The Relational Dynamics of Anger and Shame:

Scripts for Emotional Interactions in Germany and Japan

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Abstract

This study explored German and Japanese scripts for anger and shame interactions between romantic partners. We started from the idea that emotion scripts structure people's knowledge about emotional interactions and should vary systematically between cultures in line with the cultural significance of the emotion that the script organizes. Specifically, we expected that emotions that are consistent with culturally dominant relationship ideals (anger in Germany, shame in Japan) compared to inconsistent (anger in Japan, shame in Germany) are experienced more commonly and that scripts for culturally consistent compared to inconsistent emotions should represent more knowledge about the interpersonal contingencies. German and Japanese participants ($N = 344$) indicated for eight anger (or shame) situations how frequently they encounter similar situations, how intensely they would respond with anger/shame, how their partners would react, and how angry/ashamed they would feel after the interaction. In line with our expectations, we found that people encounter shame situations with their partners frequently to the extent that they lead to culturally consistent emotions; this was partially also the case for anger situations. Moreover, we found that, overall, participants took imagined partner responses more into account when imagining interactions around culturally consistent compared to inconsistent emotions, supporting the idea that these scripts represent more interpersonal influence.

(207/250 words)

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Emotional interactions in close relationships emerge and unfold against the backdrop of each partner's past experiences (Honeycutt & Bryan, 2011). Imagine a situation in which you and your partner are late for a dinner invitation, and your partner is still in the midst of preparations. If your past experiences highlight that you must assert your needs to have them met, voicing your frustration with the situation may be an expedient course of action. Having gotten angry with others many times before and having had the experience of others getting angry with you, you know your way around anger. You know that your partner may get upset about the additional pressure of your discontent, which, in turn, may lead to your feeling misunderstood and even angrier than before. Alternatively, your partner may apologize and offer to call the hosts to let them know about the delay, which, in turn, may allow your anger to dissipate. Irrespective of the trajectory you predict to be most conducive to your goals, both trajectories are replete with knowledge about interpersonal influence. Imagine now that the same situation happened in a cultural environment where people learn from a young age that voicing anger constitutes a threat to interpersonal harmony. In this context, people deal with their anger primarily internally and angry exchanges with others are relatively rare. Having less experience with angry feelings being openly negotiated between people, people's knowledge about the interpersonal unfolding of anger would be relatively more limited in these contexts.

The aim of the current study was to explore these kinds of cultural differences in people's experience with and knowledge of emotional interactions in romantic relationships. We started from the idea that people organize knowledge around emotional interactions in the form of "scripts" (Fehr et al., 1999; Miller, 1991; Russell, 1991; Tomkins, 1978). Emotion scripts represent "coherent narratives, providing detailed information about the needs, goals,

intentions, and behaviours of two interacting parties" (Fitness, 1996, p. 199); they structure this interpersonal knowledge into temporal sequences by specifying "the links or contingencies between specific instigators, specific reactions, and specific expectations about outcomes" (Fehr et al., 1999, p. 300). In the above example, the partner's needs or goals (e.g., autonomy) are the background against which the interpersonal contingencies between partners' actions are construed in the form of if-then contingencies between self and other (e.g., if I express my frustration, then my partner may respond with an angry rebuttal). People presumably learn about these interpersonal contingencies through repeated exposure in daily life (see Parkinson, 2019), and to the extent that these experiences differ, so should the interpersonal contingencies that people internalize. In the current study, we suggest that cultural differences in emotion scripts can be understood and predicted from the cultural significance of the emotion that the respective script organizes: Culturally consistent emotions (that is, those emotions that are in line with culturally valued relationship ideals) compared to inconsistent emotions are more commonly negotiated in interaction with others and scripts for condoned emotions should thus represent more knowledge about interpersonal contingencies. To test this idea, we studied, in the context of romantic relationships, the interaction scripts for two emotions that have been found to differ in their significance in Germany and Japan—anger and shame.

The Cultural Significance of Anger and Shame in Germany and Japan

Anger and shame both highlight relational engagements between people: People feel angry when others offend them, and people experience shame when they failed in the eyes of others. However, there are significant cultural differences in what people consider good and desirable relationships with others (e.g., Markus & Kitayama, 1994; Rothbaum et al., 2000). In Germany, the dominant model of a good relationship is one in which both partners retain autonomy and support each other in exploring their respective individuality (Greenfield et al.,

2003; Trommsdorff & Kornadt, 2003). Autonomy does not preclude interpersonal closeness—instead, the autonomous *choice* to commit to each other is considered the core of healthy and strong romantic relationships in "Western" contexts (e.g., Deci & Ryan, 2014; Hadden et al., 2018; Rothbaum & Trommsdorff, 2007). Partners in committed relationships protect their autonomy by focusing primarily on their own needs and goals. Autonomy ideals are socially sanctioned in Germany and it is not uncommon to be advised to focus on one's own needs first in order to be better at meeting the needs of romantic partners (e.g., Patterson, 2008). Consequently, people frequently engage in activities that make them feel good about themselves and high self-esteem is considered desirable (Kitayama et al., 2009).

In contrast, the dominant relationship ideals in Japanese contexts revolve around relatedness and interdependence between partners. Relatedness in Japanese close relationships is funded on mutual assurance that partners will remain committed (Rothbaum & Trommsdorff, 2007). This sense of assurance stems from both partners' guarantee of loyalty and is based on persistent obligations to each other as well as partners' associated roles rather than individual choice. Because relationships are meant to endure and cannot easily be dissolved and replaced (see Yuki & Schug, 2020), maintaining smooth and harmonious relationships is key for Japanese relationships (e.g., Kim et al., 2006). Partners achieve harmony by frequently adjusting to each other rather than self-asserting (Kim & Markus, 1999; Morling et al., 2002). Adjusting the self requires a more self-critical stance and an awareness of negative information about the self (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997); being self-critical is also rewarded by one's close others (Kitayama & Markus, 2000). These different relationship ideals and practices have consequences for the cultural significance of anger and shame in German and Japanese relationships.

