How Long Can Cultural Events Elevate Group Identity Salience?

The Mediating Role of Affective Adaptation

Sylvia Xiaohua Chen*

Hong Kong Polytechnic University

Chin-Ming Hui*

Jacky C. K. Ng

Chinese University of Hong Kong

Yanjun Guan

Durham University

* Sylvia Xiaohua Chen and Chin-Ming Hui share first authorship of this article.

Abstract

Cultural events have been found to make one's group identity temporarily more salient. How long such an elevated sense of identity can endure remains, however, an empirical question. Building upon the model of affective adaptation, we propose that the elevated sense of group identity may decrease quickly during a culturally important event, and this process is mediated by the decline of positive emotions during the event. Consistent with this prediction, a diary study (Study 1) with a Chinese sample observed that Chinese identity was very salient at the beginning of the 2008 Beijing Olympics and then was gradually neutralized during the event. Moreover, the dissipation of positive emotions during the event mediated temporal change of the salience of Chinese identity. An experiment (Study 2) further showed that positive emotions during national-identity-related events could create the initial elevation and subsequent decline of the salience of the group identity.

Keywords: emotion, identity salience, affective adaptation, cultural event

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The Mediating Role of Affective Adaptation

Emotion is an indispensable experience of self and identity (James, 1890/1918). Individuals have affective tags on the objects they possess (Beggan, 1992), the close relationships they affirm with (Bowlby, 1969), and the groups they identify with (Allport, 1954). Thus, emotional experience with an entity can momentarily heighten a relevant identity (e.g., Leary, 2007; Stets, 2005), impacting on selfhood and identity with its valence and intensity. How emotion ties to the salience of a relevant identity in a time course, however, remains an empirical question.

Models of affective adaptation postulate that emotion dissipates over time when people adapt to the target stimuli. Building upon these models, we further propose that the salience of a group identity triggered by the prolonged exposure of positive cultural stimuli may decline even before the cultural stimuli are removed, and this process is mediated by affective adaptation (i.e., the decline of associated positive emotion). Culturally important events often stimulate patriotic emotions and national identity among citizens, and sustain the euphoria through continuous coverage in mass media, thereby providing an opportunity to test this emotion-related identity process. To test the proposed mediational model, we repeatedly measured both emotions and identity salience during a culturally important event, namely the Olympic Games.

Identity-Related Stimuli and Group Identity Salience

According to social identity theory (Tajfel & Turner, 1986), people define themselves differently from time to time, varying on the person-versus-social identity continuum. People typically derive their social identity from a group membership, and ascribe the identity with attributes (e.g., brilliant) that presumably differentiate members belonging to the group from non-members (Reid & Deaux, 1996).

People can have multiple mental representations of different social identities, but they do not experience these social identities simultaneously. When relevant stimuli (e.g., a cultural icon) are present in the immediate contex, the mental representation of a given group identity will be activated and become temporarily salient (e.g., Deaux, 2000; Deaux, Reid, Mizrahi & Cotting, 1999; Hogg & McGarty, 1990; McGarty, 2001; Yip, 2005). When the group identity is salient, people will construe their immediate experiences in terms of that identity (cf. Higgins, 2000).

Whereas the elevation of the salience of a group identity during positive group events is well described by social identity theory, little has been known about how this elevated salience may continue or dissipate over time. We propose that the salience of an identity may dissipate over time even before the group-related stimuli are removed, and this dissipation is partially driven by an emotion process, known as *affective adaptation*.

Affective adaptation

Affective adaptation has been studied in positive and health psychology (e.g., Fredrick & Loewenstein, 1999; Wilson & Gilbert, 2008). In principle, individuals have a set point for all emotions such that an emotion, be it positive or negative, may initially be pronounced in response to strong external stimuli but then quickly returns to neutrality. Positive and negative emotions are merely transitory reactions to the change in external circumstances. This phenomenon is also coined the "hedonic treadmill" (Brickman & Campbell, 1971). The hedonic treadmill is adaptive because it allows repeated stimuli to merge into the background and frees resources for handling novel stimuli (Fredrick & Loewenstein, 1999). Prior works (for a meta-analysis, see Luhmann, Hofmann, Eid, & Lucas, 2012) have demonstrated that individuals quickly adapt to a wide range of positive events including job tenure (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998), and marriage (Lucas, Clark, Georgellis, & Diener, 2003). Similarly, affective adaptation also emerges in

negative life circumstances including divorce (Lucas, 2005) and prolonged physical illness (Riis et al., 2005).

By and large, past studies examined the adaptation of emotions associated with personal events (e.g., Fredrick & Loewenstein, 1999; Wilson & Gilbert, 2008). Adaptation of emotions associated with group events and its psychological implications have yet to be examined. Though emotions have been studied in intergroup contexts, many studies adopted a cross-sectional design to measure emotional responses to group-related scenarios and events or subjective feelings toward ingroup and outgroup members. Few studies tracked the temporal changes and adaptation of emotions. Examining emotional adaption in the group contexts will expand the scope of its application.

Linking Emotion and Change of Identity Salience: The Role of Affective Adaptation

Emotions entail social functions, such as strengthening group boundaries and fostering communal identity at the group level (Keltner & Haidt, 1999). Indeed, group identity and emotions are highly connected and can mutually influence each other (Allport, 1954; Smith, 1993). One's sense of group identity can influence one's emotional experiences in reaction to group-related events (Mackie, Devos, & Smith, 2000; Smith, Seger, & Mackie, 2007). Conversely, group-based emotions were found to change ingroup identification, and the intensity of emotions further influences the degree of identification (Kessler & Hollbach, 2005; Livingstone, Spears, Manstead, Bruder, & Shepherd (2011).

It is hypothesized that affective adaptation can shape one's sense of identity in response to identity-related events. When exposed to a positive identity-related event, individual's social identity may be temporarily activated and become salient. Moreover, the positive event can also trigger intense positive emotions toward the target group (e.g., Seger, Smith, & Mackie, 2009), and this emotional boost will in turn make the social identity even more salient. However, affective adaptation may neutralize the emotional significance of the

continuing event and subsequently makes individuals habituated. Hence, individuals quickly become emotionally indifferent to the event regardless of the intensity of their initial emotions. While the heightened sense of social identity loses its emotional boost, it is expected to return to the baseline rapidly even before the event ends.

Overview of the Present Research

Emotion affects one's sense of group identity not only in terms of its valence and intensity. Affective adaptation can also contribute to a temporary change of the salience of a group identity. The present research consists of two studies to examine the effects of culturally important events on national identity and test the potential mechanism, affective adaptation. We propose that, individuals may initially experience intense emotions in the face of an identity-related event, and this emotional boost may in turn heighten the related group identity. However, as individuals emotionally adapt to the identity-related stimuli, the elevated sense of group identity will decline over time and return to the baseline.

