

# Assumed-Competence Based on Undervaluing Others as a Determinant of Emotions: Focusing on Anger and Sadness

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The purpose of this study is to examine whether a new construct “Assumed-Competence based on undervaluing others (AC)” could be a determinant of anger and sadness for contemporary Japanese adolescents. A set of questionnaires was administered to 584 high school students, who rated ACS-2 (Assumed-Competence Scale, second version), Rosenberg’s self-esteem scale, in relation to their perceived emotional reactions toward certain negative personal and social events, and other scales. The results indicated that the students who got angry at personal events were likely to have high AC. However, those who felt neither anger nor sadness in relation to such social events were likely to have high AC. The role of AC in emotional reactions and suggestions for future research was also discussed.

**Key Words:** assumed-competence, self-esteem, anger, sadness

The Japanese word, ‘kireru’, which means to get angry easily, is frequently used when one talks about the characteristics of Japanese adolescents today. For example, when high school students are scolded or insulted by someone, their immediate reactions may be to retaliate with verbal remarks or impulsive physical attacks toward the opponents. In addition, the interviews with 68 elementary and junior high school teachers conducted by Hayamizu and Niwa (2002), found that present-day children and early

adolescents were less likely to feel sad even when they lost a class-match or a team competition in comparison to those of the previous generation. What can be the cause of such indifference? Why do present-day Japanese early adolescents tend to lose their temper easily and have a lesser tendency to feel sad? This study seeks to explore the determinants of these emotional reactions.

It is said that both sadness and anger can be felt when a person is not able to achieve his/her goal. Research by Roseman (1984) and Smith and Ellsworth (1987) indicated that in the presence of an undesirable outcome, the person involved tended to get angry when he/she put the blame on someone else, and conversely, he/she would tend to feel sad when he/she attributed the undesirable outcome to the situation. Sakagami (1999) also suggested that one would experience more sadness when one realized that a goal was unattainable, whereas one would be more likely to feel anger when he/she foresaw the potential of attaining the goal and yet failed to achieve it. In other words, those who possess high potential may be more likely to react with anger in times of failure. From these findings, it can be suggested that in facing negative events, students who perceive themselves as

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competent will be more likely to attribute the cause of the events to others and to get angry, whereas students who consider their competence lower will be more likely to attribute the events as their own faults or other fatalistic elements and to feel sad. If this hypothesis is true, can it be said that young Japanese adolescents of today perceive themselves as competent and confident individuals? There is no affirmative answer to this question as some international surveys about students' competence revealed that Japanese students possessed a lower level of competence (Kosawa, 2000) and self-esteem (Kawachi, 2003) compared to students in other countries.

Hayamizu, Kino and Takagi (2003) proposed a new psychological construct "Assumed-Competence based on undervaluing others (AC)" to explain the anger and sadness of present-day adolescents in Japan. AC is a form of illusory competence which one gains by demeaning others. It is a façade one unconsciously puts up that seems to portray one's true competence. AC differs from self-esteem that may manifest itself in true competence.

The following may be one of the explanations for the AC phenomenon. With the advancement of scientific technology, manual work is reduced, and thus the necessity for collaboration with others to attain goals declines. As a consequence, concern and respect for each other was also diluted, and people tend to undervalue others, especially those whom they are unfamiliar with, because of the lack of information for discreet evaluation of their ability. This seems to be evident among Japanese youths as they are found to be more self-centered (Sengoku, 2001) and such a characteristic may further evoke AC in them. In Japanese society, students are exposed to severe competition such as entrance examinations and in job-hunting, and youngsters may experience a sense of failure rather than success as an outcome of these highly competitive situations. Those who fail to achieve their goals are likely to employ a self-protection mechanism to protect their confidence and ego with their AC by undervaluing others.<sup>1</sup> Thus, AC may have an ego-defensive purpose in threatening situations.

Considering these characteristics of AC, Hayamizu, Kino and Takagi (2003) constructed a scale to measure AC. As adolescents themselves are often unaware of their AC, it is difficult to measure it through direct questions. Therefore items were prepared to measure the tendency of the adolescents to undervalue others. It has been assumed that the way one evaluates and perceives others closely reflects how one evaluates and perceives oneself. In other words, in the process of undervaluing others, one unknowingly gains AC.

