Development of Japanese version of the Gratitude Questionnaire-6 (J-GQ-6)

Kenji Hatori  
Department of Humanities  
Saitama Gakuen University  
Kawaguchi, Japan  
e-mail: k.hatori@saigaku.ac.jp

Masahiro Kodama  
Department of Humanities  
Saitama Gakuen University  
Kawaguchi, Japan

Abstract—Gratitude is a positive emotion that functions to prevent a person from falling into mental illnesses such as depression and positive psychotherapy, including the use of gratitude is an alternative to cognitive behavioral therapy for the treatment of depression. A Japanese version of the Gratitude Questionnaire (J-GQ-6) was developed and the relevance of this concept to Japanese college students was examined. In study 1, a Japanese translation of the J-GQ-6 was administered to 280 undergraduates and its internal consistency and its discriminant and construct validity were examined. In study 2, the J-GQ-6 was administered to 315 undergraduates, with confirmatory factor analysis and further examination of construct validity. The results confirm the consistency and validity of the J-GQ-band suggest that the concept of dispositional gratitude is relevant to Japanese college students. The study provides a basis for conducting further empirical gratitude research in Japan.

Keywords—gratitude; depression; positive psychotherapy; cognitive behavioral therapy.

I. INTRODUCTION

Positive emotion is one of the most important constructs in positive psychology [1]. Gratitude is one of the positive emotions. It is perceived as having two aspects: dispositional gratitude, which has been defined as a stable affective trait that would lower the threshold for experiencing gratitude, and state gratitude, which has been defined as an acute, intense, and long-lasting reaction to being the recipient of a benefit from others [2]. With respect to dispositional gratitude, some scales have been developed and their reliability and validity were confirmed by examining relationships with other related constructs [3, 4]. With respect to state gratitude, experimental interventions that arouse gratitude have been conducted [5].

It has been proposed that positive emotions such as gratitude are positively associated with psychological well-being. This process was explained by the broaden-and-build theory [1], which proposes that positive emotions increase the repertoire of cognitive behavioral stress-coping strategies, and the display of positive facial expressions. This leads individuals to select good stress-coping strategies that are matched to the situation or to acquire social supports, and these selected stress coping strategies or acquired social supports can lead to more positive emotions. As a result, individuals’ repertoires of stress coping strategies increase further and their facial expressions become more positive. In this way an upward spiral of positive emotion is formed. Some studies have empirically shown that positive emotions are positively associated with the prevention of a first or repeat episode of mental or physical illness, and promote mental and physical health. In particular, basic and clinical studies of the function of positive emotions have been conducted in relation to depression caused by negative emotions. For example [6] reported that positive emotions decreased depressive symptoms by suppressing negative emotions.

Measures to combat depression are urgently required in Japan, because the rate of depression is one of the highest in the world, at all ages. The total economic cost of depression in Japan, including the cost of treatment, is estimated to be about fifteen billion yen a year. Therefore, effective methods of treatment and support for depression are needed. Depression is caused by dysfunctional cognitions, and cognitive behavioral therapy (CBT) is one of the most effective ways to treat depression. CBT, which is more cost-effective than traditional psychotherapies, has two targets: to decrease negative emotions and to modify cognition. The establishment of a methodology to increase positive emotions could have two advantages. In relation to cognition, positive emotions are theorized by the broaden-and-build theory to make cognition more flexible, in contrast to the aim of CBT to directly modify cognition. Moreover, positive emotional interventions may be more cost-effective than CBT because positive psychological interventions, including positive emotions or gratitude, are assumed to have preventative effects, and the costs of prevention are usually much lower than the costs of treatment. Gratitude is assumed not only to decrease depressive symptoms but also to prevent them. Therefore, it is important to conduct basic and empirical research on gratitude in Japan. However, to date, no such studies have been conducted.

This study develops a Japanese version of a quantitative gratitude questionnaire, to provide a basis for gratitude research in Japan. We translated the Gratitude Questionnaire 6 (GQ-6) [3] into Japanese and examined the consistency and validity of the Japanese version (J-GQ-6). The GQ-6 is a single-factor questionnaire to measure dispositional gratitude, which comprises six-items that are rated on a seven-point scale. We modeled our study on that [3], which examined the relationship of the J-GQ-6 to personality and adaptation variables. Scores on the GQ-6 were positively related to the Big Five personality variables of Openness, Extraversion, and Agreeableness and negatively related to Neuroticism. In the context of adaptation
variables, scores on the GQ-6 were positively related to empathy, positive emotions, optimism, life satisfaction, hope, and subjective happiness, and negatively related to depression, anxiety, envy, and negative emotions. We hypothesized that the relationships between the J-GQ-6 and other variables would be the same as described for the GQ-6. Two studies were conducted: study 1 examined the consistency of the J-GQ-6 and its relationships to adaptation variables, while study 2 also examined the relationships of the J-GQ-6 to the Big Five personality variables.

