over the center of the chest (something that people are not always aware of doing). Chills and goosebumps were the third sensation related to kama muta. Although these skin sensations also occur in fear responses and when having uncanny experiences (and when exposed to low ambient temperature), their combination with tears, warm feelings in the chest, and positivity seems to be specific to kama muta (cf. Seibt et al., 2017).

Appraisals

The main appraisal we tested was one of increased *closeness*, an operationalization of our construct of a sudden intensification of communal sharing. As predicted, viewers' appraising characters as becoming *closer* significantly predicted increases in kama muta. In addition, increased closeness remained a significant predictor after controlling for appraisals of morality, becoming more human, inclusion, and overcoming obstacles.

When testing all appraisals, morality, increased closeness, becoming more human and overcoming obstacles each predicted kama muta. How do people judge morality? Acting morally is doing the right thing, and what is the right thing depends on which relational model is applied (Rai & Fiske, 2011): Acts are seen as moral when they fulfill the ideals of the expected relational model and as immoral when the relational model is violated. We believe that the morality appraisal is best understood in this way: Somebody was seen as acting morally because s/he

fulfilled the ideals which underlie communal sharing relationships: compassion, responsiveness to needs, kindness, generosity, inclusiveness. Communal sharing consists in need-based sharing and consubstantial assimilation: where one is, people expect the other. However, many individual acts are primarily one or the other: either the act consists in saving someone, helping and protecting them, or it consists in touching, hugging, kissing, approaching, and synchronizing one's movements to the other. So people observing acts of need-based giving may infer *closeness* but they are most likely to focus first and foremost on the need-based giving, which is best captured by the morality appraisal. However, morality is not a very sharply defined construct as a folk concept or as a scientific concept (Haste, 1993), so future studies will need to corroborate this interpretation by asking more specific questions.

Seeing someone as *becoming more human* implies that someone can be more or less human (Haslam, 2006). However, whereas the dehumanization and infrahumanization constructs have generally been studied as perceptions of groups, here we assessed humanness judgments about individual characters. Given that this judgment is rather remote from the actions depicted in the videos, it is unclear whether it leads up to the emotion or is a consequence of it. Even though we call them appraisals, we do not believe these judgments, as such, directly cause the emotion. Rather, we believe these judgments of humanization indicate the perception of an intensification of communal sharing that causes being moved. Perceptions of humanness may contribute to kama muta because they indicate that the characters are seen as relatable and sympathetic, or because they indicate that the characters are seen as sharing something essential in common with the participant (Haslam, 2006; Kteily, Bruneau, Waytz, & Cotterill, 2015; Leyens et al., 2000). Sharing a common essence, in turn, is the core of how we represent

communal sharing relationships (Fiske, 2004a). Thus, the findings for the humanness appraisal can be explained by the kama muta model, but they are not a test of the model.

Our results lend cross-cultural empirical support to theoretical analyses seeing being moved as evoked by communal feelings or acts: solidarity, a communion of souls, a generous act, or reconciliation (Claparède, 1930); fulfilment of the phantasy of union (Neale, 1986); resolution of attachment concerns (Frijda, 1988); love/acceptance (Panksepp, 1995); reunification (Tan & Frijda, 1999); love, forgiveness, sacrifice and generosity (Konečni, 2005); prosocial acts or reconciliatory moments (Hanich et al., 2014). Yet many of these models mention not one, but several alternative elicitors, not only the communal ones listed here but also others. The kama muta model traces all kama muta back to a common core: the sudden intensification of communal sharing.

Perhaps the most similar theory to ours is the elevation model, which assumes that an act of generosity, charity, gratitude, fidelity, or *any strong display of virtue* evokes elevation (Algoe & Haidt, 2009). The difference from the kama muta model is best illustrated with an example. As we know from another study (Schubert et al., 2016), the peak of the kama muta experience in the lion video (one of the four videos presented in all five countries) occurs when a lion that had been saved and raised by two young men, and then released in Africa, later recognizes them in the wild, runs towards them and hugs them repeatedly. We think this act exemplifies communal sharing by showing closeness through a joyous reunion with hugging, laughing and relief, rather than a virtuous act by the lion or by the men at that moment. People around the world understand this gesture, without words, and react to it emotionally, often with tears, a warm chest, or goosebumps.

In sum, the kama muta model seems to most parsimoniously explain the three appraisals that best predicted being moved across the five cultures. Our model is based in relational models theory, which integrates judgments of morality; acts of touching and other signs of closeness; social identity; humanness; and many other constructs into a common concept, communal sharing—the feeling of equivalence. This led to our theory that the many situations that people are likely to identify as *moving*, *rørt*, *comovido/a*, נוגע ללב, *gǎn dòng* (感动) all have something in common, the sudden intensification of communal sharing. This social relational transition universally elicits the same emotion, kama muta, involving the same physiological sensations and motives. Its cultural significance may vary considerably, but we did not investigate the meanings of kama muta in these five nations.