Anger

Anger is an emotion that highlights that things are not going the way one wants them to go, that another person is responsible for not getting what one wants, and that there is the possibility of getting one's way if action is taken (Ellsworth & Scherer, 2003; Kuppens et al., 2003). As such, anger is consistent with the German goal for autonomy and independence in close relationships: Anger helps partners recognize and voice their unmet needs (Fischer & Roseman, 2007) and "Western" folk theories frequently highlight the need to express anger as well as the dangers of pent up anger (Kövecses, 2003; Shweder et al., 2008). In cultural contexts that value independence and autonomy, intensely angering situations are frequently experienced and this appears to be particularly true for close relationships (Boiger, Mesquita, et al., 2013; Trommsdorff & Kornadt, 2003). Indeed, Belgian couples frequently gravitate towards states of mutual anger during disagreement interactions (Boiger et al., 2020). This is not to say that anger at all intensities and in all situations benefits relationships (van Doorn et al., 2015; Van Kleef et al., 2008); instead, dealing skillfully and collaboratively with anger is important for relationship maintenance in this context (Averill, 1982; Greenberg & Goldman, 2008).

In contrast, anger is inconsistent with the Japanese goal for relatedness and interdependence in close relationships. Anger threatens smooth and harmonious relationships between partners and, consequently, is antithetical to interdependence. When anger is expressed in Japanese contexts, it appears to index a power differential: Anger is more commonly expressed by individuals with high than low status in Japan (Park et al., 2013). While anger may be an acceptable means for displaying authority and exerting dominance in hierarchical relationships, it has little place in intimate, communal relationships. In these contexts, people are expected to control and transcend their anger, in line with Buddhist ideas about anger (or *shin* / *dosa*) being one of the mental states leading to unwholesome action (see also Shweder et al., 2008). Indeed, socialization practices in Japan emphasize steering

clear of angry interactions from an early age (Trommsdorff & Kornadt, 2003), and those who still assert themselves in adult relationships are regarded as immature and childish (Azuma, 1984). Consequently, while partners in Japanese contexts know their way around handling anger internally, they have relatively less experience with openly negotiating angry feelings with close others.

Shame

Shame implies a negative evaluation of the self in the eyes of others (Tangney, 1991; Tracy & Robins, 2004) and highlights developments that are identity-goal incongruent (Mascolo & Fischer, 1995). In doing so, shame acknowledges the importance of social norms and expectations, makes people aware of their shortcomings in meeting these norms and expectations, and communicates their pro-social motivation to abide by them in the future (Gausel et al., 2016). By highlighting the painful consequences of not living up to social expectations, shame restricts autonomy and self-actualization; by undermining positive self-regard, shame also obstructs high self-esteem. As such, shame is inconsistent with the German relationship ideals of independence, autonomy, and positive self-regard. Shame is even considered harmful for close relationships: One German relationship advice book, for example, considers true intimacy and authentic connection impossible in the presence of shame and gives advice on how individuals can overcome painful feelings of shame in close relationships (Weinblatt, 2016). The tendency for individuals in North American contexts to bypass shame or to readily transform shame into anger has often been observed (Scheff, 2003); in a recent study in a Western European context, we equally found that shame is readily transformed into anger in Belgium (Kirchner et al., 2018). In these contexts, shame is thus relatively less openly negotiated between partners and, if consciously experienced all, more commonly dealt with internally.

Shame is much more consistent with the Japanese striving for relatedness and interdependence in close relationships. In the Japanese context, shame is seen as relatively neutral in valence (Romney et al., 1997) and plays an important role in managing close relationships that are meant to persist (Sznycer et al., 2012). By signaling when important relationships go awry, shame provides crucial information about valued relationships; by communicating the intent to realign oneself with relational norms, shame constitutes a valuable means for keeping relationships smooth and harmonious in the long run. Japanese children learn to work skillfully with shameful feelings from an early age: For instance, Japanese schools schedule a time to think about areas of self-improvement at the end of the school day, called *hansei* (Lewis, 1995). Moreover, shame is often shared and experienced collectively, e.g., by romantic partners when one of them does something shameful (Lebra, 1971). It is consequently not surprising that shame is experienced frequently in Japan and that shameful feelings often revolve around interactions with others and how those others perceive the person experiencing shame (Boiger, Mesquita, et al., 2013; Boiger et al., 2016).

Emotion Scripts

Emotion scripts constitute a useful framework for understanding how people represent knowledge about the relational meaning and significance of emotion in ways that allow them navigate their relationships (Fehr et al., 1999). Emotion scripts have been studied in a number of ways, and much of the early research focused on people's knowledge about the unfolding of emotion as a within- rather than a between-person phenomenon (Fehr & Russell, 1984; Shaver et al., 1987; Tomkins, 1978). For example, Shaver and colleagues (1987) identified prototypical sequences of antecedents, appraisals, behaviors etc. for the individual experience of anger, sadness, joy and other emotions. However, emotion knowledge is acquired and transmitted in social contexts, and emotions play a crucial role in navigating interactions and romantic relationships in particular (Boiger & Mesquita, 2012; Mesquita et al., 2017).

People's knowledge about emotion should therefore not only represent intrapersonal sequences of events (e.g., if X happens, then I will think Y and feel Z), but also how these events unfold between interaction partners (e.g., if I respond with X, then my partner will do Y). More recent studies on emotion scripts have looked at this interpersonal unfolding of emotion in North American contexts (Fehr et al., 1999; Fehr & Baldwin, 1996; Fehr & Harasymchuk, 2005; Miller, 1991). For example, Fehr and colleagues (1999) asked U.S. male and female college students to report on their scripts for anger in romantic relationships. Besides substantial similarities in scripts, they identified small differences between how men and women expected their partners to respond when they themselves imagined to act aggressively; these differences in anger scripts could be understood against known gender differences in the likelihood and acceptability of aggressive behavior (Kring, 2000).