In order to confirm this inference, university students were asked to list the associated characteristics of the person described in the items of ACS-2 (Assumed-Competence Scale, second version).<sup>2</sup> Approximately 80 percent of the students listed characteristics such as over-confidence and firm belief in one's competence. These descriptions corresponded to the characteristics of AC. This tended to support the content validity of ACS-2.

Before examining the relationship between emotion and AC, the validity of ACS-2 should be examined in greater detail. In particular, it is important to distinguish AC from self-esteem. The frequency of positive and negative experiences (e.g., academic and interpersonal successes/ failures) reported by participants was used as a criterion of validity. It was hypothesized that self-esteem was directly influenced by personal experiences (Takahira, 1998) whereas AC was not. To test this hypothesis, the relation of AC and self-esteem with personal experiences was examined. If AC and self-esteem differ in their relation to personal positive and negative experiences, a discriminating validity of ACS-2 will be supported.

The main purpose of this study is to examine whether AC and self-esteem determine Japanese adolescents' emotional reactions toward negative events. In the present study, a special focus was given to the relative strength of anger and sadness as emotional reactions to negative events. In addition, Horoiwa (2001) indicated that Japanese children were less likely to feel any emotions in general. Therefore it was assumed that there were some adolescents who were less prone to anger and sadness. As mentioned before, anger and sadness seem to be caused by different psychological mechanisms although both were identified as similar negative emotions. It was also considered that the influence of AC and self-esteem on the emotional reactions (i.e. no emotion and relative strength of anger and sadness) would differ depending on the type of negative events. Thus, in this study the negative events were dealt with separately as personal and social events.

Concerning negative personal events, adolescents who have high AC would be more likely to get angry because they tend to attribute the cause of the negative events to others instead of to themselves. However, in the case of individuals with low AC, it seems that they would be less likely to blame others for the occurrence of the negative event. Therefore, they would feel more sadness than anger compared to those with high AC. Negative social events, which are indirectly related to the participants, evoke different emotional responses as compared to negative

personal events. In particular, when one responds to negative social events, the degree of emotional response is dependent on the extent of empathy one feels toward the event. Hence, it appears that those with high AC based on undervaluing others would be less likely to empathize with others because they tend to be more self-centered and give less regard to others compared to those with low AC. Therefore, it was hypothesized that adolescents with high AC would be less emotional and less likely to show anger or sadness when facing negative social events. In other words, they were less susceptible to responding emotionally toward the events and such an apathetic emotional reaction could be perceived as a kind of emotional reaction.

With regard to self-esteem, it was difficult to hypothesize clearly how adolescents with different levels of self-esteem would feel toward personal and social events. However, it is posited that individuals with high self-esteem may be less emotional (i.e., feel anger or sadness in this study) in reacting to personal events than those with low self-esteem. In response to social events, those with high self-esteem may show greater emotional reactions compared to those with low self-esteem.

## Method

### *Participants*

Five hundred and eighty-four students who participated were second grade students from the three public senior high schools located near Nagoya city. All the participants were from regular courses and not vocational courses. About 20 % of them were from a high school assessed as being moderately high in academic achievement, while the rest were taken from the other two high schools with average academic achievement. There were 282 male and 299 female students, and the genders of three students were not stated. The number of missing values was different from item to item.

### *Procedure*

The teachers were responsible for administering 5 questionnaires in each class. To ensure anonymity, students were instructed not to write their names on the questionnaires.

### *Questionnaire*

*AC based on undervaluing others.* ACS-2 consisted of

11 items. Each item was a statement that inquired as to the extent to which the participant undervalues others. Participants were required to choose from five alternatives as: 1 = "I never think so", 2 = "I seldom think so", 3 = "I don't know", 4 = "I sometimes think so", and 5 = "I often think so". The items were as follows: (1) There are a lot of insensitive people around me; (2) Looking at the way others work, I feel that they are inefficient; (3) I think that there are many people who talk nonsense at a meeting; (4) I think that there are a lot of people who look great but in fact they are unsophisticated and unknowledgeable; (5) I wonder why others could not understand such a simple task; (6) It seems to me that there are few efficient people around me whom I can trust with important tasks; (7) Looking at others, it seems to me that they are failures; (8) When my opinion is not supported, I think the other party is not intelligent enough to understand me; (9) I think that most people who are managing Japan are not so great; (10) I think that there are quite a number of people in the world who achieve high status without much effort; (11) I think that there are too many people who have no common sense. The ACS-2 score was the total ratings for all items ( $M = 32.16$ ,  $SD = 7.33$ ) and internal consistency for ACS-2 was high ( $\alpha = .80$ ).