Limitations

While the current studies focused on intensification of communal sharing, the kama muta model predicts that it is *sudden* intensifications that evoke kama muta. We assessed this aspect with *overcoming obstacles*, but the model defines suddenness as abrupt increase in CS, or salience of CS against a prior or default background of loss, separation, or concern about togetherness. This background can be an obstacle, but it can also be contrary expectations, norms, apprehensions or a reality, against which the foreground of a communal sharing act, event, fulfillment, or fantasy is contrasted (see also Frijda, 1988). The theory that a suddenness/sharp contrast is essential still awaits empirical verification, either by developing good measures, or by manipulating it experimentally.

Across all five languages, people sometimes use the terms we used to assess kama muta to denote other ‘nearby’ emotions or feelings, such as sadness or awe. This is not an insurmountable methodological problem for us, because along with labelling we look for

convergent evidence from appraisals, sensations, and valence to classify an episode as an instance of kama muta. It would be a problem for our model or methods, however, if increased closeness was not perceived in most instances of being *moved*, *rørt*, *comovido/a*, נוגע ללב, *gǎn dòng*, because we assume that the vernacular labels for kama muta in these languages do approximately coincide with the kama muta construct.

The concepts of *equivalence* and *bias* have been put forward with regard to cross-cultural assessment and interpretation (van de Vijfer & Tanzer, 2004). In our studies we observed not only similarities, but also considerable variation among the samples, both within and across cultures. This variation or bias may have many sources: the use of different video material, which was confounded with study sample (method bias), differences in the meanings of questions due to cultural and language variations (item bias), differences in sample characteristics like age and SES, and of course also differences in kama muta prototypes, precedents, paradigms, precepts, and proscriptions across languages and cultures (construct bias). Due to methodological restrictions, we cannot infer equivalence or measurement invariance from the present data, because we assessed most of our constructs with one or two items.

Our results show that intensifications of communal sharing are universally recognized and evoke quite similar emotional response, a construct which we denote *kama muta*. This is a basis for cultural understanding: even people lost in translation can recognize communal sharing when they see it, and in this way figure out important relational building blocks in cultures other than their home cultures. Studies like the present ones help to make this implicit relational cognition explicit, and can thereby help people navigate their increasingly multi-cultural societies and understand each other by recognizing something they all have in common, the, kama muta emotion—whatever particular meanings they endow it with.

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Closeness-Master-Thesis-2015.pdf

Tables

Table 1. Overview over different samples including information on demographics, location site, language, stimuli and exclusion criteria.

Sample	Demographics				Sample Location	Language	Stimuli (see Table S2)	Stimuli Language	Exclusion Criteria	Being Moved Measure
	<i>N</i>	<i>n_{female}/n_{male}</i>	age range	<i>M_{age}</i> (<i>SD_{age}</i>)						
US I	49	26/23	21-61	35.16 (11.50)	Amazon MTurk	English	10 videos	English	Video length ^b	moved touched
US II	101	62/39	21-67	34.67 (10.41)	Amazon MTurk	English	9 videos, 1 comic	English	Video length ^b	moved touched
Norway I	99	69/30	19-64	32.72 (12.66)	University of Oslo, Social Media	Norwegian ^a	10 videos	English	Video length ^b	beveget rørt
Norway II	93	69/24	18-74	38.11 (13.82)	University of Oslo, Social Media	Norwegian ^a	9 videos, 1 comic	English	Video length ^b	beveget rørt
China	111	74/37	18-28	20.77 (2.09)	Fudan University	Chinese (Mandarin)	6 videos, 1 comic ^c	Chinese subtitles	-	感动 触动
Portugal	77	43/10/24	20-43	27.23 (6.13)	Social Media	Portuguese ^a	10 videos, 1 comic	Portuguese description prior to each video	Video length ^b	comovido
Israel	127	84/24/19	18-66	30.41 (9.18)	Open University of Israel, Social Media	Hebrew	9 videos, 1 comic	Hebrew subtitles	Video length ^b	הזיז בכ משהו- נגע לליבך ריגש אותך? כמה הסרט

Note. ^asome measures not relevant to the present hypotheses were presented in English. ^bexclusion was based on cases where the screen was displayed shorter than the actual length of the video (with a buffer of 10 sec), or for longer than 10 times its length (this allowed for long loading times). ^cin contrast to the other countries stimuli were not presented in random order

Figures

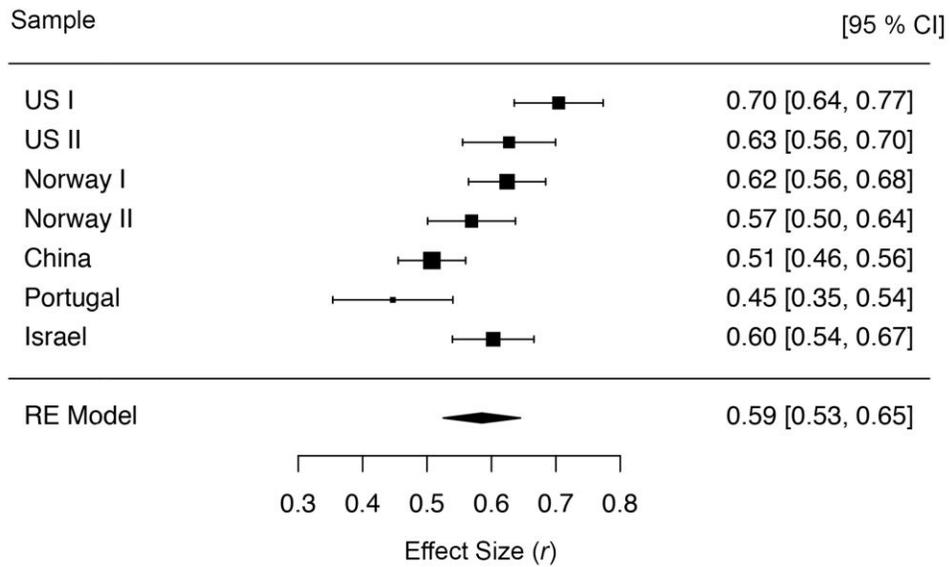


Figure 1. Forest plot of random effects meta-analysis on the effects of positivity on the kama muta index while controlling for negativity across seven different samples. Error bars represent 95% confidence intervals.