We aim to contribute to this literature on emotion and scripts in two ways. On the one hand, we aim to complement the literature on scripts by showing that cultural differences in scripts for anger and shame not only exist but can also be predicted from the cultural significance of the emotion around which the script revolves: Culturally consistent compared to inconsistent emotions are more commonly experienced in interactions with others and scripts for condoned emotions should thus represent more knowledge about interpersonal contingencies. On the other hand, we aim to complement the emotion literature by showing that cultural differences in emotions cannot merely be described as within-people, but also as between-people phenomena—with cultural contexts differing in the emotions for which people represent relatively more or less interpersonal knowledge. While research on culture and emotion has established systematic cultural differences in people's experience of emotions over the last decades (for a review, see Mesquita et al., 2016), we are just beginning to understand how these cultural differences are instigated and maintained in interaction with others (e.g., Boiger et al., 2020). Exploring the interpersonal contingencies in emotion scripts

offers another window into the relational nature of emotion and furthers our understanding of how emotional experience is shaped by and shaping the social and cultural environment.

The Current Study

The current study started from the idea that people should experience more interactions with others that elicit culturally consistent emotions (anger in Germany, shame in Japan) compared to inconsistent emotions (anger in Japan, shame in Germany) and that scripts for consistent compared to inconsistent emotions should therefore represent more knowledge about the interpersonal contingencies. There are two predictions inherent in this idea. First, people should encounter interactions with their partner frequently to the extent that these interactions lead to the experience of culturally consistent emotions (the *promotion hypothesis*). Specifically, we predicted for German participants that anger situations are perceived to be more frequent the more angering they are and for Japanese participants that they are perceived to be more frequent the less angering they are; the reverse should hold for shame. This prediction builds on past research in the U.S., Japan, Belgium and Turkey, in which we consistently found that people perceive interpersonal situations to be frequent to the extent that these situations lead to culturally condoned or consistent emotions (Boiger et al., 2014; Boiger, De Deyne, et al., 2013; Boiger, Mesquita, et al., 2013). The current study extends this research to Germany and focuses on interactions in romantic relationships.

Second, scripts should represent information about interpersonal contingencies or influence to the extent that the emotion that the script organizes is culturally consistent (the *interpersonal influence hypothesis*). Specifically, we predicted that the emotional outcomes of scripts depend more on how people think their partner will respond when the emotion is culturally consistent then when it is inconsistent; in turn, the emotional outcomes of scripts should depend more on people's initial emotional response to the situation (and thus represent more stable trajectories) when the emotions is culturally inconsistent then when it is

consistent. For example, German compared to Japanese participants' expected intensity of anger at the end of anger scripts should depend more on how they expect their partner to respond (e.g., if my partner will get upset at me, I will feel more anger). For German partners, these interactions come with a sense of shared responsibility for their unfolding that requires partners take each other's responses into account; this is not the case for Japanese partners. Instead, Japanese compared to German participant's expected intensity of anger at the end of the script should depend more on their initial assessment of the situation. Since Japanese participants expect to handle anger by themselves, imagined partner responses have relatively less influence on the expected course of their anger, making their initial assessment of the situation a stable predictor of the emotional relevance of the situation.

We tested these two hypotheses in a survey study in which German and Japanese participants indicated for a range of anger (or shame) situations how frequently they encounter similar situations, how intensely they would respond with anger/shame, how their partners would react, and how angry/ashamed they would feel after the interaction. We focused on Germany and Japan because past research had established cultural differences in relationship ideals in these two contexts, which allowed us to make predictions about the significance of anger and shame. This study was part of a larger project that was interested in age differences in emotional processes and therefore included a younger (student) sample as well as an older (community) sample. We did not make specific predictions about age differences or age-by-culture interactions in terms of the promotion or interpersonal influence hypothesis. We expected that the experiences afforded by contemporary Germany versus Japan differ sufficiently from each other for both younger and older samples to warrant analyses at the level of the cultural group. However, we tested both hypotheses in a set of post hoc analyses taking age into account (see Supplementary Material); these results did not suggest systematic differences between age groups across cultural contexts.

Method

Participants

We recruited 207 German and 200 Japanese participants to complete an online survey about interactions in relationships. A power analysis in G*Power 3.1 for a comparison of two independent slopes from two equally sized samples ($|\Delta \text{ slope}| = .30$, power $= 0.80$, $SD_{error} = .80$, $SD_{x1} = SD_{x2} = 1$) yielded a sample size of 89 for each sample. Given the between-subjects design of our study, in which participants rated either shame or anger situations, a sample of $N = 356$ was thus required to allow generalizations across participants. Given that participants rated multiple anger or shame situations, we followed up with a power analysis for designs with crossed random factors by Westfall and colleagues (2014). We found that due to methodological constraints we were not able to achieve adequate power to also generalize across situations.[1] German participants were recruited via the ABC web panel, a panel of people willing to participate in studies conducted at the Max Planck Institute for Human Development in Berlin; they received 8 EUR for their participation. Japanese participants were recruited via Kanden CS Forum Inc., a recruitment company based in Osaka, Japan; they were remunerated via an internal point-rewards system of comparable value. In both cultures, half of the participants were recruited to be younger (25-35 years) and half to be older (60-80 years). All participants had to be born in their respective country of origin, be currently in a relationship and cohabit with their partner; only one partner per couple could participate. After excluding 17 participants who did not fulfill study criteria (7 German participants who were born abroad, 2 German and 8 Japanese participants who were

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[1] A power analysis for a participants-within-condition design, a target sample size of 200 participants responding to anger and 200 participants responding to shame scenarios, a medium effect size of 0.5 and standard Variance Partitioning Coefficients indicated that participants would have to rate 17 scenarios to achieve adequate power of 0.8; in comparison, a design with 8 scenarios would have required over 3000 participants to achieve adequate power. Since pilots indicated that 8 scenarios were the upper limit in terms of cognitive load, we decided to proceed with 8 scenarios (power = 0.48) with the drawback that our results will have limited generalizability to other scenarios.

currently not in a relationship) and 7 participants with impossibly fast or invariant response patterns (3 German and 5 Japanese participants), the final sample included in the analyses consisted of 195 German and 187 Japanese participants.