Study 1 directly examined whether the initially increased salience of national identity would decrease over time during a group-related event (i.e., Olympic Games) and whether the dissipation of positive emotions during the event would mediate the changes. Study 2 manipulated the relevance of positive emotions to the national group, and examined whether the salience of a group identity is only influenced by the adaptation of positive emotions associated with the target group.

In Study 1, we recruited Chinese participants in Beijing using a daily diary design during the 2008 Beijing Olympics. Participants were asked to report their positive and negative emotions and the salience of different social identities across 19 time points before, during, and after the Olympics. Based on the affective adaptation hypothesis, we predicted that the Olympic euphoria would evoke excitement and hence increase the salience of Chinese identity, but not other identities; however, the increased salience would gradually

decline back to baseline levels even *during* the course of the event, and this shift would be mediated by a gradual decline of positive emotions. Given local media and citizens' excitement about China hosting the Olympics for the first time and Chinese athletes' mounting victories, one would easily predict otherwise a continuous rise of national identity among Chinese, especially toward the closing time when China topped the gold medal tally for the first time in its Olympic history. Therefore, this background enabled a stringent test for our hypotheses.

To further illustrate that only the adaptation of positive emotions associated with a target group versus irrelevant objects can influence the salience of the group identity, we adopted an experimental design in Study 2 to manipulate two types of stimuli that could elicit positive emotions: reading articles describing the economic and scientific achievements of China and reading funny stories. A series of achievement articles were used with emotion and identity measures after each article to simulate a prolonged cultural event, in contrast to a series of funny stories also with emotion and identity measures in the other condition. We hypothesized that both positive emotions associated with Chinese achievements and funny stories would decline over time due to affective adaptation, but only positive emotions associated with Chinese achievements could influence the salience of national identity among Chinese.

Study 1

As a major international event, the Olympics can often stimulate enthusiastic discussion and patriotic emotions. Nations invest great fortunes to bid for the Olympics, even though the financial return is limited (Greising, 2009). The Olympics provide an opportunity to increase national pride among people around the world. During the Olympics, the mass media highlights news on the performance and the spirit of athletes with loaded language and eye-catching photos to bolster national identity. Citizens also actively circulate and discuss

the news about athletes of their own countries with their families and friends. Indeed, past

studies and press reports showed that national identity is highly salient among Germans

during the 2006 World Cup in Germany (Kersting, 2007) and Canadians during the 2010

Winter Olympics in Canada (Johnson, 2010).

To test our hypotheses, we recruited Chinese participants in Beijing during the

Beijing Olympics for two reasons. First, both Chinese citizens and the mass media

enthusiastically circulated the news about the Beijing Olympics throughout the event. Second,

Beijing participants in this study all lived near the Olympic site and thus would be highly

immersed in the Olympic euphoria. Hence, facilitated by the social atmosphere, mass media,

and geographical location, Beijing citizens would be expected to experience the Beijing

Olympics as a prolonged and culturally important event.

In this study, we first predicted that the salience of Chinese identity and positive

emotion elevated on the first day of Olympics, and then declined gradually to the baseline.

Second, we predicted that identity-related positive emotion may mediate the temporal decline

of the salience of Chinese identity. We also measured the salience of other irrelevant

identities (e.g., family and friends), to show that affective adaptation only influences the

salience of the relevant identity (i.e., Chinese identity), not the others.

Method

Participants and Procedure

The sample consisted of 100 Chinese students (61 females; $M_{age} = 22.05$, $SD = 2.38$)

at a university in Beijing, China. They were recruited through an advertisement on the

university website and registered for the study via email. Participants were invited to a lab

and completed a battery of baseline measures three days before the opening ceremony.

Each day during the Olympics (August 8-24, 2008), participants were allowed to log

on to the online survey only between 8:00 p.m. (when all games ended for the day) and 3:00

a.m. the next day to ensure that their responses reflected their emotional experiences on that day. If participants missed completing the survey during this period, their responses on the specific day were recorded as missing values.

Measures

Participants completed the salience measures of different social identities three days before the opening ceremony (*pre-game baseline*), each day during the Olympics (*in-game*), and two days after the closing ceremony (*post-game*). During the Olympics, participants also reported their positive and negative emotions, as well as measures concerning their personal involvement in the Olympics. The order of instruments was randomized across participants and across days.

Positive and negative emotions. The emotion items were sampled from the measures by Watson, Clark, and Tellegen (1988) and Larsen and Diener (1992). Participants were asked to reflect on the Olympics Opening/Closing Ceremony (first/last day of the Olympics) and that day's Olympic matches (15 in-game days) and rate the extent to which they felt the following emotions. The items included eight positive emotions *(proud, excited, happy*, *enthusiastic*, *relaxed*, *interested*, *inspired*, and *strong*) and seven negative emotions (*worried*, *ashamed*, *sad*, *anxious*, *frustrated*, *irritable*, and *confused*), rated on 7-point scales, ranging from 1 (*not at all*) to 7 (*extremely*). The means of positive and negative emotions for each day were measured. The Cronbach's alpha was .94 for positive emotions and .98 for negative emotions.

Identity salience. As adapted from Yip's study (2005), participants were asked to think about the following identities and indicate on that day how prominent or salient each identity was to them. They were presented with national identity and a few other identities, namely age, ethnicity, friend, and family (as a child of their parents), in random order at each time. Participants then indicated how salient each identity was on 7-point scales ranging from

1 (*not at all*) to 7 (*extremely*). Previous research (Yip, 2005) supported the validity of this single-item measure; for example, temporary salience of ethnic identity could serve as a significant within-individual predictor of psychological well-being.

Control variables. Each day, participants reported the hours of watching the games in which Chinese athletes participated. This index reflected participants' personal involvement in the event. It was controlled in all of the following analyses.

Results

We excluded seven participants who completed less than half of the questionnaires during the 17 days of the Olympics. Consequently, our analyses were based upon 1,465 diary entries from 93 participants. Gender and age were dropped in subsequent analyses, as they did not affect the variables under study significantly. The non-significant effect of age was probably due to the relative homogeneous age group of university students in the current sample.

Changes in Salience of Different Social Identities

We tested how the salience levels of different social identities changed during the time course of Olympics (see Figure 1 for descriptive statistics). Based on a subset of participants ($n = 46$) who reported at all four critical time points (pre- and post-game, first and last days of the game), a repeated-measures analysis of variance (ANOVA) showed a significant effect of time on national identity, $F(3, 43) = 19.02$, $p < .001$. Specifically, national identity was statistically more salient on the first day compared to the other three time points, ts > 5.20, ps $< .001$. On the last day, however, national identity was just as salient as that at the pre- and post-Olympics time points, ts < 1.66, ps $> .05$. The temporal effect of the Olympics was only specific to national identity but not to other unrelated identities. Repeated-measure ANOVAs did not show significant effects for other identities, Fs$(3, 43) < 2.36$, ps $> .08$ (see Table 1).

Then we tested how national identity salience changed during the 17 days of the

Olympics. As the diary data were nested within individuals, multilevel analyses (Peugh &

Enders, 2005) were conducted to test how different variables covaried within individuals.