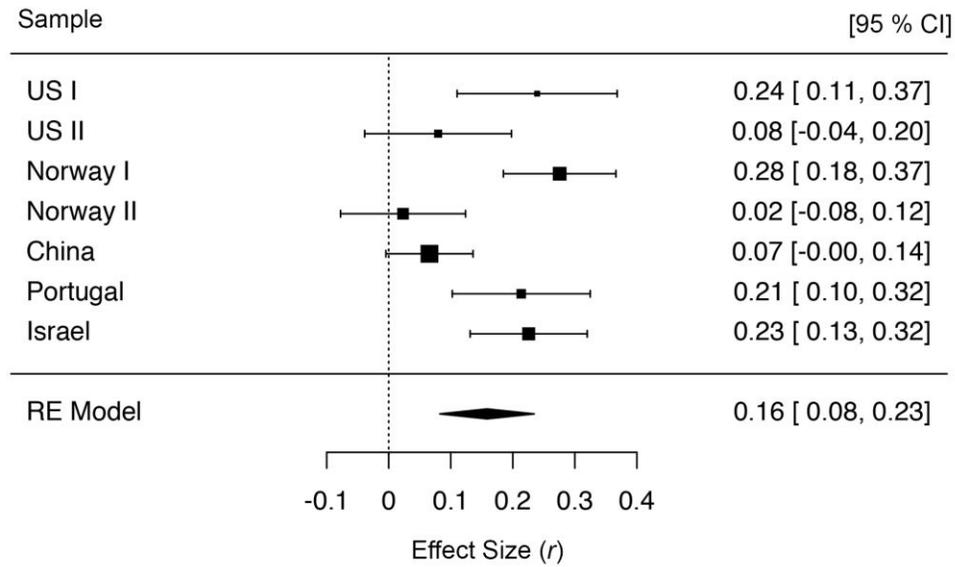


Figure 2. Forest plot of random effects meta-analysis on the effects of negativity on the kama muta index while controlling for positivity across seven different samples. Error bars represent 95% confidence intervals.

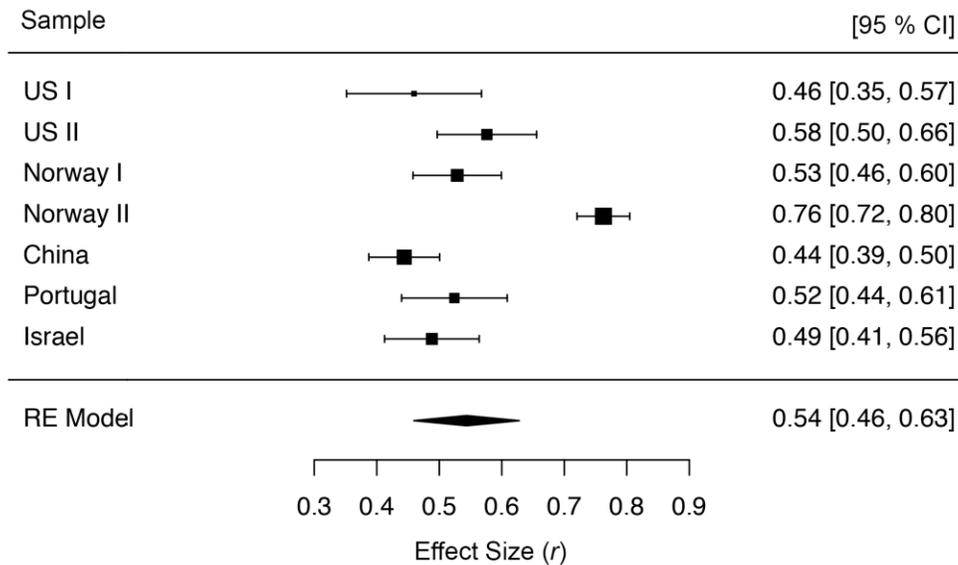


Figure 3. Forest plot of random effects meta-analysis on the effects of tears on the kama muta index across cultures. Error bars represent 95% confidence intervals.