*Self-esteem.* The Japanese version of Rosenberg's self-esteem scale (Rosenberg, 1965), translated by Yamamoto, Matsui, and Yamanari (1982), was used. The participants were asked to respond to 10 statements about themselves on a 5-point scale ranging from 1 for strongly disagree to 5 for strongly agree. The self-esteem scale score was the total ratings for all items ( $M = 28.66$ ,  $SD = 7.13$ ). The coefficient alpha for this score was .81. The correlation coefficient between AC and self-esteem was not high but significant ( $r = .08$ ,  $p < .05$ ).

*Positive and negative experiences.* There was a total of 12 items altogether. Six items described situations that were positive and the other six items were related to negative experiences. All the items were associated with successes or failures, in achievement or interpersonal relationships (see Table 1). The participants were asked how often they had experienced the situations described in each item compared to the people of the same age on a 5-point scale ranging from 1 for fewer to 5 for more frequently.

*Anger vs. sadness in negative personal events.* Participants were asked to imagine themselves in eleven hypothetical situations (see Table 2), and describe their probable emotional

Table 1. *Correlation Coefficients of AC and Self-Esteem Scores with Positive and Negative Experiences*

	AC	SE	M	SD	N
Positive experiences					
1. Having achieved good results in sports	.07	.24 **	2.42	1.29	578
3. Having received public recognition or other awards	.03	.23 **	2.46	1.20	580
5. Having been told that you are "cool" or "pretty"	.02	.27 **	2.41	1.07	579
6. Adults around you being fond of you	.00	.17 **	3.14	1.04	582
8. Being popular among many friends	-.04	.30 **	3.04	0.94	582
11. Having achieved good grades	.10 *	.23 **	2.97	1.03	581
Negative experiences					
2. Having failed in public	-.02	-.31 **	3.34	0.98	581
4. Having been ignored by friends	.17 **	-.15 **	2.30	1.04	579
7. Not having been able to achieve good academic results in spite of hard work	-.07	-.21 **	3.09	1.14	582
9. Not having been able to excel in sports	-.04	-.22 **	3.39	1.20	582
10. Having been scolded by one's teacher	.11 *	.06	2.74	1.15	582
12. Not having been trusted by the adults around you	.12 **	-.08 *	2.51	1.00	582

Note. AC = Assumed-Competence. SE = Self-Esteem. \* $p < .05$ . \*\* $p < .01$ .

responses in these situations. The incidents that students possibly experience in their daily lives were prepared as items for personal events. Respondents were asked to rate which emotion would be felt more strongly, anger or sadness, or neither, if they were to face those events. The participants rated each item by selecting one of the five alternatives: 1 = "Sadness is distinctively stronger than anger," 2 = "Sadness is a little stronger than anger," 3 = "Anger is a little stronger than sadness," 4 = "Anger is distinctively stronger than sadness," and 5 = "Neither emotion is felt."

*Anger vs. sadness in negative social events.* In a similar manner to the emotional reactions for personal events, participants were asked to identify which emotion was strongly felt when they heard about the six negative social events (see Table 3). Recent news events, which high school students were familiar with, were chosen as items of social events. Participants were instructed to choose one of the four alternatives: 0 = "Uncertain of the event," 1 = "Sadness is stronger than anger," 2 = "Anger is stronger than sadness," and 3 = "Neither emotion is felt."