Number of days significantly predicted positive emotions, $B = -.038$, $p < .001$, and identity

salience, $B = -.023$, $p < .001$, indicating a temporal decline in both positive emotions and

national identity salience during the Olympics. Of interest, ancillary analyses indicated that

positive emotions were more strongly related to national identity, $r = .16$, $p < .001$, than other

identities, rs $< .05$. These results together indicated that the Olympics exerted temporary

effects mainly on relevant social identities.

Mediation of Positive Emotions on Identity Salience

To test whether the observed decline in national identity salience was primarily driven

by emotional adaptation (i.e., reduction of positive emotions), we attempted to conduct a

mediational test under multilevel context (Bauer, Preacher, & Gil, 2006). To account for the

multilevel structure, multilevel structural equation modeling was adopted to conduct the

mediational analysis. In the present multilevel structural equation model, all lower-level

variables were decomposed into two parts of unrelated latent variables: within-level and

between-level components (Muthén, 1994). Group-mean centering was used in the latent

within-level variables. The quantification of the indirect effect in this multilevel mediation

model followed the procedures outlined in Preacher, Zyphur, and Zhang (2010). In this

multilevel structural equation model, all the effects of independent variables reflected

intra-individual variations, and intercepts and slopes were allowed to vary randomly across

individuals.

Following Baron and Kenny's (1986) steps, we first found a temporal decline in both

positive emotions and national identity salience, as described above. Second, when we

simultaneously regressed identity salience on number of days and positive emotions, positive

emotions were related to identity salience, $B = .187$, $p < .001$, whereas the effect of number of days was reduced by 35%, $B = -.015$, $p = .011$. Finally, the lower-level mediation of positive emotions was supported by the test of random indirect effect (average random indirect effect = -.014, 95% CI = [-.024 to -.005]; Bauer et al., 2006). The mediation effect of positive emotions remained significant when we controlled for negative emotions and hours of watching games in which Chinese athletes participated (see Figure 2). Hence, our affective adaptation hypothesis was supported.

We also tested the mediation of negative emotions. However, given that negative emotions were stable over time and not related to number of days, $r = .01$, $p = .813$, adaptation of negative emotions was very unlikely. Thus, negative emotions could not explain the temporal decline of national identity salience.

Ancillary Analyses: Testing for Alternative Explanations

Two issues are noteworthy in the above analyses. First, since positive emotions and identity salience peaked highly on Day 1 (i.e., Opening Ceremony), it is possible that the temporal changes in positive emotions and identity salience were primarily driven by these very strong initial reactions on Day 1 rather than the subsequent steady decline that was presumably driven by emotional adaptation. We re-ran the mediational analyses with Day 1 excluded for a more rigorous test on our hypothesis on affective adaptation. Following the same mediation procedure described above, we found that both positive emotions and national identity salience steadily declined over time, Bs = -.036 and -.015, respectively, $p \leq .018$. When we simultaneously regressed identity salience on number of days and positive emotions, positive emotions were related to identity salience, $B = .186$, $p < .001$, whereas the effect of number of days became nonsignificant, $B = -.008$, $p = .210$. Importantly, the lower-level mediation of positive emotions was supported, and the average random indirect effect = -.007, $p = .003$, 95% CI = [-.011, -.002]. Therefore, our hypothesis was supported in

this rigorous test, suggesting that temporal changes in positive emotions and identity salience were not merely driven by the peaking responses on Day 1.

Second, the present research examined how affective adaptation influenced the dissipation of identity salience. However, the reversed direction was also plausible such that temporal change in positive emotions was affected by identity salience. To rule out this alternative explanation, we tested the reversed mediating effect of identity salience on the relation between number of days and positive emotions. Following the same multilevel analyses and mediation procedure described above, we found that the reversed mediating effect of identity salience was not supported (average random indirect effect = .000, p = .761, 95% CI = [-.003 to .002]). To further compare two non-nested mediation models in which either positive emotions or identity salience acted as the mediator, Akaike (AIC), Bayesian (BIC), and sample-size adjusted Bayesian information criterion (adjusted BIC) were used to identify a better-fitting model. The sizes of AIC, BIC, and adjusted BIC for the mediation model with positive emotions as a mediator (AIC = 15618.5, BIC = 15756.1, adjusted BIC = 15673.5) were smaller than the ones with identity salience as a mediator (AIC = 15621.6, BIC = 15775.0, adjusted BIC = 15682.9). Therefore, the model hypothesizing affective adaptation as the mechanism is a better-fitting model.

Moreover, to resolve the directionality paradox between positive emotions and identity salience, we aggregated the daily measures to test a four-wave cross-lagged panel model, so that the direction of influence could be revealed. Under the assumptions of stationary processes and constant stability (Cole & Maxwell, 2003), autoregressive effects and cross-lagged panel effects were constrained as equal across waves. Overall, the present model showed an acceptable fit to the data ($\chi^2(22)$ = 34.4, CFI = .98, NNFI = .97, RMSEA = .08). On one hand, both positive emotions (B = .935, p < .001) and identity salience (B = .783, p < .001) exhibited stability across waves. On the other hand, consistent with the

hypothesized effect of affective adaptation on identity salience, positive emotions influenced identity salience over time ($B = .214$, $p < .001$). Yet, identity salience could not affect positive emotions over time ($B = .066$, $p = .153$). This causal dominance favoring the lagged effect of positive emotions on identity salience was statistically significant ($\theta = .148$, $p = .029$). Therefore, the direction of influence was from positive emotions to identity salience over time, but not the other way round.

With the evidence provided by these ancillary analyses, the present study further supported the mediating role of affective adaptation in the dissipation of identity salience during the event. As China was ranked highest in medal tally at the 2008 Olympics and the number of medals won by Chinese athletes was stable across the game days without a declining trend, the decrease of positive emotions should not be due to Chinese athletes' performances.

Study 2

After examining the trajectory of identity salience in a relatively prolonged exposure to a naturally occurring event in Study 1, we extended the investigation within a shorter time window and in a controlled setting. Moreover, in this study, we repeatedly exposed participants to articles that could elicit positive emotions. Participants were randomly assigned to one of the two sets of 11 articles, which are either related or unrelated to their national group (e.g., stories of Chinese achievement or funny stories), so that we could experimentally manipulate the relevance of positive emotion toward the target group.

In line with Study 1, we first hypothesized that, due to affective adaptation, positive emotions would decrease over time in both conditions. Secondly, we hypothesized that, when exposed to identity-relevant information in the achievement condition, the salience of Chinese identity would initially elevate, but then drop back. This pattern would not be expected in the funny story condition. Thirdly, we hypothesized that positive emotions

associated with the national group mediated the temporal decline of the salience of Chinese identity in the achievement condition. Finally, we also measured the salience of other irrelevant identities (e.g., family and friends), to show that affective adaptation only influences the salience of the relevant identity (i.e., Chinese identity), not the others. We predicted that the identity-related positive emotions elicited by cultural events would affect the salience of national identity. Thus, if the natural fluctuation of positive emotions is not relevant to one's national identity, the fluctuation might not be carried to the salience of one's national identity. Built on these premises, we posited that positive emotions arising from irrelevant situations should be weakly associated with or even not related to the salience of national identity.