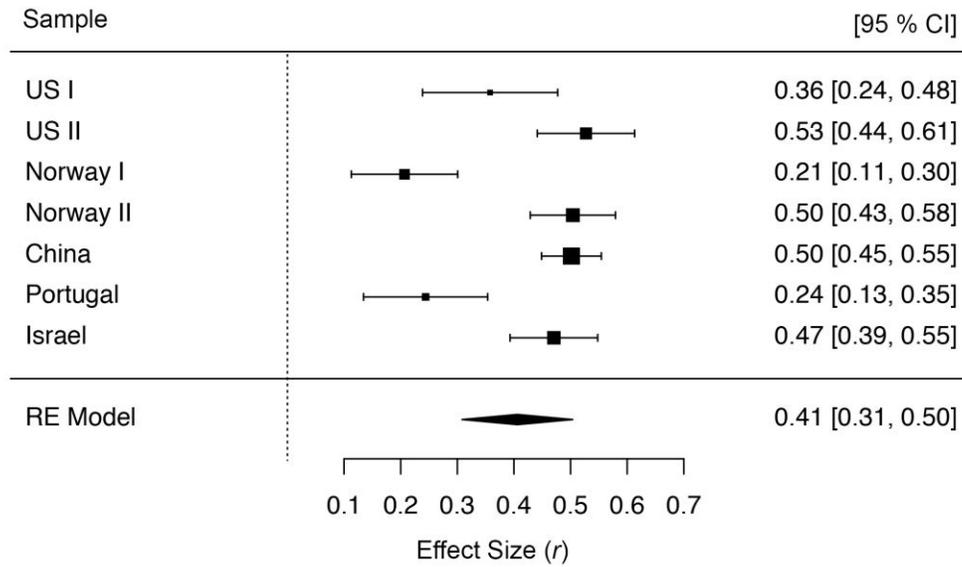


Figure 4. Forest plot of random effects meta-analysis on the effects of warmth on the kama muta index across cultures. Error bars represent 95% confidence intervals.

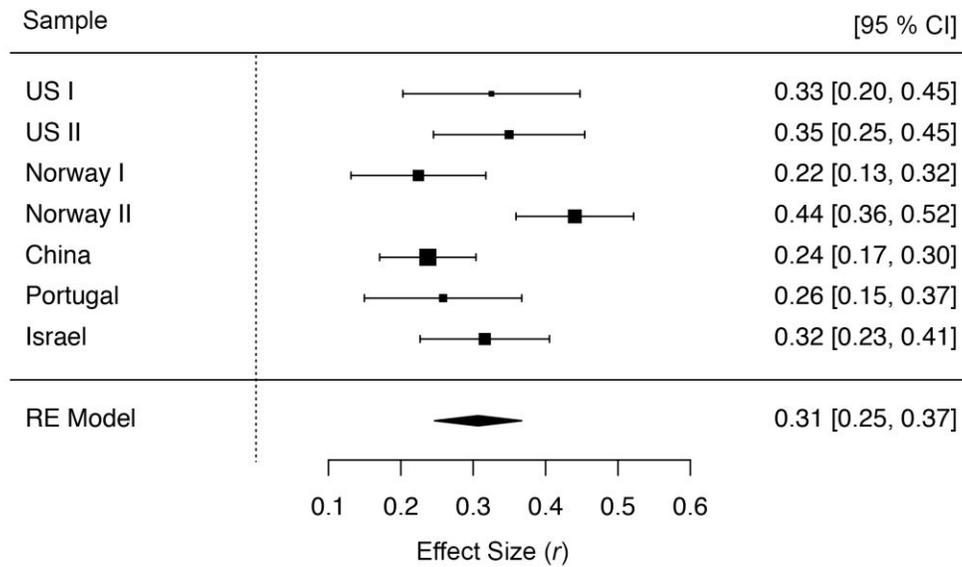


Figure 5. Forest plot of random effects meta-analysis on the effects of chills on the kama muta index across cultures. Error bars represent 95% confidence intervals.

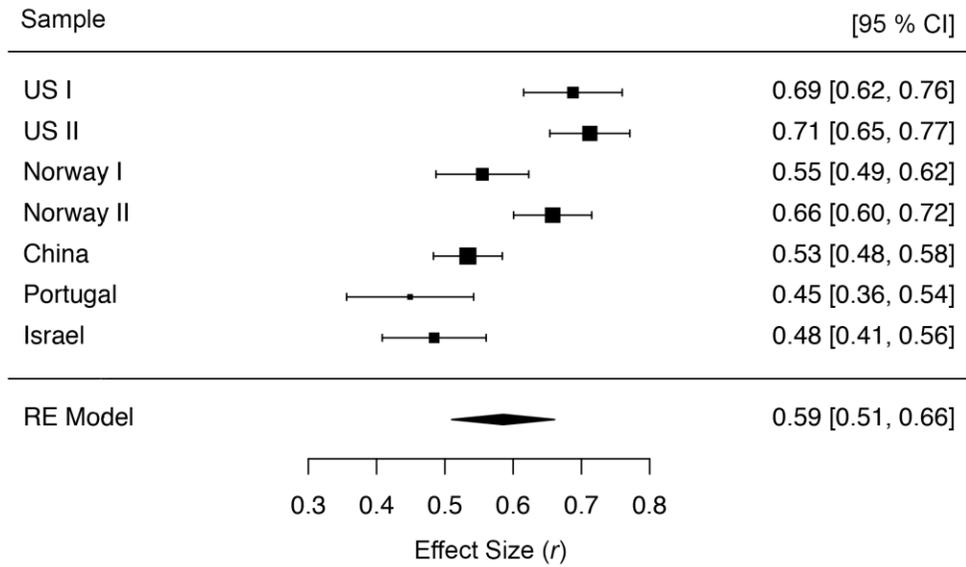


Figure 6. Forest plot of random effects meta-analysis on the effects of the communal outcome measure on the kama muta index across cultures. Error bars represent 95% confidence intervals.