German participants (51.3% female) were on average $M = 29.3$ ($SD = 2.9$) years of age in the younger group (47.6%) and $M = 66.2$ ($SD = 5.3$) years in the older group. The Japanese participants (51.3% female) in the younger group ($M = 33.0$, $SD = 3.0$) were older than the German participants, $t(183) = 8.49$, $p < 0.001$; Japanese in the older group ($M = 66.9$, $SD = 5.4$) did not differ in age from their German counterparts. Relationship duration was somewhat longer for Japanese than German participants in both the younger group, $t(183) = 4.10$, $p < .001$ (Japan: $M = 8.00$, $SD = 5.08$; Germany: $M = 5.41$, $SD = 3.42$), and the older group, $t(195) = 3.37$, $p < .001$ (Japan: $M = 39.81$, $SD = 7.63$; Germany: $M = 34.78$, $SD = 12.70$). Highest level of education in the two samples differed for those participants who had reported their level of education (Germany: 50%, Japan, 49%), $\chi^2(5, N = 378) = 12.32$, $p = 0.03$. The different distribution was primarily accounted for by the proportion of participants with a high school degree being lower in Germany (14.7%) than in Japan (27.3%); also, more participants had a postgraduate degree in Germany (7.9%) than in Japan (3.7 %).

Procedure

Half of the participants completed the anger version of the questionnaire, half the shame version. Participants first read detailed instructions on the structure of the questionnaire. To this aim, we used a graphic visualization of the three-step script (see Figure 1) and explained each of the steps in detail on an introductory page. The same graph was then used throughout the questionnaire to help participants orient themselves. All questionnaires were completed online. The order of the situations was randomized in Germany and counterbalanced in Japan; the proprietary online system of the Japanese recruitment company

did not allow for full randomization of the situations. All material was created in English and then translated in German and Japanese; all translations were back-translated to English and checked for equivalence with the English original by the first author, a native German speaker, and the third author, a native Japanese speaker.

Material

  Interaction Script. The Interaction Script Questionnaire consisted of a directed imagery task, in which participants indicated for eight scenarios how intensely they would feel and show anger/shame (among other emotions), how they thought their partners would emotionally react to them if they responded in this way, and how angry/ashamed they would feel after that interaction. These eight anger and eight shame scenarios have been sampled in preparatory research; please refer to the Supplementary Material for a list of the scenarios (Table S1) and a description of the sampling process. An example of a shame scenario is: "You have been delaying an unpleasant task (e.g., doing your taxes) and your partner points out your tendency to be lazy and delay tasks." We instructed participants to read each of the scenarios carefully and imagine what they would do if they experienced the situation with their partner. Prior to the interaction script, participants first indicated how *frequently* they had already encountered similar situations in their relationship (0 = never, 6 = very often).[2]

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[2] We also asked participants how well they could imagine being in a situation like this with their partner (0 = not at all, 6 = very well). This item was included to ascertain that people responded to situations with which they were familiar. However, familiarity with the situation was very highly correlated with perceived frequency of the situation (>.70) across groups. We assume that by asking participants how well they can imagine experiencing a situation like this *with their partner*, rather than asking them how well they can imagine it in general, people were led to understood this and the frequency item in very similar ways.

Initial emotional reaction. To capture participant's expected initial emotional reaction to the situation (Step 1 in Figure 1), we asked them to rate how strongly they would feel each of a list of emotions (0 = not at all, 6 = very strongly) and, in a separate column, how clearly they would show these emotions to their partner. We selected the emotions in a series of steps: We first included emotions from each quadrant of the emotion circumplex, that is emotions that varied on valence and arousal (Barrett & Russell, 1999; Russell, 1980): *sad* (low arousal negative), *worried* (mid arousal negative), *angry* with my partner (high arousal negative), *surprised* (high arousal neutral), *calm* (low arousal positive); given the nature of the scenarios we did not consider high arousal positive emotions to be particularly relevant (see also Fehr & Harasymchuk, 2005). In a next step, we included emotions that differed in social engagement, a dimension that has been found to be relevant for capturing the structure of emotional experience beyond Western cultural contexts (Kitayama et al., 2006): *ashamed* (socially engaged negative), *understanding* (socially engaged positive; we considered this to be better suited for anger and shame scenarios with romantic partners than the "friendly" or "close feelings" that have been used in the past) and *superior* (socially disengaged positive); the above listed anger is a typical disengaged negative emotion. Finally, we included *hurt* feelings given their particular role in close relationships (Lemay et al., 2012); we also included a lower intensity version of the questionnaire's target emotion, that is *annoyed* in the anger questionnaire and *embarrassed* in the shame questionnaire. Our sole focus in the current set of analyses was the participants' *expected experience of anger* towards their partner (in the anger version of the questionnaire) or *shame* (in the shame version of the questionnaire). To justify this decision, we checked if anger and shame were in fact the

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Nonetheless, we made sure that the pattern of results remains the same if all situations which participants rated as "not at all imaginable" were excluded from the analyses.