Method

Participants and Procedure

We recruited 86 Chinese students (61 females; $M_{age} = 19.45$, $SD = 0.82$) from a university in Beijing, China, for an experimental study. Participants were randomly assigned to either one of the two experimental conditions. In the achievement condition, participants were asked to read eleven short articles depicting the economic and scientific achievements of China in recent years, so as to simulate continuous exposure to a cultural event. After reading each article, participants were asked to rate their emotions and identity salience. In the funny story condition, participants were asked to read eleven funny stories and respond to questions about emotions and identity salience following each story. Thus, each participant went through eleven trials in total, with one article and one set of measures in each trial. All participants in each condition rated the eleven articles in the same presentation order.

Measures

Manipulation check. Participants were asked to rate how funny the materials were with one item anchored on a 5-point scale ranging from 1 (*not funny at all*) to 5 (*very funny*).

Results of independent sample t-test showed that participants in the funny story condition rated the materials as significantly more funny ($M = 3.62$, $SD = .96$) than those in the achievement condition ($M = 1.50$, $SD = .79$), $t(84) = 11.18$, $p < .001$. Participants were also asked to rate how credible the materials were with one item anchored on a 5-point scale ranging from 1 (*not credible at all*) to 5 (*very credible*). Independent sample *t*-test showed that participants in the achievement condition rated the materials as significantly more credible ($M = 3.84$, $SD = .81$) than those in the funny story condition ($M = 1.86$, $SD = .72$), $t(84) = 12.04$, $p < .001$.

Positive and negative emotions. Similar to Study 1, the emotion items were sampled from the measures by Watson, Clark, and Tellegen (1988) and Larsen and Diener (1992). Participants were asked to rate the extent to which they felt the following emotions after reading each article in the achievement condition or each story in the funny story condition. As they needed to rate the emotions for 11 times within one experimental session, we used fewer items to reduce fatigue, including three positive emotions (*proud, joyful,* and *glad*) and four negative emotions (*sad*, *anxious*, *irritable*, and *nervous*) on 5-point scales, ranging from 1 (*not at all*) to 5 (*extremely*). The mean score was computed for each trial as an index of positive or negative emotions at each trial. Then the mean score was computed as an index of positive or negative emotions. The alpha was .96 and .82 for positive emotions in the achievement and funny story conditions, respectively, and .91 and .90 for negative emotions in the two conditions, respectively.

Identity salience. The measure was the same as in Study 1.

Results

The experiment had a multilevel structure with 940 trials nested within 86 participants. Gender and age were dropped in subsequent analyses, as they did not affect the results significantly. Similar to Study 1, the non-significant effect of age was probably due to the

relative homogeneous age group of university students in the current sample.

Changes in Salience of Different Social Identities

Descriptive statistics of the five identity salience measures at the first and last trials in both conditions are summarized in Table 2. In general, all five measures of identity salience were negatively correlated with the number of trials, indicating the declining trends along eleven trials in both conditions. Specifically, in the achievement condition, national identity was related to positive emotions, $r = .36$, $p < .001$, while other identities were not, rs $< .12$, $p > .050$. In addition, as expected, national identity was not correlated with positive emotions in the funny story condition, $r < .10$, $p > .161$. A between-group comparison analysis also revealed that the correlation between national identity and positive emotions was stronger in achievement condition than in funny story condition, estimate $= .206$, $p = .047$, 95% CIs [-.409, -.003]. Taken together, positive emotions were likely to explain the temporal decline of national identity salience elicited by the identity-related stimuli. Positive emotions were significantly associated with ethnic identity in the achievement condition and with age identity in the funny story condition, perhaps because some content in the achievement articles was related to ethnicity and some content in the funny stories was related to age, but the correlations of positive emotions with the salience of ethnicity and age were weaker than that with the salience of national identity.

Mediation of Positive Emotions on Identity Salience

Using multiple-group multilevel analyses, we examined whether (a) the presence versus absence of the national-identity-related stimuli drove the temporal changes of the salience of national identity and (b) whether this process was mediated by positive emotions. Two conditions were specified as two independent groups and the mediating effect of positive emotions between number of trials and identity salience were tested simultaneously across these two groups. Using the same analytic procedures in Study 1 (Preacher et al.,

2010), the same mediation model was fitted in the present study, with random intercepts and slopes.

In the achievement condition, number of trials significantly predicted positive emotions, $B = -.07$, $p < .001$, suggesting a temporal decline in positive emotions across the trials while participants read materials relevant to national achievement. The temporal decline in positive emotions was in turn related to the decline of national identity salience, $B = .45$, $p < .001$. The significant random indirect effect, estimate $= -.03$, $p = .005$, 95% CIs [-.06, -.01], supported the lower-level mediating effect of positive emotions on the relation between number of trials and national identity salience. Finally, the significant direct effect, $B = -.04$, $p = .039$, indicated that the effect of number of trials on national identity salience partially worked through the effects of positive emotions.

In the funny story condition, number of trials significantly predicted positive emotions, $B = -.06$, $p < .001$, and national identity salience, $B = -.08$, $p = .009$. However, temporal decline in positive emotions could not predict the decline of national identity salience, $B = .18$, $p = .191$, and thus positive emotions failed to mediate the effect of number of trials on national identity salience, random indirect effect $= -.01$, $p = .229$, 95% CIs [-.03, .01].

A between-group comparison analysis also indicated that affective adaptation took place in both conditions, estimate $= .013$, $p = .569$, 95% CIs [-.03, .06], while changes of the salience of national identity were predicted by the fluctuation in positive emotions elicited by national-identity-related positive stimuli but not by national-identity-unrelated positive stimuli, estimate $= -.274$, $p = .093$, 90% CIs [-.542, -.001]. Taken together, our results indicated that affective adaptation explained the effects of continuous exposure to positive stimuli relevant to national identity, instead of generally positive stimuli, on the changes of national identity (see Figure 3). Thus, affective adaptation of positive emotions could drive changes of identity salience, only when the trigger of positive emotions was relevant to the

identity.

Ancillary Analyses: Tests of Alternative Explanations

We also tested whether negative emotions were likely to explain the temporal changes of national identity salience driven by identity relevant materials. Results indicated that negative emotions increased along the trials in both conditions. Yet, consistent with Study 1, negative emotions failed to mediate the relations between number of trials and national identity salience in both conditions, mainly due to its non-significant prediction on national identity salience.