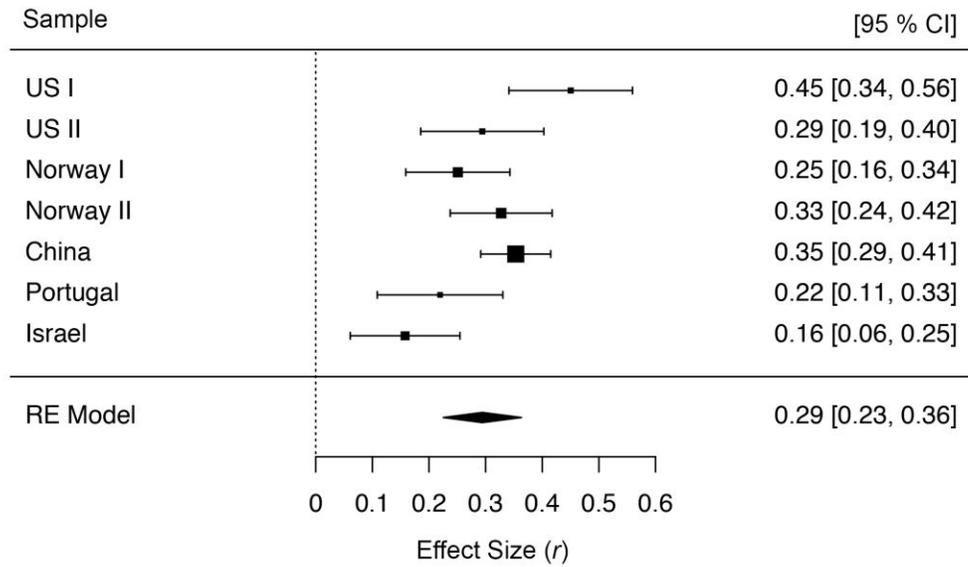


Figure 7. Forest plot of random effects meta-analysis on the effects of closeness of the protagonists on the kama muta index across cultures. Error bars represent 95% confidence intervals.

Supplementary Material

Study 1-7	2
Method	2
Results	4
References	6
Tables	7
Table S1	7
Table S2	8
Table S3	9
Videos used in Study 1-7	10
Summaries for video clips used in Study 1-7	10

Study 1-7

Method

In the following we provide the original questions for the main method presented in the manuscript, as well as additional measures that we assessed, but do not present in the manuscript.

After completing items on being moved or touched, valence was rated with two items “How positive [negative] is the feeling elicited by the film?” on a 5-point scale anchored at *not at all* and *very much*. The Norwegian item asked: “Hvor positiv [negativ] er følelsen du får av filmen?” using a scale anchored at *ikke positiv* [negativ], and *veldig positiv* [negativ]. In Mandarin this items asked: “您被短片激发的情绪在多大程度上是积[消]极的?” with the scale labeled as 完全不积[消]极 and 非常积[消]极. In Portuguese the item was presented as: “Quão positivos [negativos] foram os sentimentos suscitados pelo vídeo?” with the same scale labeled as *nada positivos* [negativos] and *muito positivos* [negativos]. In Hebrew the item was formulated as: “?לך גרם להרגשה החיובית [שלילית] כמה חיובית [שלילית] מאוד [שלילית] חיובית.”

For bodily experiences we asked: “What bodily reactions did the film elicit in you? Mark all the bodily reactions that you were or are still experiencing”

Hvilke fysiske reaksjoner får du av filmen? Huk av alle de fysiske reaksjonene som du opplever.

短片引起了您的哪些身体反应？请标出您有过的或现在仍有的身体反应

Que reacções físicas o vídeo suscitou em si? Especifique quais as reacções corporais que experienciou ou ainda está a experienciar

“לאילו תגובות גופניות הסרט גרם לך? סמן את כל התגובות הגופניות שהרגשת או שאתה עדיין מרגיש”

Participants were presented with items on goosebumps (gåsehud/起鸡皮疙瘩/pele de galinha/ עור ברווז), chills (frysninger/身体发冷/arrepios/ צמרמורת), moist eyes (tårer i øynene/眼睛湿润/olhos lacrimejados/ בעין/ לחלוחית), crying (gråt/哭泣/choro/ בכי), tight throat (klump i halsen/喉咙哽咽/garganta apertada/ גוש בגרון), and a warm feeling in the chest (varm følelse i brystet/胸中有温热的感觉/sensação de calor no peito/ בחזה/ הרגשה חמימה), along with some filler items, on a 5-point scale with anchors representing “not at all” (ikke i det hele tatt/根本没有/não experienciei de todo/ לא) and “very much” (svært mye/非常多/experienciei muito/ הרבה).