emotions that were expected to be primarily felt in response to the situations (see Preliminary

Analyses)

Partner's emotional response. To capture the partner's emotional response that they

expected (Step 2 in Figure 1), we asked participants to "take a moment to look at your

answers above and try to imagine that you would have shown your feelings the way you

described. How do you think your partner would react in this situation if you showed your

emotions in the way you described above?". The emotions were the same as in Step 1, that is,

for participant's initial emotional reaction. We included one additional item, *sorry*, because

of the role of apologies for de-escalation in conflict scripts (Miller, 1991). We maintained the

same response format as before (0 = not at all, 6 = very much). We summarize the expected

partner responses using clusterwise simultaneous component analyses (De Roover et al.,

2012) for the anger and shame scripts separately. For anger, we identified two kinds of

expected partner responses—dominant and submissive kinds of responses. The dominant

partner responses reflect emotional responses of superiority and assertion (angry, hurt,

annoyed, superior), while the submissive ones reflect understanding and regret

(understanding, ashamed, regret, sorry). For shame, we identified three kinds of expected

partner responses—defensive, calm, and reparative kinds of responses. The defensive

responses reflect a range of emotions of distress (hurt, worried, surprised, embarrassed, sad),

while the calm responses reflect a more relaxed and empathetic stance (calm, understanding)

and the reparative responses a more regretful stance (ashamed, sorry), similar to the

submissive component for anger. Details on the clusterwise simultaneous component

analyses as well as the loadings on each component (Table S2) can be found in the

Supplementary Material. We used the component scores derived from these simultaneous

component analyses as input for the main analyses.

Final emotional reaction. Lastly, we measured participants' expected final emotional experience (Step 3 in Figure 1) by asking them to "think about the interaction that you just described. At this point you have shown to your partner how you would feel, and your partner has reacted to this. How would this interaction make you feel?". For the final emotional reaction, we asked participants only how angry with their partner / ashamed they would feel (0 = not at all, 6 = very much).

Analytic Strategy

We used multilevel regression (with scenarios nested within respondents) to test both hypotheses. All analyses were conducted using the program MLwiN 3.01 (Rasbash, Charlton, Browne, Healy, & Cameron, 2009). In a preliminary set of analyses, we first checked if anger / shame were the primary initial emotional reactions elicited by the scenarios, and if we could thus focus on these emotions in our analyses. We then tested our first hypothesis (the promotion hypothesis) by regressing the perceived frequency of each scenario on the extent to which participants expected to experience the emotion (i.e., emotional intensity) at the end of the script[3] and comparing differences in regression weights between groups. We tested differences in regression weights because the promotion hypothesis predicts that people encounter interactions with their partner frequently to the extent that these interactions lead to the experience of culturally consistent emotions. In other words, we predicted for German participants that anger scenarios are perceived to be more frequent the more angering they are and for Japanese participants that they are perceived to be more frequent the less angering they are; the reverse should hold for shame. A similar approach has been used in our previous research to capture the extent to which certain emotions are situationally promoted across cultures (Boiger et al., 2014; Boiger, De Deyne, et al., 2013; Boiger, Mesquita, et al., 2013).

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[3] We focused on emotional intensity at the end of the script because we assumed that this captures best how a social situation is interpreted and remembered in its entirety.

We tested our second hypotheses (the interpersonal influence hypothesis) by predicting the intensity of participants' anger / shame experience at the end of the script from both the initial anger / shame intensity and the expected partner responses (using component scores from clusterwise simultaneous component analyses, see above and Supplementary Material). We again compared the regression weights between cultural groups: To test if a script represented more interpersonal influence, we first tested if the regression weights of the expected partner responses predicting script outcomes were larger in the cultural group where the emotion was consistent with culturally cherished relationship ideals (e.g., anger in Germany) than the group where it was inconsistent (e.g., anger in Japan). Next, we tested if the regression weights of the participants' initial emotional response predicting script outcomes were larger in the cultural group where the emotion was inconsistent than the group where it was consistent. All predictors in these analyses were person-centered.

Results

Preliminary Analyses: Checking Target Emotions

We first checked if the scenarios that we had selected indeed elicited the target emotions of anger and shame in participants from both cultures and age groups. The anger scenarios elicited moderate levels of anger as an expected initial reaction, with averages around the midpoint of the scale ($M_{Germany} = 3.34$, $SD_{Germany} = 3.71$; $M_{Japan} = 2.58$, $SD_{Japan} = 1.12$). German participants reported higher levels of anger than Japanese participants (Germany = 1, Japan = 0), $b = .76$, $Z = 4.44$, $p < .001$. To test if anger was the most intensely experienced emotion for the anger vignettes, we restructured the data so that all emotion ratings were in one emotional intensity column and created ten dummy variables, one for each emotion. We then specified a multilevel model in which we regressed emotional intensity on the dummy variables with anger as a reference category. All of the predictors

were significant and negative, indicating that participants expected anger to be significantly

more intense than any of the other emotions across the scenarios.

The *shame* scenarios equally elicited moderate levels of shame as an expected initial

reaction, with averages around the midpoint of the scale ($M_{Germany}$ = 2.89, $SD_{Germany}$ = 1.22;

M_{Japan} = 2.65, SD_{Japan} =1.33). There were no significant cultural differences in shame intensity

at the beginning of the script (Germany = 1, Japan = 0), b = .25, Z = 1.36, p = .17). We again

compared the intensity of shame against the nine other emotions that we had measured.

Except for "embarrassed", shame was the most intensely experienced emotion. However,

embarrassment and shame were highly correlated (r = .854, p < .001, when aggregated across

scenarios per participant), and thus likely refer to the same category of experience.

Are Interactions that Lead to Culturally Consistent Emotional Outcomes Promoted?