In this experiment, all participants in each condition rated the eleven articles in the same presentation order. With this arrangement, the fluctuations of positive emotions across trials could have resulted from the differences among articles across trials, such that we have accidentally chosen the more exciting articles to be presented earlier To rule out this confound, an independent sample of 22 participants (15 females; $M_{age} = 21.05$, $SD = 1.40$) were recruited and randomly assigned into the achievement condition and funny story condition [1]. In each condition, each of the eleven participants was shown the same 11 articles adopted in Study 2, but with different orders. For example, participant 1 read article 1 to article 11 in an ascending order; participant 2 started from article 2 to article 11 in an ascending order and then read article 1; participant 7 started from article 7 to article 11 and then read article 1 to article 6. Thus, across 11 participants, each article was shown at all different trials. Two sets of repeated-measures ANOVA were employed in both conditions, examining whether the 11 articles elicited different levels of positive emotions after controlling for their presentation order. Results indicated that positive emotions elicited by the articles did not differ significantly, $Fs(10, 100) < 1.10$, $ps > .37$. Given that the articles were equally exciting, we were able to rule out the possibility that the decline of positive emotion in the main study is simply driven by the differential emotion-arousing capacities of

the articles.

General Discussion

By tracking the identity processes throughout the event rather than snapshots of initial reactions, the present research examined the effects of affective adaptation on the salience of social identity in the time course of culturally important events. Study 1 adopted a daily diary design to examine the trajectory of the salience of a social identity (i.e., Chinese) in relatively prolonged exposure to a naturally occurring event (i.e., the 2008 Beijing Olympics). We found that national identity among Chinese participants was initially salient at the beginning of the Olympics. However, despite the continuous excitement-provoking coverage in local media and the championship in the medal tally, the salience of national identity declined steadily over the course of the Olympics (as a linear, not quadratic, trend was observed) *and* returned to the baseline even before the Olympics ended.

More importantly, Study 2 employed an experimental design to demonstrate that the influence of affective adaptation of positive emotions on the decline of national identity salience was evident only in the achievement condition which evoked positive emotions associated with one's national group, but not in the funny story condition which evoked positive emotions that did not tie to any identity. The results suggested that only affective adaptation of positive emotions associated with one's national identity could drive and mediate changes of the salience of a national identity.

Affective Adaptation and Identity Salience

Previous work on affective adaptation has well documented about how malleable the utility of and the subjective experience with an object can be over time (Loewenstein & Ubel, 2008; Wilson & Gilbert, 2008). The volume of research has exclusively focused upon personal life events rather than significant collective events. The present research provided evidence on the linkage between affective adaptation and group-related phenomena (e.g., the

salience of group identity).

The impact of emotion on identity-related processes is not an entirely new question in the literature. The content and intensity of emotion have been found to influence group identity in a short-time frame (Bornman, 1999; Phinney & Chavira, 1992). For example, by basking in reflected glory, upset mood fostered identification with a successful group (Cialdini, Borden, Thorne, Walker, Freeman, & Sloan, 1976). While facing mortality salience, people are motivated to reduce anxiety by identifying with their social groups (Goldenberg, Pyszczynski, Greenberg & Solomon, 2000; Pyszczynski, Solomon & Greenberg, 2003; Rosenblatt, Greenberg, Solomon, Pyszczynski & Lyon, 1989). The present research further used another property of emotion, affective adaptation, to explain the temporal decline of identity salience under emotional influences. The results suggested that although the initial elevation of the salience of a particular identity depends on situational cues, such salience cannot be maintained by repeated exposure to identity-related cues. Instead, the salience is constrained by affective adaptation. This interesting phenomenon highlights the complexity of dynamic interactions between emotion and group identity.

Recent research (e.g., Eastwick, Finkel, Krishnamurti, & Loewenstein, 2008; Gilbert et al., 1998) has shown that individuals often overlook the influence of affective adaptation, mispredicting the duration of their emotions and hence making unwise decisions. Our findings capitalize the implications of affective adaptation for creating and sustaining the selfhood. Life events, such as relationship breakup, can influence the clarity and expansion of self-concept (e.g., Slotter, Gardner, & Finkel, 2010). Given its presence in major life events, such as divorce, marriage, and unemployment (Diener, Lucas, & Scollon, 2006; Kahneman, Diener, & Schwarz, 1999), affective adaptation can be an important mechanism to neutralize the impact of the life events by distancing the self with the earned and lost identities, and thereby redirect the selfhood toward the pursuit of other meaningful identities. Building upon

this extension, the present research provides evidence on the implications of affective adaptation for important group consequences (e.g., national pride among citizens). Policy makers may need to cautiously consider the benefits of an effect of hosting global events on promoting short-lived national pride (e.g., "Is a *short-lived* boost to national identity worth trillions of dollars?"; Loewenstein & Ubel, 2008).

Limitations and Future Directions

As participants were asked to complete repeated measures of different social identities across 19 time points in Study 1 and 11 times in Study 2, single items were used to assess the salience of different identities. Though the validity of single items measuring the salience of different social identities has been established in past research (e.g., Yip, 2005), future studies may use multiple items to assess identity salience, such that its reliability can be evaluated.

Moreover, due to the time constraint of a controlled experiment, the time window explored in Study 2 is much shorter than that of Study 1. The psychological nature of affective adaptation within these time windows can be different. Future studies are encouraged to identify the differences and commonality between these two types of affective adaptation (e.g., attention and cognitive appraisals). However, at the very least, both studies showed that affective adaptation can explain the decline of identity salience in these time windows.

The 2008 Beijing Olympics aspired to the "One World, One Dream" ideal, but when the Beijing Olympic icon was presented to Chinese and Americans, those with high levels of nationalism and patriotism perceived greater differences between Chinese and American cultures than their counterparts with low levels of nationalism and patriotism (Rosner, Li, Chao, & Hong, 2010). In this sense, the decline of national identity salience may reduce perceived differences from other cultures and cultivate feelings of commonality and unity, which are conducive to identification with all humanity as citizens of a globalized village.

Future research can track the temporal changes of both national identity and identification with all humanity (McFarland, Webb, & Brown, 2012) during global events to examine the interplay of local and global identity. It is also worth examining how affective adaptation of emotions may influence intergroup relations, especially when exchanges and connections between cultures are growing under the influence of globalization (Chen et al., 2016). For instance, it may be interesting to test whether affective adaptation can reduce anger and fear among members of two formerly competing groups and then promote cooperation between two groups over time.

Conclusion

In closing, we have shown that a cultural event, *when continuously exposed for a long time*, can quickly mute its emotional significance to one's national identity. To be clear, we do not argue that cultural events completely lose their emotional impact on one's social identity in the long run. When a cultural event precipitates as a cultural legacy, we believe that a reminder of this long forgotten legacy later can still relive one's positive emotions associated with it.

References

Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.Appadurai, A.

  (1990). Disjuncture and difference in the global cultural economy. *Public Culture, 2*,

  295–310.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social

  psychological research: Conceptual, strategic, and statistical considerations. *Journal

  of Personality and Social Psychology, 51*, 1173-1182.

Bauer, D. J., Preacher, K. J., & Gil, K. M. (2006). Conceptualizing and testing random

  indirect effects and moderated mediation in multilevel models: New procedures and

  recommendations. *Psychological Methods, 11*, 142-163.