We adapted the same five appraisals as used by Seibt and colleagues (2017): “One or several of the characters did something that was morally or ethically very right”

alle eller noen av karakterene gjorde noe som var veldig moralsk eller etisk riktig

我相信短片中的一个或几个人物做了道德或伦理上非常正确的事

um ou mais protagonistas do vídeo fizeram algo que era moralmente ou eticamente muito correcto

אחת או יותר מהדמויות עשתה דבר מה שהיה נכון באופן אתי או מוסרי

”All or some characters in the movie felt closer to each other at the end (compared to at the beginning)”

alle eller noen av karakterene i filmen følte seg nærmere hverandre til slutt (sammenlignet med i starten)

我相信短片中所有或一些人物在短片最后感到与其他人更亲近了（与短片开头相比）

todos ou alguns dos protagonistas do vídeo se sentiram mais próximos uns dos outros no final (em comparação com o início do vídeo)

כל או חלק מהדמויות בסרטון חשו קרובות יותר אחת לשניה בסוף בהשוואה להתחלה.

”Somebody who was excluded at first was included at the end”

noen som var utelatt i begynnelsen ble inkludert til slutt

我相信起初被排斥的人最终被接纳了

alguém que estava excluído de início foi incluído no final

מישהו שלא נכלל בהתחלה התקבל בסוף.

”All or some of the characters overcame big obstacles during the events”

alle eller noen av karakterene overvann store hindringer i løpet av hendelsene

我相信短片中所有或一些人物在事件中克服了巨大困难

todos ou alguns dos protagonistas superaram grandes obstáculos durante o vídeo

כל או חלק מהדמויות התגברו על מכשולים גדולים במהלך ההתרחשות

”All or some of the characters became somehow more human during the events”

alle eller noen av karakterene ble på en eller annen måte mer menneskelige under hendelsene

我相信短片中所有或一些人物在事件中会变得更有人性

todos ou alguns dos protagonistas do vídeo tornaram-se de alguma forma mais humanos no decorrer destes eventos

כל או חלק מהדמויות הפכו איכשהו ליותר אנושיות במהלך ההתרחשות

These were rated on 5-point scales ranging from ”not at all” (ikke i det hele tatt/根本没有/nada/ (I believe that ... ברמה נמוכה) to ”to a high degree” (i stor grad/非常多/muito/ (I believe that ... ברמה גבוהה).

In addition to the measures mentioned in the main text and above, we presented four items assessing current mood before participants watched the first video clip. The items were: “How is your mood at the moment?” (“bad mood” to “good mood”, “Do you feel tired or energetic?” (“tired”) to “energetic”), “Do you feel irritated?” (“not at all irritated” to “very much irritated”), and finally “Do you feel sad or cheerful?”, “sad” to “cheerful”). Answer possibilities for all four items were presented on 5-point scales.

Next to the presented bodily symptoms we assessed several other items on 5-point scales ranging from ‘not at all’ to ‘a lot’. We included items on ‘increased heart rate’, ‘sweaty palms’, ‘cold hands’, ‘tight feeling in the chest’, ‘blushing face’ and ‘others:’ with an empty text field.

Afterwards, we assessed additional responses to the video clips on 5-point scales ranging from ‘not at all’ to ‘to a high degree’: Among the items of closeness to the main character(s) and feelings of unity participants were asked to what degree the film made them feel pride,

admiration, uplifted, happy, awe, or sad. In the Israel sample these items were presented at the end after the general empathy items.

Then, participants indicated on 5-point scales to what extent one or more character(s) in the video seemed “moved or touched”, “sad” and “awed” to them.

For each video, after the appraisal items we assessed empathy with the characters. Participants were asked to what degree they identified with, felt the same as, and felt compassion for the character(s), to what degree they felt involved in the story, and whether the film triggered memories or associations to their own life, again on 5 point scales from “not at all” to “to a high degree”. Furthermore, participants were asked whether they had seen the film before and whether they listened to the sound of the video.

Finally, participants were redirected to a questionnaire where they answered an 8-item version of the Empathy Quotient Scale (Loewen et al., 2009), the BFI-10 (Rammstedt & John, 2007), the Culture Orientation Scale (Triandis & Gelfand, 1998), and finally items targeting demographic information.

All presented measures were translated into the respective languages: Norwegian, Chinese, Portuguese or Hebrew.

Results

Reliability of the index of being moved. The main dependent variable in all studies was a combination of one to three items assessing participants’ descriptions of the experience, using concepts in each language similar in meaning to the English terms *moved*, *touched*, and *heartwarming*. To calculate the reliabilities of our scales, we used multilevel procedures: the unconditional models in HLM7 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011) as recommended by Nezlek (2011). Measurements of being moved and being touched were estimated at the first level, videos at the second, and participants at the third. Reliability coefficients (ratio of explained to total variance) are provided for level 1 measures in nested models in HLM (Raudenbush & Bryk, 2002), and we adhere to .60 as a lower bound (Nezlek, 2016). Congruently with Seibt and colleagues (2017), we do not apply this procedure to combining different sensations, because we do not expect them to always co-vary in their intensity.