## Results

### *Examination of ACS-2 in comparison with self-esteem*

The correlation coefficients of AC and self-esteem with positive and negative experiences are shown in Table 1. Self-esteem was correlated positively with all of the positive experiences and negatively with most of the negative experiences. On the other hand, there were few significant correlation coefficients of AC with positive and negative experiences. Additionally, the magnitudes of these coefficients were less than 2. Hence, it can be deduced that AC was not determined as much by the positive and negative experiences as compared to self-esteem. However, it is interesting to note that in contrast to self-esteem, AC had slightly positive correlations with half of the negative experiences, such as (4) Having been ignored by friends, (10) Having been scolded by teachers, and (12) Not having been trusted by adults around you. The common characteristics of these items were found to be negative experiences in their interpersonal relationships.

Table 2. Means and Standard Deviations of AC and Self-Esteem Scores as a Function of Emotional Reactions toward Negative Personal Events

Personal events	AC			SE		
	S	A	I	S	A	I
1. When your test grades dropped drastically	31.82 (7.00) [450]	33.58 (7.40) [69]	33.00 (9.35) [60]	28.53 (7.07) [450]	27.93 (7.09) [69]	30.41 (7.62) [58]
2. When you were not invited to events by friends whom you always hang out with	31.99 (6.94) [442]	34.07 (7.23) [59]	31.69 (9.17) [80]	28.78 (7.14) [439]	27.90 (6.39) [59]	28.56 (7.63) [81]
3. When your teachers and seniors disagreed with your opinion	31.55 (5.96) [78]	32.76 (6.95) [302]	31.49 (8.26) [201]	26.95 (7.83) [76]	29.07 (6.58) [300]	28.68 (7.56) [203]
4. When someone didn't keep his/her word for an appointment which you were looking forward to	30.91 <sup>a</sup> (6.79) [137]	32.97 <sup>b</sup> (7.19) [409]	27.63 <sup>c</sup> (8.75) [35]	27.10 <sup>a</sup> (7.14) [135]	29.20 <sup>b</sup> (6.95) [409]	28.34 <sup>a,b</sup> (8.41) [35]
5. When your teacher scolded you without listening to your explanation	30.42 (8.11) [24]	32.35 (7.12) [540]	28.41 (11.11) [17]	27.04 (8.60) [23]	28.80 (7.08) [539]	26.41 (6.21) [17]
6. When you found out that someone had been spreading rumors about you	30.86 <sup>a</sup> (6.77) [256]	32.90 <sup>b</sup> (7.23) [287]	35.37 <sup>b</sup> (9.74) [38]	27.98 <sup>a</sup> (6.93) [255]	28.86 <sup>a,b</sup> (7.23) [285]	31.59 <sup>b</sup> (7.03) [39]
7. When someone you asked for help refused to cooperate with you	30.86 <sup>a</sup> (6.33) [253]	33.70 <sup>b</sup> (7.48) [226]	31.96 <sup>a,b</sup> (8.60) [102]	28.23 (6.86) [252]	28.97 (7.03) [226]	29.00 (7.97) [101]
8. When you were not being selected as a leader or member of a committee	31.80 <sup>a</sup> (6.47) [384]	37.05 <sup>b</sup> (10.22) [20]	32.38 <sup>a</sup> (8.46) [177]	28.54 (6.93) [381]	28.00 (8.94) [20]	28.98 (7.37) [178]
9. When you needed the assistance of others in helping someone in trouble but nobody was willing to lend you a hand	31.41 (6.46) [218]	32.58 (7.39) [277]	32.69 (8.97) [86]	28.24 (6.90) [216]	28.59 (7.06) [276]	29.90 (7.83) [87]
10. When nobody acknowledged your contribution despite your tremendous effort	31.32 <sup>a</sup> (6.59) [343]	33.35 <sup>b</sup> (7.35) [161]	33.39 <sup>a,b</sup> (9.64) [77]	28.27 (6.93) [340]	28.96 (7.03) [161]	29.71 (8.09) [78]
11. When your partner gave up halfway and abandoned the task which both of you had been working on	31.19 (6.88) [62]	32.43 (7.23) [480]	30.33 (8.88) [39]	28.28 <sup>a,b</sup> (6.96) [61]	28.93 <sup>a</sup> (6.92) [480]	25.84 <sup>b</sup> (9.32) [38]

Note. AC = Assumed-Competence. SE = Self-Esteem. S = the Sadness group. A = the Anger group. I = the Irresponsive group. Means having the same subscript are not significantly different at  $p < .05$  in the Tukey honestly significant difference comparison. Standard deviations are in parentheses. Numbers of the participants for each group are in brackets.