Beggan, J. K. (1992). On the social nature of nonsocial perception: The mere ownership

  effect. *Journal of Personality and Social Psychology, 62*, 229-237.

Bornman, E. (1999). Self-image and ethnic identification in South Africa. *Journal of Social

  Psychology, 139*, 411-425.

Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.

Brickman, P., & Campbell, D. T. (1971). Hedonic relativism and planning the good society.

  In M. H. Appley (Ed.), *Adaptation Level Theory: A Symposium* (pp. 287-304). New

  York: Academic Press.

Chen, S. X., Lam, B. C. P., Hui, B. P. H., Ng, J. C. K., Mak, W. W. S., Guan, Y., Buchtel, E.

  E., Tang, W., & Lau, V. C. Y. (2016). Conceptualizing psychological processes in

  response to globalization: Components, antecedents, and consequences of global

  orientation, *11,* 302-331.

Cialdini, R. B., Borden, R. J., Thorne, A., Walker, M., Freeman, S., & Sloan, L. (1976).

  Basking in reflected glory: Three (football) field studies. *Journal of Personality and

  Social Psychology, 34,* 366-375.

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology, 112*, 558-577.

Deaux, K. (2000). Models, meaning and motivations. In D. Capozza & R. Brown (Eds.), *Social identity processes: Trends in theory and research* (pp.1-14). London: Sage.

Deaux, K., Reid, A., Mizrahi, K., Cotting, D. (1999). Connecting the person to the social: The functions of social identification. In T. Tyler, R. Kramer et al. (Eds.), *The psychology of the social self: Applied social research* (pp. 91-113). Mahwah, NJ: Lawrence Erlbaum Associates.

Diener, E., Lucas, R. E., & Scollon, C. N. (2006). Beyond the hedonic treadmill: Revisions to the adaptation theory of well-being. *American Psychologist, 61,* 305–314.

Eastwick, P. W., Finkel, E. J., Krishnamurti, T., & Loewenstein, G. (2008). Mispredicting distress following romantic breakup: Revealing the time course of the affective forecasting error. *Journal of Experimental Social Psychology, 44*, 800-807.

Fredrick, S., & Loewenstein, G. (1999). Hedonic adaptation. In D. Kahneman, E. Diener & N. Schwarz (Eds.), *Well-being: The foundations of a hedonic psychology* (pp. 302-329). New York: Russell Sage Foundation.

Frijda, N. H. (1986). *The emotions*. Cambridge: Cambridge University Press.

Frijda, N. H. (1988). The laws of emotion. *American Psychologist*, *43*, 349–358.

Gilbert, D. T., Pinel, E. C., Wilson, T. D., Blumberg, S. J., & Wheatley, T. P. (1998). Immune neglect: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology, 75*, 617-638.

Goldenberg, J., Pyszczynski, T., Greenberg, J., & Solomon, S. (2000). Fleeing the body: A terror management perspective on the problem of human corporeality. *Personality & Social Psychology Review, 4,* 200-218.

Greising, D. (2009, August 28). Chicago's 2016 Olympics bid: Deeper look shows potential

  financial pitfalls. *Chicago Tribune*, retrieved from

  http://articles.chicagotribune.com/2009-08-28/news/0908280326_1_bid-committee-m

  illion-in-red-ink-million-shortfall.

Higgins, T. (2000). Social cognition: Learning about what matters in the social world.

  European Journal of Social Psychology, *30*, 3-39.

Hogg, M.A., & McGarty, C. (1990). Self-categorization and social identity. In D. Abrams &

  M. Hogg (Eds.), *Social identity theory: Constructive and critical advances* (pp.10-

  27). London: Harvester /Wheatsheaf.

James, W. (1890/1918). *The principles of psychology* (Vol. 1). New York: Dover

  publications.

Johnson, K. (2010). Canadian pride, national identity emerge with Olympic success. *USA

  Today*, retrieved February 28, 2010 from

  http://www.usatoday.com/sports/olympics/vancouver/2010-02-28-candaian-olympic-l

  egacy_N.htm.

Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (1999). *Well-being: The foundations of

  hedonic psychology*. New York: Russell Sage Foundation.

Kelly, J. R., & Spoor, J. R. (2007). Naive theories about the effects of mood in groups: A

  preliminary investigation. *Group Processes & Intergroup Relations, 10*,

  203-222.Keltner, D., Gruendfel, D., & Anderson, C. (2003). Power, approach, and

  inhibition.

  Psychological Review, 110, 265-284.

Kessler, T., & Hollbach, S. (2005). Group-based emotions as determinants of ingroup

  identification. *Journal of Experimental Social Psychology, 41,* 677–685.

Kersting, N. (2007). Sport and national identity: A comparison of the 2006 and 2010 FIFA

World Cups. *Politikon, 34,* 277-293.

Leary, M. R. (2007). Motivational and emotional aspects of the self. *Annual Review of*

   Psychology, 58, 317-344.

Larsen, R. J., & Diener, E. (1992). Promises and problems with the circumplex model of

   emotion. In M. S. Clark (Ed.), *Review of personality and social psychology: Emotion*

   (Vol. 13, pp. 25-59). Newbury Park, CA: Sage.

Livingstone, A. G., Spears, R., Manstead, A. S. R., Bruder, M. and Shepherd, L. (2011). We

   feel, therefore we are: Emotion as a basis for self-categorization and social

   action. *Emotion, 11,* 754-767.

Loewenstein, G., & Ubel, P. A. (2008). Hedonic adaptation and the role of decision and

   experience utility in public policy. *Journal of Public Economics, 92*, 1795-1810.

Lucas, R. E. (2005). Time does not heal all wounds: A longitudinal study of reaction and

   adaptation to divorce. *Psychological Science, 16*, 945-950.

Lucas, R. E., Clark, A. E., Georgellis, Y., & Diener, E. (2003). Reexamining adaptation and

   the set point model of happiness: Reactions to changes in marital status. *Journal of*

   Personality and Social Psychology, 84, 527-539.

Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2012). Subjectivewell-being and

   adaptation to life events: A meta-analysis. *Journal of Personality and Social*

   Psychology, 102(3), 592–615.

Mackie, D. M., Devos, T., & Smith, E. R. (2000). Intergroup emotions: Explaining offensive

   action tendencies in an intergroup context. *Journal of Personality and Social*

   Psychology, 79, 602-616.

McFarland, S. G., Webb, M., & Brown, D. (2012). All humanity is my ingroup: A measure

   and studies of Identification with all humanity. *Journal of Personality and Social*

   Psychology, 103, 830–853.

McGarty, C. (2001). Social identity theory does not maintain that identification produce bias, and self-categorization theory does not maintain that salience is identification: Two comments on Mummendey, Klink and Brown. *British Journal of Social Psychology*, *40*, 173-176.

Muthén, B. (1994). Multilevel covariance structure analysis. In J. Hox, & I. Kreft (Eds.), *Multilevel modeling, a special issue of sociological methods & research* (pp. 376-398).