II. STUDY 1

We developed a J-GQ-6 based on the study of McCullough and colleagues (2002). We first examined the reliability of the J-GQ-6 and then its factorial and discriminant validity to establish whether gratitude was empirically distinct from other conceptually related constructs: life satisfaction, optimism, hope, and positive affect. Finally, we examined construct validity through the relationship of the J-GQ-6 to negative affect, depression, and envy.

A. METHOD

1. Participants

The participants were 280 Japanese college students (112 men and 168 women; mean age 20.76 ± 1.49 years) at a private university in the Kanto district of Japan. The questionnaire was administered during class time. Participants were informed that their cooperation was voluntary and would not influence their grade for the class.

2. Measures

We developed the J-GQ-6 by translating the GQ-6 into Japanese. The Japanese translation was back-translated into English by two bilingual Japanese clinical psychologists. We then requested the original author to check the equivalency between the original questionnaire and the retranslated English version, which was confirmed. The J-GQ-6 comprises 6 items, which participants were asked to rate on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The items are listed in Table 1 and the Japanese translation is shown in the Appendix.

a) Life Satisfaction. We used a Japanese translation [7] of the Satisfaction With Life Scale (SWLS), originally developed by [8], which assesses the cognitive component of subjective well-being.

b) Optimism. To assess individual optimism, we used a Japanese translation [9] of the Life Orientation Test (LOT), originally developed by [10].

c) Hope. To assess trait hope, we used a Japanese translation [11] of the Adult Trait Hope Scale, originally developed by [12], which comprises 8 items that assess two dimensions of hope: agency and pathways.

d) Positive and negative effect. We used a Japanese translation [13] of the Positive and Negative Affect Scales (PANAS), originally developed by [14], which measures general positive and negative affect.

e) Depression. To assess the degree of depression, we used a Japanese translation [15] of the K6 screening instrument originally developed by [16]

f) Envy. We used a Japanese translation [17] of the Dispositional Envy Scale (DES), originally developed by [18], which comprises 8 items rated on a 5-point scale and measures individual trait envy.

B. RESULTS

1. Internal consistency and Structural Equation Model of the J-GQ-6

The internal consistency of J-GQ-6 was α = .84. The result of exploratory factor analysis of the 6 items of the J-GQ-6 revealed a single factor that explained 54.62% of the variance (Table 1). This one-factor structure is same as the original GQ-6. The validity of the one-factor solution was assessed using structured equation modeling calculated by SPSS Amos 20. Goodness of fit measures is as follows: χ²/df = 7.273, GFI = .924, AGFI = .822, CFI = .926. These results indicate that a one-factor model provides an adequate fit to the data.

2. Discriminant Validity

Following [3], we proceeded to distinguish gratitude from related but distinct constructs. We conducted structural equation modeling to estimate a one-factor solution specifying a single latent construct underlying the items on the J-GQ-6 and each of the other scales, and a two-factor solution specifying two latent constructs, loading the items of J-GQ-6 and the other related constructs separately. Then, we compared the fit indices of the one-factor and two-factor models. If indices of the two-factor model are superior to those of the one-factor model, we can conclude that gratitude as measured by the J-GQ-6 is distinct from other related constructs.

a) Gratitude and life satisfaction. The one-factor model for gratitude and life satisfaction did not fit the data well, χ²/df = 20.436, GFI = .573, AGFI = .360, CFI = .547; the two-factor model provided a better fit, χ²/df = 3.403, GFI = .912, AGFI = .865, CFI = .945.

b) Gratitude and LOT. The one-factor model for gratitude, measured by the J-GQ-6, and optimism, measured by the LOT, fit the data well, χ²/df = 4.249, GFI = .913, AGFI = .855, CFI = .914, but the two-factor model provided an even better fit, χ²/df = 2.252, GFI = .954, AGFI = .921, CFI = .968.

c) Gratitude and hope. For the J-GQ-6 and the Adult Trait Hope Scale, the one-factor model did not fit the data, χ²/df = 6.995, GFI = .720, AGFI = .618, CFI = .769, but the two-factor model did provide a good fit, χ²/df = 4.296, GFI = .842, AGFI = .728, CFI = .875. Similar analyses were conducted comparing the one-factor and two-factor models for the J-GQ-6 and the pathways and agency subscales of the Adult Trait Hope Scale. The one-factor model for gratitude and pathways yielded a poor fit, χ²/df = 6.957, GFI = .823, AGFI = .723, CFI = .851, but the two-factor...
model yielded a good fit, \( \chi^2 / df = 3.377, \) GFI = .921, AGFI = .873, CFI = .942. Similarly, the one-factor model for gratitude and agency yielded a poor fit, \( \chi^2 / df = 5.734, \) GFI = .864, AGFI = .787, CFI = .879, but the two-factor model provided a better fit, \( \chi^2 / df = 4.519, \) GFI = .899, AGFI = .837, CFI = .913.