Table 3. Means and Standard Deviations of AC and Self-Esteem Scores as a Function of Emotional Reactions toward Negative Social Events

Social events	AC			SE		
	S	A	I	S	A	I
1. About the World Trade Center terror attack in New York	30.94 <sup>a</sup> (6.29) [280]	32.39 <sup>a</sup> (7.64) [201]	35.31 <sup>b</sup> (8.59) [96]	28.44 (6.84) [281]	28.66 (6.99) [198]	29.14 (8.23) [96]
2. About the child murder case at Ikeda Elementary School	30.90 <sup>a</sup> (6.90) [179]	32.35 <sup>a</sup> (7.20) [334]	35.95 <sup>b</sup> (8.95) [43]	28.88 (6.51) [180]	28.62 (7.39) [331]	28.72 (7.74) [43]
3. About the issue of Japanese citizens being abducted by North Korea	31.45 (6.96) [101]	32.35 (7.25) [375]	32.27 (7.86) [101]	30.16 (6.64) [100]	28.31 (7.04) [374]	28.57 (7.54) [101]
4. About the assault of homeless persons by youths	30.45 <sup>a</sup> (6.47) [158]	32.28 <sup>b</sup> (7.29) [322]	35.10 <sup>c</sup> (8.02) [91]	29.46 (6.87) [158]	28.15 (7.07) [320]	28.87 (7.52) [91]
5. About the recurring child abuse incidents in recent years	30.96 <sup>a</sup> (6.93) [221]	32.70 <sup>b</sup> (7.24) [326]	34.70 <sup>b</sup> (9.48) [33]	28.41 (7.04) [220]	28.75 (7.13) [325]	29.00 (7.68) [33]
6. About the violation of women's human rights by the Taliban regime in Afghanistan	31.67 <sup>a</sup> (7.17) [94]	31.81 <sup>a</sup> (7.40) [228]	34.64 <sup>b</sup> (8.36) [84]	28.95 <sup>a,b</sup> (5.96) [94]	27.73 (7.03) [227]	29.81 (7.55) [84]

Note. AC = Assumed-Competence. SE = Self-Esteem. S = the Sadness group. A = the Anger group. I = the Irresponsive group. Means having the same subscript are not significantly different at  $p < .05$  in the Tukey honestly significant difference comparison. Standard deviations are in parentheses. Numbers of the participants for each group are in brackets.

#### **The relation of AC and self-esteem with emotional reactions toward negative personal events**

Ratings 1 and 2 in the emotional ratings for each negative personal event were classified into the Sadness group, and ratings 3 and 4 were classified into the Anger group. In addition to these two groups, those who chose "Neither emotion is felt" formed another category, the Irresponsive group. As shown in Table 2, the number of participants in each group was different among the 11 events. Table 2 also shows the representative values of AC and self-esteem by each event and group. In order to examine the group differences, one-way ANOVAs on AC and self-esteem were conducted on each item<sup>3</sup>. Concerning the

AC, significant F values were found in six out of 11 events. The events were as follows: (4), (5), (6), (7), (8), and (10) ( $F_s(2,578) = 11.58, 3.12, 9.41, 9.31, 5.06, 5.52$  respectively,  $p_s < .05$ ). The result of Tukey's HSD test indicated that AC in the Anger group was higher than that in the Sadness group and Irresponsive group for items (4) and (8) ( $p_s < .05$ ). For items (6), (7), and (10), AC in the Anger group was higher when compared to the Sadness group, but a significant difference was not found between the Anger group and Irresponsive group. In the case of item (5), no significant difference was found among the three groups. These results, therefore, partially supported our hypothesis on AC.

When considering the group comparisons of self-esteem, significant group differences were found for items (4), (6),

and (11) ( $F_{s(2,576)} = 4.64, 4.46, 3.42$  respectively,  $ps < .05$ ). Referring to item (4), the result of Tukey's HSD test revealed that self-esteem in the Anger group was higher than that in the Sadness group. For item (6), the mean of self-esteem in the Irresponsible group was significantly higher than that in the Sadness group. For item (11), the mean of self-esteem in the Irresponsible group was significantly lower than that in the Anger group ( $ps < .05$ ). In other words, consistent relations between self-esteem and emotional reactions were not found among the eleven negative events in this study. Therefore, it appears that self-esteem is not an important determinant of emotional responses. Another possibility is that the way in which self-esteem is related to emotional responses is not general but content-specific.