Peugh, J. L., & Enders, C. K. (2005). Using the SPSS mixed procedure to fit cross-sectional and longitudinal multilevel models. Educational and Psychological Measurement, 65, 717-741.

Phinney, J. S., & Chavira, V. (1992). Ethnic identity and self-esteem: An exploratory longitudinal study. Journal of Adolescence, 15, 271-281.

Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods, 15,* 209-233.

Pyszczysnki, T., Solomon, S., & Greenberg, J. (2003). *In the wake of 9/11: The psychology of terror*. Washington, DC: American Psychological Association.Reid, A., & Deaux, K. (1996). Relationship between social and personal identities: Segregation or integration ? *Journal of Personality and Social Psychology, 71*, 1084-1091

Riis, J., Loewenstein, G., Baron, J., Jepson, C., Fagerlin, A., & Ubel, P. A. (2005). Ignorance of hedonic adaptation to hemodialysis: A study using ecological momentary assessment. *Journal of Experimental Psychology: General, 134,* 3-9.

Rosenblatt, A., Greenberg, J., Solomon, S., Pyszczynski, T., & Lyon, D. (1989). Evidence for terror management theory: I. The effects of mortality salience on reactions to those who violate or uphold cultural values. *Journal of Personality and Social Psychology,*

57, 681–90.

Rosner, J. L., Li, Y., Chao, M. M., & Hong, Y. 2010. One world, just a dream? Effects of the Beijing Olympic icon on perceived differences between Eastern and Western culture. *Asian Journal of Social Psychology, 13,* 139-151.

Seger, C. R., Smith, E. R., & Mackie, D. M. (2009). Subtle activation of a social categorization triggers group-level emotions. *Journal of Experimental Social Psychology, 42*, 460-467.

Smith, E. R. (1993). Social identity and social emotions: Toward new conceptualizations of prejudice. In D. M. Mackie & D. L. Hamilton (Eds.), Affect, cognition, and stereotyping: Interactive processes in group perception (pp. 297-315). San Diego: Academic Press.

Smith, E. R., Seger, C. R., & Mackie, D. M. (2007). Can emotions be truly group-level? Evidence regarding four conceptual criteria. *Journal of Personality and Social Psychology, 93*, 431-446.

Spoor, J. R., & Kelly, J. R. (2004). The evolutionary significance of affect in groups: Communication and group bonding. *Group Processes & Intergroup Relations, 7*, 398-412.

Slotter, E. B., Gardner, W. L., & Finkel, E. J. (2010) Who am "I" without "you"? The influence of romantic breakup on self-concept clarity. *Personality and Social Psychology Bulletin, 36,* 147-160.

Stets, J. E. (2005). Examining emotions in identity theory. *Social Psychology Quarterly*, *68*, 39-56.

Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *The social psychology of intergroup relations* (2nd ed., pp. 7-24). Monterey, CA: Brooks-Cole.

Thomas, E. F., McGarty, C., & Mavor, K. I. (2009). Aligning identities, emotions, and beliefs to create commitment to sustainable social and political action. *Personality and Social Psychology Review, 13,* 194-218.

Vanman, E.J., & Miller, N. (1993). Applications of emotion theory and research to stereotyping and intergroup relations. In D.M. Mackie & D.L Hamilton (Eds.), *Affect, cognition and stereotyping: interactive processes in group perception* (pp. 297-315). San Diego: Academic Press.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063-1070.

Wilson, T. D., & Gilbert, D. T. (2008). Explaining away: A model of affective adaptation. *Perspectives on Psychological Science, 3,* 370-386.

Yip, T. (2005). Sources of situational variation in ethnic identity and psychological well-being: A palm pilot study of Chinese American students. *Personality and Social Psychology Bulletin, 31*, 1603-1616.

Footnotes

1. We have conducted priori power analysis, assuming that the overall effect of a

   repeated-measures analysis with 11 within-subject categories reflects a medium effect

   size of f and that the association among measures across 11 within-subject categories

   reflects a large inter-correlation. The required sample size to achieve statistical power

   of at least 80% with the control of alpha at .05 is 13. In this study, to balance the

   combinations of the order of articles/stories, we recruited 22 participants for two

   conditions, with 11 different combinations in each condition. Therefore, it is argued

   that the current sample size could probably detect the significant within-subject effect

   across 11 categories with adequate statistical power given that the true effect is

   significant.

Table 1

Means (and Standard Deviations) of Identity Salience at Different Time-Points and its

Correlations with Day and Positive Emotions during the Olympics (Study 1)

	Time-Point				Correlations	
Identity Type	Pre-Game	First Day	Last Day	Post-Game	Day	PE
National Identity	5.39(1.80)[a]	6.48(.79)[b]	5.61(1.22)[a]	5.28(1.33)[a]	-.16***	.16***
Age Identity	5.22(1.35)[a]	5.09(1.52)[a]	4.83(1.64)[a]	5.26(1.29)[a]	-.01	.03
Ethnic Identity	4.30(2.05)[a]	4.94(2.03)[a]	4.89(1.72)[a]	4.44(1.75)[a]	.01	-.00
Friend Identity	5.20(1.82)[a]	5.37(1.67)[a]	5.41(1.19)[a]	5.61(1.18)[a]	.00	.05
Family Identity	5.67(1.56)[a]	4.65(2.06)[bc]	5.15(1.53)[ac]	5.28(1.38)[ac]	.13**	-.03

*$p < .05$, **$p < .01$, ***$p < .001$.

Note. PE = positive emotions.

Means indicated above are based on a subsample of participants who reported on all four

time points.

Means in each row not sharing the same superscript differ significantly ($p < .05$) from each

other.

Table 2

Levels of Identity Salience at the First Trial and Last Trial, and Their Correlations with Trial and Positive Emotions in Study 2

Identity Type	Achievement Articles						Funny Stories					
	M (SD)				Correlation		*M (SD)*				Correlation	
	First trial		Last trial		Trial	PE	First trial		Last trial		Trial	PE
National Identity	6.02	(1.25)[a]	5.70	(1.65)[a]	-.19 **	.36 ***	4.64	(1.96)[a]	3.24	(2.30)[b]	-.24 ***	.10
Age Identity	3.68	(2.11)[a]	3.09	(2.14)[a]	-.13	-.12	5.40	(1.52)[a]	3.98	(2.19)[b]	-.36 ***	.14 **
Ethnic Identity	5.11	(1.87)[a]	5.23	(1.93)[a]	-.12	.28 **	4.07	(1.98)[a]	3.02	(2.16)[b]	-.22 ***	.07
Friend Identity	3.14	(2.08)[a]	2.52	(2.14)[b]	-.24 ***	.02	5.10	(1.82)[a]	3.48	(2.38)[b]	-.28 ***	.07
Family Identity	3.52	(2.49)[a]	2.57	(2.26)[b]	-.26 ***	.10	5.67	(1.83)[a]	3.57	(2.48)[b]	-.39 ***	.02

*p < .05, **p < .01, ***p < .001.