To test the promotion hypothesis that people encounter interactions with their partner

frequently to the extent that these interactions lead to intense experiences of culturally

consistent emotions, we regressed the perceived frequency of the scenario on the expected

emotional intensity at the end of the script (allowing for random intercepts and slopes).

Figure 2 shows the beta weights from these regressions for both cultural groups. We had

predicted that for German participants, interactions ending with intense anger are frequently

experienced in their romantic relationships whereas for Japanese these interactions are rarely

experienced. The results partially supported out predictions for anger. Although both German

and Japanese participants reported that anger situations with their partners were frequent to

the extent that they elicited anger, the effect was more pronounced in the German context:

German compared to Japanese participants reported a stronger increase in frequency for

every unit increase in expected anger intensity, as indicated by a participant culture (−1 =

Japan, 1 = Germany) × anger intensity (respondent-mean centered) interaction, b = .07, Z =

1.97, p = .0488. For shame, we had predicted the opposite pattern: We had expected that for

German participants, interactions ending with intense shame are rarely experienced in their

romantic relationships whereas for Japanese, these interactions are frequently experienced.

Our findings fully supported our prediction for shame. German participants encountered

shame situations with their partners *less* frequently to the extent that they lead to intense

feelings of shame, while Japanese participants encountered situations *more* frequently to the

extent that they lead to intense shame (see Figure 2). The observed cultural difference was

significant, as indicated by a participant culture × shame intensity (respondent-mean

centered) interaction, $b = -.13$, $Z = 4.79$, $p < .001$.

Do scripts for culturally consistent emotions represent more interpersonal influence?

Anger. To test the interpersonal influence hypothesis that scripts for culturally

consistent emotions represent more interpersonal influence, we predicted the intensity of

anger at the end of the script from both the expected partner responses and the intensity of

anger at the beginning of the script (allowing for random intercepts and slopes). We had

hypothesized that the emotional outcomes of anger scripts in Germany compared to Japan

depend more on how participants think their partner will respond; in turn, the emotional

outcomes of anger scripts in Japan compared to Germany should depend more on

participants' initial emotional assessment of the situation.

Our findings partially supported our predictions. In a first set of analyses, we

conducted regression analyses separately for Germany and Japan. As shown in the top half of

Table 1, participants' anger at the end of the script was higher when participants expected

their partner to respond in a more dominant way in both cultures. Supporting our predictions,

German participants' expectations of anger at the end of the script were attenuated when they

expected their partner to respond submissively; in Japan, expecting partners to respond

submissively did not have a significant effect on participant's final anger. We then we tested

for differences between parameters in a model in which we regressed expected anger

intensity on participant culture (-1 = Japan, 1 = Germany), the initial anger intensity and two expected partner responses, as well as interactions of all predictors with participant culture. The difference between German and Japanese participants in the effect of submissive partner responses on anger intensity at the end of the script was significant, as indicated by a culture × submissive partner response interaction, $b = -.08$, $Z = 2.71$, $p < .01$; the differences between dominant partner responses was not significant, $b = -.01$, $Z = 0.45$, $p = .65$. Across partner responses, the German scripts thus specified more interpersonal contingencies in how expected partner responses affect participants' experience of anger and thus represented more interpersonal influence. Contrary to our predictions, there was no cultural difference in the extent to which initial anger (respondent-mean centered) predicted anger at the end of the script, although the observed difference was in the expected direction (initial anger predicting anger at the end of the script more in Japan), $b = -.03$, $Z = 1.31$, $p = .19$.

Shame. For shame, we had expected the opposite pattern as for anger: Partner responses should play more of a role in determining the intensity of shame at the end of the script in Japan than Germany; the initial shame response, in contrast, should be more predictive of shame intensity at the end of the script in Germany than in Japan. Our findings were again partly confirmed. Again, we first specified regression models in which we predicted the intensity of shame at the end of the script from both the expected partner responses and the intensity of shame at the beginning of the script (allowing for random intercepts and slopes) for each cultural group separately. As shown in the bottom half of Table 1, for German participants, expecting a partner to respond more defensively (i.e., felt hurt, worried, surprised, embarrassed, or sad) came with more shame towards the end of the script. For Japanese participants, a reparative partner response (i.e., feeling ashamed or sorry) was associated with expecting more shame towards the end of the script; a partner who responded calmly (i.e., feeling calm or understanding) attenuated shame. We then tested for

differences between parameters in a model in which we regressed expected shame intensity

on participant culture (-1 = Japan, 1 = Germany), the initial shame intensity and three

expected partner responses, as well as interactions of all predictors with participant culture.

Only the influence of reparative partner responses on shame intensity at the end of the script

differed significantly between cultural groups, as indicated by a culture × reparative partner

response interaction, $b = -.15$, $Z = 3.63$, $p < .001$. This suggests that Japanese scripts

contained, across partner responses, more contingencies in how partner's responses affect

participants' experience of shame and thus represented more interpersonal influence. That

being said, the culture × defensive partner response interaction approached significance, $b =$

$-.09$, $Z = 1.85$, $p = .06$, suggesting that the German scripts tendentially approached the

Japanese level of interpersonal contingencies in shame scripts.

The most straightforward support for our prediction was that the German participants

reported a strong association between the intensity of their initial and final shame response,

whereas no association between the two was found for the Japanese participants. This

cultural difference between German and Japanese participants was significant, as indicated

by a culture (-1 = Japan, 1 = Germany) × initial shame intensity (respondent-mean centered)

interaction, $b = .29$, $Z = 9.63$, $p < .001$. This underlines the idea that for German compared to

Japanese participants, the unfolding of shame is more strongly a function of participants'

internal assessment of the situation and relatively more stable when participants take

imagined partner responses into account.