#### ***The relation of AC and self-esteem with emotional reactions toward negative social events***

For each of the six negative social events, the participants were classified into three groups. There were, namely, the Sadness group (those who chose alternative "1"), the Anger group (those who chose "2"), and the Irresponsible group (those who chose "3"). For each event, participants who chose the alternative "Uncertain of the event" were excluded from the analyses. As shown in Table 3, the number of participants in each group was different among the 6 items. Table 3 also shows the representative values of AC and self-esteem by each event and group.

One-way ANOVAs on AC and self-esteem were conducted on each item. The main effects of the group on AC were significant in five events except for event (3) ( $F(2,574) = 13.37$ ,  $F(2,553) = 8.70$ ,  $F(2,568) = 12.07$ ,  $F(2,577) = 5.91$ ,  $F(2,403) = 4.83$ , in order,  $ps < .05$ ). The comparison of means using Tukey's HSD test among these events revealed that AC scores in the Irresponsible group were higher than those in both the Anger and Sadness groups in the case of events (1), (2), (4), and (6). Although the AC score of event (5) was the highest in the Irresponsible group, a significant difference was shown only between the Irresponsible and Sadness groups ( $ps < .05$ ).

Regarding self-esteem, a significant group difference was found only in event (6) ( $F(2,402) = 3.11$ ,  $p < .05$ ). The result of Tukey's HSD test on this event indicated that the self-esteem score in the Irresponsible group was significantly higher than that in the Anger group ( $p < .05$ ). Broadly considered, it seems that self-esteem is not related to emotional responses for social events.

## **Discussion**

This study demonstrated that AC was hardly influenced by actual experiences that the participants encountered, compared with self-esteem. In other words, it was supposed that self-esteem increased with positive experiences, while it declined with negative experiences. On the other hand, because AC is perceived in undervaluing others, it does not depend so much on the actual experiences itself. Therefore, AC can be considered as groundless. As explained earlier, it can be said that AC in present-day Japanese adolescents arises even if they do not have real positive experiences (successes). However, an unexpected but noteworthy finding was that there were some weak but significant positive correlations between AC and negative experiences. Students who have been ignored by friends, scolded by teachers or not trusted by the adults around them tend to have slightly higher AC scores. Hence, it can be inferred that the negative experiences in interpersonal relationships are likely to increase AC, and that the participants with high AC are more inclined to perceive others as the cause of negative incidents. In any case, although there is a need to conduct another research exercise to further establish this inference, the idea that AC is different from self-esteem in the formation process was supported by the result of this research. In other words, the existence of a discriminating validity of ACS-2 was supported.<sup>4</sup>

With reference to the research conducted on the roles of cognition in the arousal of emotions (e.g., Lazarus & Smith, 1988; Smith & Ellsworth, 1985), this study is concerned with demonstrating that AC is one of the determinants of emotional reactions in contemporary Japanese adolescents. The ANOVA results showed that our hypothesis regarding the relation of AC and anger was partly supported because the AC scores were highest in the Anger group on more than half of the negative personal events. In other words, the higher the AC, the stronger the anger possessed by the participants. The reason may be that the students with high AC are likely to attribute negative incidents to others in a self-centered manner and this cognitive tendency evokes anger. It may be concluded that those with high AC are more likely to get angry when they confronted with negative personal events.

On the other hand, in response to negative social events, the Irresponsible group showed higher AC than the other two groups in general. In other words, the participants with high AC felt neither sad nor angry toward negative social events. To be moved emotionally when people hear of negative social news that is irrelevant to them, they must have the capacity to

empathize with the unfamiliar. It seems that those with high AC lack empathy because AC is related to a self-centered cognitive tendency, its nature is self-serving, and it is acquired by belittling others. However, to have empathic emotional reactions requires the capacity for perspective-taking and a certain extent of altruism rather than self-centeredness. It is interesting that although students with high AC tended to feel anger when facing negative personal events, they were indifferent in responding to negative social events. Miller and Eisenberg (1988) suggested that self-reported dispositional empathy-related responses are associated with low aggression in school-aged children and this indication seems to be consistent with our result. Additionally, taking the finding that empathy has sometimes been considered as a component of emotional competence into consideration (Saarni, 1990), it appears that those with high AC have low social competence.