Note. PE = positive emotions.

For each identity type in each condition, means of first and last trials share the same superscript if they do not differ significantly from each other (*p* < .05).
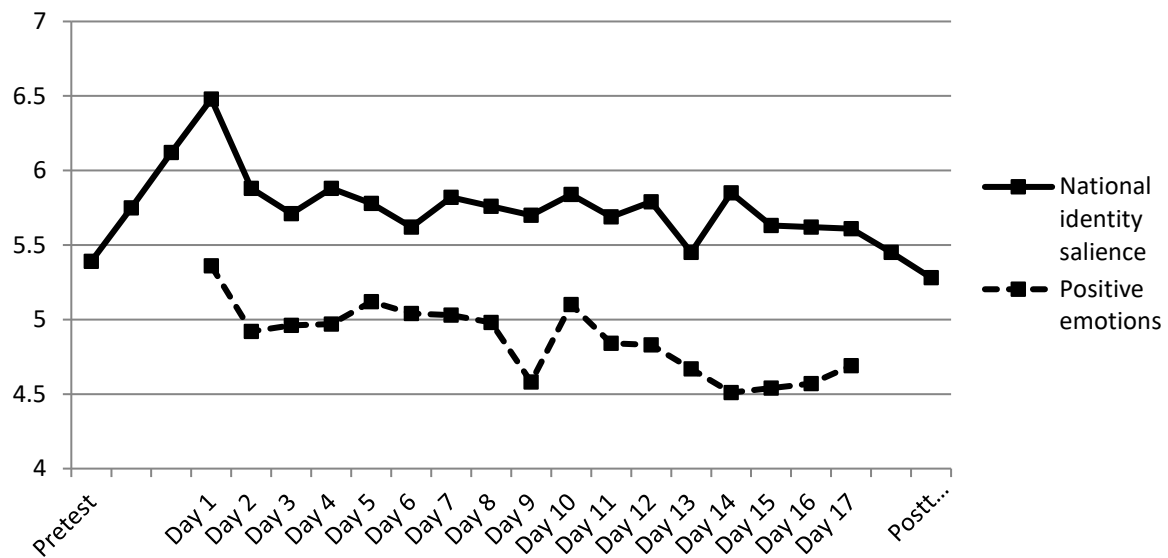
Figure 1. Decline of national identity salience along with positive emotions during the
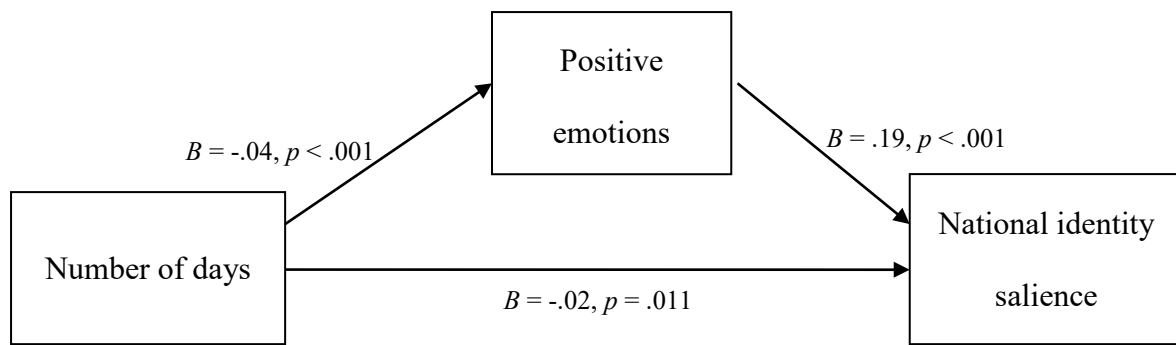
Olympics (Study 1).

Figure 2. Mediation model in Study 1.
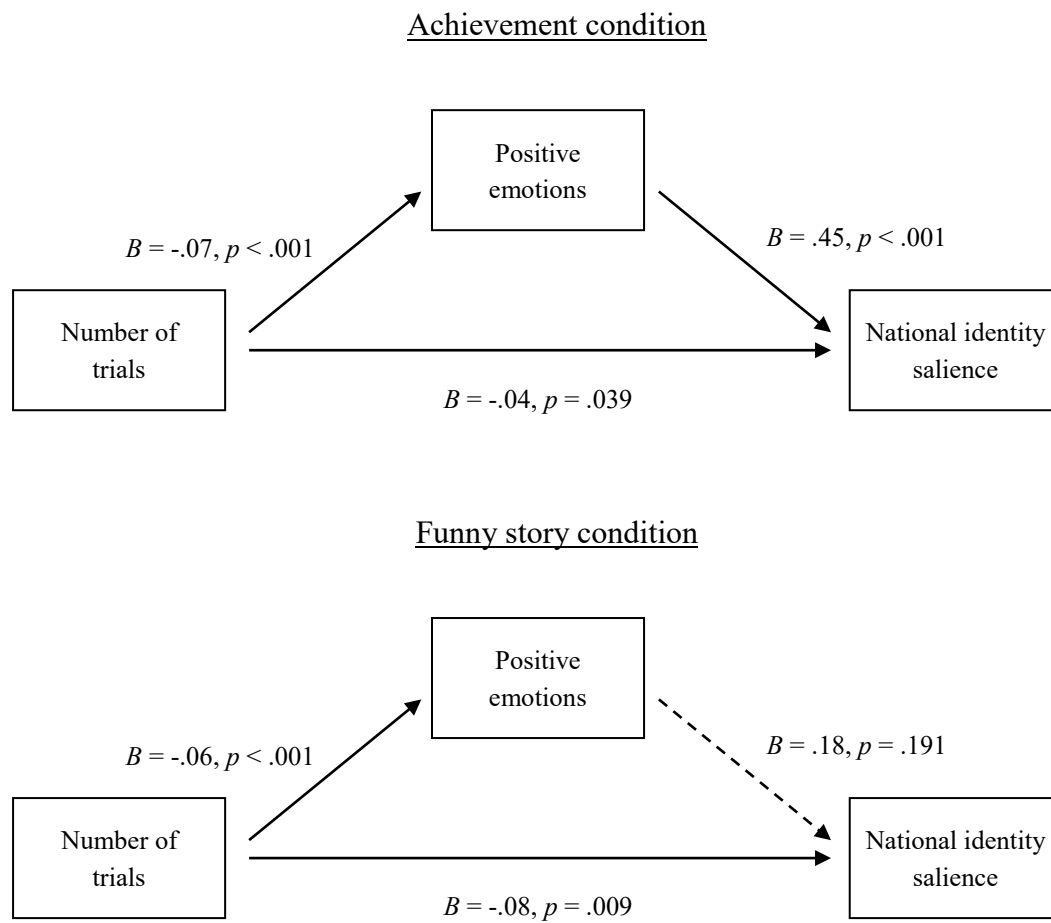
Achievement condition

Funny story condition

Figure 3. Multiple-group mediation model in Study 2.