Discussion

Are there cultural differences in people's representation of emotion knowledge? The

current study aimed to answer this question by exploring German and Japanese scripts for

anger and shame interactions in romantic relationships. We proposed that cultural differences

in anger and shame scripts can be predicted from the cultural significance of anger and

shame. Starting from the idea that anger, but not shame, is consistent with German

relationship ideals of autonomy and independence, and that shame, but not anger, is

consistent with Japanese relationship ideals of relatedness and interdependence, we predicted

(1) that anger and shame situations with the partner are perceived to be frequent to the extent

that they lead to culturally consistent emotions (the *promotion hypothesis*) and (2) that

scripts for culturally consistent emotions represent more interpersonal influence and that

scripts for culturally inconsistent represent a more stable trajectory (the *interpersonal*

influence hypothesis).

Anger Scripts in Germany and Japan

For anger scripts, our predictions were confirmed partly. Concerning the promotion

hypothesis, both Germans and Japanese appear to encounter interactions with their partner

more frequently to the extent that they lead to anger. This suggests that highly angering

interactions are common in both German and Japanese relationships, while mildly angering

situations are relatively rare. However, this effect was more pronounced for the German

participants. One reason for this may be that only the German scripts specified a contingency

between partners' responses and participants' anger that allowed for an attenuation of anger:

In line with our predictions, we found that only German participants reported that the

expectation of submissive partner responses (i.e., feeling understanding, ashamed, or sorry)

lead to a "decrease" in anger from the beginning to the end of the script. At the same time,

both German and Japanese participants reported scripts in which dominant partner responses

(i.e., feeling angry, hurt, annoyed, or superior) were associated with an "increase" in anger. In

other words, while both scripts specified trajectories that lead to an escalation of anger, only

German participants reported scripts in which the partner could restore some of their potential

wrongdoing by acting submissively. This may make anger interactions more workable and

thus more frequent in Germany. In this context, partners possess scripts that specify a course

of action in which partners respond in supportive ways, making anger the more successful

relational bid (see also Fischer & Roseman, 2007).

Contrary to our predictions, Japanese anger scripts were not significantly more

strongly influenced by participants' initial assessment of the situation than German anger

scripts. It is difficult to pinpoint why this may have been the case. It is imaginable that in

Germany, the anger situations that we used were particularly common (our findings in regard

to the promotion hypothesis support this idea; see also Table S4); in situations like this,

participants may predict the further interactions with their partners so easily, that potential

partner responses are already taken into account in their initial assessment.

Shame Scripts in Germany and Japan

For shame scripts, our findings were largely consistent with our predictions. In terms

of the promotion hypothesis, Japanese reported encountering interactions with their partner

more frequently to the extent that these interactions lead to shame, whereas Germans reported

encountering these situations *less* frequently. In other words, the couple interactions that

happen frequently in Japan lead to relatively intense experiences of shame, while those that

happen frequently in Germany are hardly shameful. Regarding the interpersonal influence

hypothesis, the most straightforward support for our prediction was that the Japanese

participants did not take their initial assessment of the situation into account (and

significantly less so than the German participants) when assessing the intensity of their shame

at the end of the script; their expected feeling of shame was entirely attuned to the expected

partner responses. While all participants did report an initial (intrapersonal) response of

experiencing shame, it appears that the further trajectory of shame scripts was imagined to be

an interpersonal process for Japanese participants – in line with the idea that some emotions

are experienced at the level of the relationship (or "between people", see Uchida et al., 2009)

for Japanese romantic partners.

When looking at the contingencies between partner responses and participant's experience of shame, the results are a little more complex. For German participants, shame experience appears to be a function of both their initial assessment of the situation and the extent to which their partner acts defensively; we did not identify contingencies that specify ways in which partners can attenuate participants' shame in Germany. The defensive partner responses that were found to further "increase" shame for German participants may be seen as the partner (who had been observing or pointing out the participant's shameful behavior) further insisting on the participant's wrongdoing and inadequacy. When partners are projected to only making things worse, openly expressing shame may be highly undesirable; this fits with the observation that these kinds of situations are rarely experienced in Germany. For the Japanese participants, shame experience is entirely dependent on how the partner responds: A calm partner response leads to a "decrease" in shame from the beginning to the end of the script, whereas a reparative partner leads to an "increase" in shame—possibly because a partner feeling ashamed and sorry underlines the sharedness of the emotional event. It is noteworthy that, as for anger in Germany, the Japanese script for shame represents both "escalating" and "attenuating" contingencies between partners' responses and participants emotions. It may be a feature of scripts for culturally consistent emotions that they contain information about both directions that interactions can take, leaving participants with a choice between interaction trajectories; in comparison, scripts for culturally inconsistent emotions appear to mainly represent escalating contingencies, making an engagement with the partner always undesirable.

Limitations and Further Directions

The present research is not without its limitations. First, it is difficult to establish to what extent the present findings generalize to the ecology of anger and shame situations in the respective cultures. Due to methodological constraints, owing to the length of the script

for each situation, we presented participants with a limited set of eight situations. Future research may want to employ a larger set of situations at the expense of detail in the interaction script, e.g., by establishing factors underlying partner responses in preliminary research or by building on the factors we identified in the present study. A larger set of situations would allow to test for the effect of specific contexts (e.g., same- vs. other-culture situations, different situation types) on the specific scripts. The findings from this research with German and Japanese participant should also not be generalized to other "Western" or "Eastern" contexts: Cultural contexts within each of these binaries are known to differ in their dominant views on how to be and relate to others (Vignoles et al., 2016), which should also afford variations in emotional experiences and thereby scripts.

Second, we did not establish each specific if-then contingency as some of the previous research on emotion scripts did (e.g., Fehr & Harasymchuk, 2005). Rather than asking participants for each of their emotional experiences in response to the situation how their partner would feel, we asked a general assessment about partner responses dependent on their initial response. We assumed that mixed emotional responses are common in real life but ensured that anger or shame was the dominant responses and that we were thus indeed investigating anger/shame scripts. It is imaginable that this is closer to how scripts are actually represented: People may take a set of parameters into account when assessing the likelihood of a response rather than deterministic if-then contingencies.