Concerning self-esteem, the emotional reactions were different from the results derived from AC as there were very few items showing the main effects in both personal and social events. In addition, the relations between self-esteem and the types of emotional reactions toward negative personal events were not consistent among the events having significant group differences. In order to interpret the relationship between them more precisely, the characteristics of the events should be considered; such as the target of the emotion, the importance of the events, the magnitude of the damage, and so forth. In other words, it seems that the relationship between self-esteem and emotional reactions is contingent on the characteristics of the events. From the above results, the newly constructed competence, AC, seems to be a better and more absolute determinant of emotional reactions in present-day Japanese adolescents. Moreover, we believe this new construct will contribute to future research on emotions.

It remains problematic that the types of emotional reactions were treated as independent variables, and that both AC and self-esteem were treated as dependent variables in the analysis. According to our hypothesis, the independent and dependent variables should be reversed. This was because emotional reactions were collected as nominal scales in this study. Therefore, we need to be cautious when drawing conclusions regarding their relationship to one another and further research should be conducted to indicate the true nature of the causal relationships.

As it has been shown that AC is generally independent of self-esteem, these two variables may be dealt with at the same time as independent variables in a two-way ANOVA.

Since the combined effects of AC and self-esteem on the emotional reactions were not examined in this study, there is room for further research on how AC and self-esteem affect emotional reactions. For example, it would be possible to suppose that the group with high AC and low self-esteem might show a stronger degree of anger toward negative personal events than the other groups. On the other hand, the group with low AC and high self-esteem might feel more sadness toward negative social events than the other groups. In addition, there are two other areas which future research can focus on. Firstly, the cultural influence on the formation of AC can be considered. It appears that the AC might increase as individualism becomes more pervasive in our society. If so, it would be important to conduct further studies on AC from the perspective of the cultural context of the participants. Secondly, it is important to find out how AC and self-esteem are associated with other emotions, such as delight, joy, fun, guilt, fear, and shame. As Hayamizu and Niwa (2002) argued, the trend in the change of emotions of children and early adolescents nowadays suggests the need for more comprehensive study into other emotions besides anger and sadness. The strength of AC and self-esteem might determine not only the features and intensity of negative emotions but also those of other emotions.

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## Notes

1. This principle is similar with the downward comparison in social psychology (Wills, 1981). However, we take AC as a custom response of the individual, which is independent of situations.
2. ACS-2 was based on ACS-1 (AC Scale, first version). As ACS-1 was developed for adults only, the second version was modified for junior and senior high school students as well as adults. It was evident that ACS-1 has test-retest reliability and internal-consistency reliability.
3. The correlations among the scores of emotional reactions toward negative personal events were not strong. (The correlation coefficients were calculated with the raw score without the answer rated 5 = "Neither emotion is felt.") And the number of the participants who were grouped into the same category of emotional reactions throughout the eleven events was not large. Therefore we treated each event separately in the analysis. It was the same in the negative social events.
4. Concerning content validity of this scale, we conducted another research. Two vice-home-room teachers rated AC of all students in two classes respectively in another research. They were instructed to rate with three grades. That is, 76 high school students in two classes were asked to answer ACS-2 and the vice-home-room teacher of each class were asked to classify them into three groups; high, middle, and low AC group. The teachers were instructed to keep the proportion of each group approximately 1:2:1. As a result, the number of the students from the three groups was 13, 46, and 17, respectively. The mean scores of ACS-2 for these groups were 38.43, 33.44, and 31.49. The result of ANOVA showed that group difference was significant ( $F(2,73) = 4.04, p < .05$ ). The result of Tukey's HSD test indicated that mean of ACS-2 score in the high AC group was significantly higher than that in the low AC group ( $p < .05$ ). Therefore, this suggests the validity of ACS-2 to some extent.

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