Differences among videos, participants and samples. In order to explore differences between samples and gender, we regressed the kama muta index on gender, sample and their interaction in a multi-level model with video and participant, but not their slopes, as random factors. Note that these are based on different samples of videos (see Table 1). The final model indicated gender differences, $F(1, 575) = 21.30, p < .001$, with females ($M = 2.88, SE = .08$) being on average more moved than men ($M = 2.54, SE = .10$). In addition, sample had a significant main effect, $F(6, 666) = 17.10, p < .001$. Participants from the US indicated on average a higher degree of kama muta (US I: $M = 3.28, SE = .15$; US II: $M = 3.06, SE = .12$) than individuals from Israel ($M = 2.82, SE = .15$), Portugal ($M = 2.81, SE = .13$), China ($M = 2.38, SE = .11$), and Norway (NO I: $M = 2.33, SE = .13$; NO II: $M = 2.30, SE = .13$). Sample did not interact with gender, $F(6, 567) = .55, p = .77$.

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Tables

Table S1

Selected country characteristics potentially relevant for emotional expressivity

Country	Expressivity ^a	Rank ^a	Historical heterogeneity ^b	GLOBE ^c	Hofstede index ^d	Gender gap ^{e, g}	Gender equality ^{f, g}
China	0.471	17	1	5.80	20	91	40
Israel	0.442	28	22	4.70	54	53	18
Portugal	0.477	16	15	5.51	27	39	20
United States	0.519	3	83	4.25	91	28	55
Norway			1	5.34	69	2	9

^a Mean overall expressivity endorsement per country and its rank out of 32 (Matsumoto et al., 2008)

^b Number of source countries of population in 2000 (post-1500 population flows: Putterman & Weil, 2010). According to Rychlowska et al. (2015), these predict emotional expressivity.

^c Ingroup Collectivism practice scores (House, Hanges, Javidan, & Dorfman, 2004)

^d Individualism scores from Hofstede (2001), for China from Rychlowska et al., 2015. According to Matsumoto et al. (2008), these predict emotional expressivity.

^e World Economic Forum: Rank (out of 145) of composite index for various gender gap indicators 2015 related to economy, politics, health and education (smaller number means less gender gap):

<http://reports.weforum.org/global-gender-gap-report-2015/>

^f United Nations Development Program: Rank 2014 (out of 155 countries) for Gender Inequality Index composed of health, empowerment and labour market indicators (smaller numbers means less inequality):

<http://hdr.undp.org/en/composite/GII>

^g Gender inequalities are potentially related to stronger gender-specific norms for emotional expressions

Table S2

Difference score between kama muta index per video and sample and mean kama muta score for that sample for cells with $N > 20$. Green shadings indicate more kama muta than average, red less.

Video	$M (SD), n$						
	US I	US II	Norway I	Norway II	China	Portugal	Israel
Thai Medicine		.63 (.48), 31		.75 (1.03), 37	.43 (1.04), 111	$N = 17$.71 (.62), 32
Christian the Lion	$N = 5$		$N = 12$.87 (.90), 110	1.01 (.39), 22	.5 (.77), 39
Oprah	$N = 5$		$N = 14$				
Elephant Rescue	.02 (.81), 23		.51 (1.11), 40				
Father Homecoming	.38 (.47), 25		.79 (.91), 45			.31 (1.05), 25	
Rock 'N' Roll	-.56 (1.09), 25		-1.04 (.97), 47				
Football Child	.09 (.88), 26		.30 (1.17), 51				
Basketball Challenged	.09 (1.16), 27		-.23 (1.15), 49				
Elephant Goodbye Boston	-.24 (.99), 26		.35 (1.14), 48				
Dog Homecoming	.10 (.93), 21		-.44 (1.30), 44				
Lilleland		-.66 (1.16), 24		.23 (1.22), 39			
Olympics		.07 (.99), 40		.06 (1.16), 42			
Two Orphans		.46 (.59), 28		-.20 (1.28), 35			.11 (1.12), 45
Mathtest		-.79 (1.38), 22		-.25 (1.14), 42	-1.17 (1.11), 110	-.67 (1.01), 21	-.83 (1.09), 50
Winton		-.09 (1.10), 30		-.28 (1.20), 46			.24 (1.06), 37
Firemen		.17 (.91), 22		.16 (1.10), 41		.24 (1.24), 21	
Comic		$N = 18$		-.46 (1.10), 32	.14 (1.05), 110	$N = 16$	-.04 (.78), 29
Proposal		-.06 (1.10), 30		.33 (1.22), 31			-.21 (1.24), 38
Talent		.18 (1.02), 27		.49 (1.24), 34			.18 (1.00), 44
The Kiss						-.02 (1.10), 24	-.38 (1.02), 30
Cancer Patients						.54 (.75), 26	.27 (.87), 43
Marina						.28 (1.08), 23	
The Battle						.46 (.63), 22	
Gynecologist					.33 (1.06), 109		
Graduate Student					.19 (1.14), 110		
Old Poor Man					.19 (1.15), 111		

Table S3

Correlations coefficients (r) between the four additional appraisals and the kama muta index. Ninety-five percent confidence intervals are computed by using the Fisher-z transformation and finally transforming back.