Finally, the present research is concerned with people's semantic knowledge about emotion, and it is unclear to what extent this semantic knowledge affects people's responding in real life. Asking participants about their expected responses to hypothetical vignettes should elicit situation-specific knowledge and beliefs (Robinson & Clore, 2002), which are more contextualized than general beliefs about how emotional interactions unfold and should thus be reflective of the information available to participants in comparable scenarios.

Moreover, we found an association between how emotional interactions are imagined to be and how frequently participants these kinds of situations to occur in their daily life; this association was stronger when the emotion at stake was consistent with culturally valued relationship ideals. This suggests that in their daily lives, participants do not shy away from engaging in these types of interactions, and it is imaginable that this has to do with them possessing sufficient knowledge about how they unfold and thus how they can be handled interpersonally. Future research may want to look more closely at the role of interpersonal emotion scripts in everyday interactions, for example, by comparing the extent to which people's scripts represent interpersonal knowledge with actual interactions or interaction outcomes.

In conclusion, people's scripts for emotional interactions align with their cultural ideals of how to relate to romantic partners—both in terms of how these scripts unfold and how frequently they are afforded. Scripts that revolve around culturally consistent or valued emotions readily take interpersonal influence into account and are commonly employed in romantic relationships. Much can thus be learned from studying people's (semantic) emotional knowledge as interpersonal, ongoing processes: Not only does this kind of research capture people's beliefs and meaning making around their emotional experiences with others, it also shows how intricately cultural ideals and interpersonal emotional knowledge are intertwined.

Declaration

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Ethics approval (include appropriate approvals or waivers): The questionnaire and methodology for this study was approved by the Human Research Ethics committee of the Max Planck Institute for Human Development (Ethics approval 01.08.2014). Informed consent regarding participation and later publication of the data was obtained.

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Table 1

Predictors of Participants' Expected Emotional Intensity at the End of the Script

	German		Japanese	
Expected Anger Intensity at End of Script	*b*	*SE*	*b*	*SE*
Intercept	**2.29**	**.12**	**2.00**	**.12**
Dominant partner response	**.29**	**.04**	**.32**	**.05**
Submissive partner response	**−.14**	**.04**	.01	.04
Participant's initial anger intensity	**.44**	**.04**	**.50**	**.04**
Expected Shame Intensity at End of Script				
Intercept	**2.11**	**.10**	**1.82**	**.11**
Defensive partner response	**.24**	**.05**	.07	.08
Calm partner response	−.09	.05	**−.11**	**.06**
Reparative partner response	−.04	.06	**.24**	**.06**
Participant's initial shame intensity	**.54**	**.03**	−.03	.06

Note. Multilevel regressions with situations nested in participants. Bold parameters significant at $p < .05$.

Figure 1

Graphical Representation of the Three-Step Script as Shown to Participants

Step 1   Step 2   Step 3

Figure 2

Perceived Frequency of Anger and Shame Interactions Between Partners as a Function of these Interactions Affording Emotional Intensity at the End of Participants' Scripts
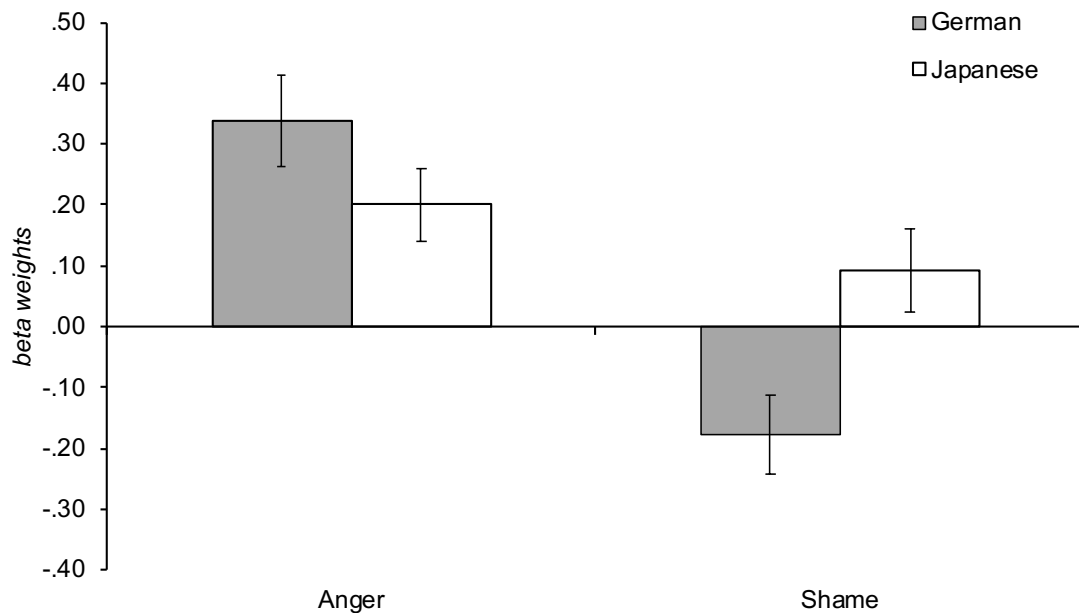
Note. Beta weights of random slopes predicting situation frequency from the expected intensity of the emotion at the end of the interaction script (multi-level models with scenarios nested in participants). Error bars show standard errors. Intercepts: $b_{\text{AngerGermany}} = 1.30$, $b_{\text{AngerJapan}} = 1.11$, $b_{\text{ShameGermany}} = 2.05$, $b_{\text{ShameJapan}} = 1.19$.