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean (SD)</th>
<th>F1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 My life is full of things to be thankful for.</td>
<td>5.17(1.51)</td>
<td>.90</td>
</tr>
<tr>
<td>2 If I made a list of everything that I am thankful for, it would be a very long one.</td>
<td>5.03(1.47)</td>
<td>.89</td>
</tr>
<tr>
<td>3 As I grow older, I become more thankful for the people, events, and situations that have been a part of my life.</td>
<td>4.59(1.46)</td>
<td>.84</td>
</tr>
<tr>
<td>4 I feel grateful to various people.</td>
<td>4.94(1.35)</td>
<td>.84</td>
</tr>
<tr>
<td>5 When I look around the world, I do not see so much to be grateful for. (^a)</td>
<td>4.96(1.43)</td>
<td>.50</td>
</tr>
<tr>
<td>6 It takes a great deal of time before I start to appreciate something or someone. (^a)</td>
<td>3.80(1.49)</td>
<td>.12</td>
</tr>
</tbody>
</table>

\(^a\) Reversed items. The scores are reversed.

C. DISCUSSION

Study 1 confirms the factorial validity of the back-translation of the J-GQ-6 by exploratory factor analysis and structural equation modeling, and to confirm discriminant and construct validity between dispositional gratitude measured by the J-GQ-6 and other related constructs. In the process of back-translation, content validity was confirmed through discussion with the original author; and the J-GQ-6 had a good internal consistency. The exploratory factor analysis showed that the J-GQ-6 had a one-factor structure, like the original GQ-6: structural equation modeling showed that a one-factor structure provided an adequate fit to the data. The discriminant validity of the J-GQ-6 was confirmed by comparing fitting indices of a one-factor model, in which gratitude was deemed to be the same construct as the other variables, to two-factor models in which dispositional gratitude was deemed to be different constructs from life satisfaction, optimism, hope, and positive emotion. Construct validity was confirmed from the results of correlation analyses relating gratitude to life satisfaction, optimism, hope, positive emotion, depression, and envy.

### III. STUDY 2

In study 2, we examined the relationship of grateful disposition to life satisfaction, empathy, the Big Five personality variables, and social desirability.

#### A. METHOD

1. **Participants**

The participants were 315 Japanese college students (123 men and 192 women; mean age 20.90 ± 1.66 years) at a private university in the Kanto district of Japan. The questionnaire was
administered during class time. Participants were informed that their cooperation was voluntary and would not influence their grade for the class.

2. Measures
   a) Subjective Happiness. The SWBS [19] is a 12-item 4-point rating scale that measures Japanese subjective happiness.
   b) Empathy. To assess dispositional empathy, we used the Emotional Empathy Scale developed by [20]. This is a 33-item 7-point Likert-type scale with 3 subscales, emotional warmth, emotional coolness, and emotional susceptibility.
   c) The Big Five. We used a Japanese translation [21] of the Big Five Scale originally developed by [22]. This scale consists of 44 adjectives that are prototypical markers for five broad personality dimensions, with 5 subscales: Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness.
   d) Social Desirability. We used a Japanese version [23] of the Balanced Inventory of Desirable Responding, originally developed by [24]. This 40-item inventory measures 2 self-serving defensive tendencies: self-deceptive enhancement and impression management.

B. RESULT AND DISCUSSION

1. Confirmatory factor analysis
   We first confirmed the one-factor structure for the J-GQ-6 found in Study 1, in an independent sample. Confirmatory factor analysis supported a one-factor structure, χ²/df = 4.793, GFI = .956, AGFI = .897, CFI = .964. The appropriate fitting indices show that this result is similar to that of study 1, leading us to conclude that the J-GQ-6 has a one-factor structure.

2. Correlations of grateful disposition with other constructs
   Pearson’s correlation analysis was used to examine the relationships between the J-GQ-6 measure of grateful disposition and other constructs related to gratitude. These correlations appear in Table 3. Scores on the J-GQ-6 were positively correlated with Subjective happiness (r = .31, p < .01), Emotional warmth (r = .24, p < .01), Agreeableness (r = .41, p < .01), Emotional coolness (r = .23, p < .01), Openness (r = .22, p < .01), Self-deceptive enhancement (r = .13, p < .05), and Impression management (r = .16, p < .01), and negatively correlated with Emotional coolness (r = .24, p < .01) and Neuroticism (r = .30, p < .01). There was no significant correlation with Emotional susceptibility. The correlations of the J-GQ-6 with subjective happiness and empathy are consistent with the results reported for the original GQ-6: that is, the more individuals are happy and warm, or the less they are cool, the more they are grateful. However, dispositional gratitude was unrelated to susceptibility. The results of the correlation relating the J-GQ-6 to the Big Five personality dimensions were also the same as in the original GQ-6: the more that people are agreeable, conscientious, extraverted, and open, and the less they are neurotic, the more they are grateful.