Appraisal	<i>r</i> [95% CI] ^a						
	US I	US II	Norway I	Norway II	China	Portugal	Israel
Closeness	.39 [.27, .54]	.38 [.27, .51]	.25 [.15, .35]	.37 [.29, .49]	.34 [.28, .42]	.19 [.07, .31]	.19 [.09, .29]
Morality	.38 [.25, .49]	.39 [.29, .49]	.38 [.30, .46]	.38 [.29, .46]	.40 [.34, .45]	.24 [.12, .35]	.29 [.20, .38]
Inclusion	.32 [.19, .44]	.11 [-.01, .22]	.12 [.02, .22]	.16 [.06, .26]	.26 [.20, .33]	.15 [.03, .27]	.11 [.01, .21]
Obstacles	.32 [.19, .44]	.38 [.27, .48]	.15 [.05, .25]	.36 [.27, .44]	.27 [.21, .34]	.23 [.11, .34]	.17 [.07, .27]
Humanness	.50 [.39, .60]	.42 [.32, .52]	.25 [.16, .34]	.46 [.37, .53]	.36 [.30, .42]	.13 [.01, .25]	.24 [.15, .34]

^a We obtained the unstandardized B from multi-level models using each of the appraisals in turn to predict the kama muta index, with participant and video as random factors whose intercepts, but not slopes were allowed to vary. These were standardized (by the formula $B * SD_x / SD_y$) and then treated as *r*. Confidence intervals were constructed by applying the Fisher z transformation ($r = z \pm 1.96 * SE$) and then back-transformed.

Videos used in Study 1-7

Link to download (individual videos or the whole set):

<https://figshare.com/s/3fbc122936d8286e72a8>

The four videos shown across all five countries were chosen to represent high ("Christian the lion"; "Thai Medicine"), medium ("Comic") and low ("Math test") levels of kama muta. Table S2 shows that across all countries, this is indeed what we found. The other videos were chosen by the national research teams to be easily understood by their participant population, given their cultural and language background.

Summaries for video clips used in Study 1-7

‘Thai Medicine’. A young boy gets bailed out by a cook after stealing medicine, years later the boy now a doctor reciprocates the favor by performing an expensive surgery on the cook for free.

‘Christian the Lion’. Two men buy a lion cub and raise it in their backyard, however when the lion, named Christian, becomes too big they try to integrate him into a herd in Africa. After some years they want to see him again in the wilderness. Although being told that he will not recognize them, they embark on the journey and are heartwarmingly welcomed by Christian.

‘Oprah’. The clip depicts the story and achievements of a Black music teacher and the reunification with his mentor on the Oprah show.

‘Elephant Rescue’. A team of rangers saves a baby elephant from a well and film the reunification with its mother.

‘Father Homecoming’. A story about a girl being surprised in class by her father returning from duty in Iraq.

‘Rock ‘N’ Roll’. A boy holding a speech for all kids in the world that they would need to keep practicing and believe in themselves while learning to ride a bike.

‘Football Child’. A terminally ill child is given the ball at a football game, strikes a homerun and is celebrated by the crowd.

‘Basketball Challenged’. Players try to help a handicapped player of the opponent team to score at a basketball game

‘Elephant Goodbye’. The herd is giving a last goodbye to a dead baby elephant

‘Boston’. Crowd having a minute of silence at an ice hockey game to honour the victims of the Boston marathon attacks and afterwards sings the national anthem.

‘Dog homecoming’. A dog welcoming his owner, a soldier returning from duty

‘Mitt Lilleland’ (‘My little country’). Shows a ceremony of commemoration one year after the

attacks in Oslo and the mass shooting at Utøya, which left a total of 77 people killed, amongst them 33 under the age of 18.

'Olympics'. Features Derek Redmond, who recovered after eight surgeries, winning the 400m in the Barcelona Olympics 82.

'Two Orphans'. Features two children from an orphanage who embark on a journey to find the mother of one of them; finally they find her buried on a graveyard.

'Math test'. About a boy who did not pass the math test last year and is revealing his new grade to his father.

'Winton'. features Nicholas Winton, who rescued 669 people who likely would have been killed by the Nazis and is surprised when he realizes that he is sitting in the same audience with some of them.

'Firemen'. Features firefighters who rescue a small kitten.

'Comic'. a comic strip that depicts a boy who does not want to play with a handicapped dog because it is missing a leg; in the end he himself is depicted with an amputated leg.

'Proposal'. A man proposing to his boyfriend who is being surprised by dancers and family in a hardware store.

'Talent'. Depicts a nine year-old boy winning the hearts of the audience at a talent contest.

'The Kiss'. Tells the story of the life of two lovers kissing.

'Cancer Patients'. Shows terminally ill cancer patients that are given a carefree moment.

'The Battle'. A photographer documents the battle of his wife against breast cancer.

'Gynecologist'. A retired gynecologist has persisted to working for nearly 30 years till the last day before she died. She beard the physical pain when seeing patients and sometimes paid for the medical charges for poor patients.

'Graduate Student'. A female graduate student gave up positions with high pay and went back to her hometown (i.e., a village located in the impoverished mountainous area) to be a primary school teacher. She had to escort the child between their home and the school everyday for more than 10 years. The only way between the village and school is a rugged mountain road, one side of which are cliffs. One not careful, will fall off the cliffs. The female teacher escorted the students with her life hanging on by a thread for years.

'Old Poor Man'. A poor rural old man aided the poor students financially for nearly 30 years. He lived a belt-tightening life (i.e., spent only 1000 RMB per year) in order to avoid more than 100 students from being deprived of education.

‘Marina’. Marina Abramovic is joined by her former partner Ulay during her performance at MOMA. She starts to weep and, breaking her rules, reaches out and touches him.