### Table 3. Correlations of gratitude with other constructs (study 2)

<table>
<thead>
<tr>
<th>Scale</th>
<th>J-GQ-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective happiness</td>
<td>.31**</td>
</tr>
<tr>
<td>Empathy</td>
<td></td>
</tr>
<tr>
<td>Emotional warmth</td>
<td>.24**</td>
</tr>
<tr>
<td>Emotional coolness</td>
<td>−.24**</td>
</tr>
<tr>
<td>Emotional susceptibility</td>
<td>−.03</td>
</tr>
<tr>
<td>Big Five Personality trait</td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.41**</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.28**</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.23**</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>−.30**</td>
</tr>
<tr>
<td>Openness</td>
<td>.22**</td>
</tr>
<tr>
<td>Social desirability</td>
<td></td>
</tr>
<tr>
<td>Self-deceptive enhancement</td>
<td>.13*</td>
</tr>
<tr>
<td>Impression management</td>
<td>.16**</td>
</tr>
</tbody>
</table>

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

3. Regressing gratitude on the Big Five.
   The J-GQ-6 on the Big five was regressed (Table 4). Big Five personality variables explained 19% of the variance in the J-GQ-6. Agreeableness and Extraversion were positively associated with the J-GQ-6 (β = .38, p < .01; β = .14, p < .01). Conscientiousness, Neuroticism, and Openness were not significantly associated with the J-GQ-6. These results suggest that, after controlling for covariance among the Big Five variables, only Agreeableness and Extraversion are significantly associated with dispositional gratitude.

### Table 4. Regression of Gratitude on the Big Five (study 2)

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-GQ-6</td>
<td></td>
<td>.19</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.38**</td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>.14**</td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>−.06</td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>.08</td>
<td></td>
</tr>
</tbody>
</table>

** p < .01

IV. GENERAL DISCUSSION

This study developed the J-GQ-6. The results showed that the questionnaire had an adequate level of reliability and validity and was able to quantify dispositional gratitude in Japan. This study provides an important basis for using
gratitude to prevent or treat mental illnesses, including depression, which is a novel perspective in Japan.

This study had three limitations, which require further development. First, it was shown that the J-GQ-6 has approximately the same characteristics as GQ-6, so Japanese people’s construction for experiencing gratitude is same as that of western people. But it remains unclear whether the contents or methods of expressing gratitude are the same. For example, when Japanese people express gratitude they sometimes use “sumimasen” meaning “I am sorry not to return a favor commensurate with your courtesy,” which expresses a condescending attitude by using humble language. But western gratitude does not contain these structures. Second, although the correlation between gratitude and negative emotions was assumed to be negative, the correlation was not significant. This result is interpreted as being related to the way in which Japanese people express gratitude. That is, sumimasen contains sorry or shame and these words to some extent imply negative emotion. Therefore, even if dispositional gratitude is high, negative emotion is not always low. Third, this study did not compare the effects of gratitude on depression with those of concomitant complaints were greater than those of concomitant use of CBT and psychotropic drugs, but the effects on major depression were lower than those of CBT. It is necessary to examine the effects of gratitude interventions on depression in Japan.

Despite these problems, this study provides an important basis for the empirical study of positive emotion, which has hardly been considered in Japan. We hope that many more empirical studies of the functions of positive emotions will now be conducted.

REFERENCES


Appendix 1. Japanese items of the J-GQ-6

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>私の人生には、感謝すべきことがたくさんある。</td>
</tr>
<tr>
<td>2</td>
<td>もし、これまでに感謝したすべてのことを書きだすとしたら、とても長いリストになるだろう。</td>
</tr>
<tr>
<td>5</td>
<td>年齢を重ねるにつれて、自分の人生の一部となってきた人々、事柄、状況に対して、より感謝できるようになってきている。</td>
</tr>
<tr>
<td>4</td>
<td>さまざまな人々に対して、ありがたいなあと感じる。</td>
</tr>
<tr>
<td>3</td>
<td>世界を見渡した時、ありがたいと感じるべきことはあまりないように思う。 a)</td>
</tr>
<tr>
<td>6</td>
<td>私が何かや誰かに感謝できるようになるには、多くの時間がかかる。 a)</td>
</tr>
</tbody>
</table>

Note. Each item corresponds to Table 1.

a) Reversed items. The scores are reversed.