

# The Arabic Learning Motivation Questionnaire: Development of a New Japanese Measure Based on Self-Determination Theory

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## Abstract

The purpose of this study was to develop a new measure of motivation for Arabic learning, called the Arabic Learning Motivation Questionnaire (ALMQ), based on the self-determination theory. The ALMQ was constructed based on the Academic Motivation Questionnaire, which is a measure of academic motivation in Japanese university students, and has 15 items. The reliability and construct validity of the ALMQ were examined in a sample of 448 Japanese university students, who learn Arabic, but are not Arabic majors. Both exploratory and confirmatory factor analyses of the items fully supported the five subscale structure corresponding to the different forms of motivation that were proposed by self-determination theory: amotivation, external regulation, introjected regulation, identified regulation, and intrinsic motivation. Internal consistency reliabilities of the subscales were excellent ( $\alpha = 0.86$  to  $0.90$ ). The test-retest reliability over four weeks was also adequate for a sub-sample of 214 participants ( $r_s = 0.69$  to  $0.79$ ). The construct validity for the ALMQ was supported by relationships to subjective learning outcomes and the Simplex structure between the ALMQ subscales. As expected, the relationships with subjective learning outcomes and forms of motivation varied depending on the degree of self-determination. In addition, correlational patterns between the subscale scores showed the theoretically expected simplex structure. The ALMQ is expected to be utilized as a suitable measure for understanding the motivations of Japanese learners of Arabic.

## Keywords

Arabic Learning, Motivation, Japanese Measure, Self-Determination Theory, Japanese Learners of Arabic

## 1. Introduction

### 1.1. Japanese Learners of Arabic

In Japan, the main learners of Arabic include workers learning Arabic for work (Suzuki, 2006) and university students studying Arabic: The latter is chief among Japanese learners of Arabic (Sumi & Sumi, 2016b, 2018). Arabic, one of the most spoken languages in the world, has been taught in formal education in Japan for more than 90 years. It is estimated that recently Arabic classes are given at about 50 Japanese universities. Further, more than 3000 university students take the classes to learn Arabic as a foreign language every year (Sumi & Sumi, 2016b, 2018). Although currently, many Japanese people learn Arabic, only limited attempts have been made so far to understand their characteristics. Accordingly, little is known about their psychological characteristics, such as needs, goals, interest, and expectations concerning Arabic learning (Sumi & Sumi, 2016b, 2018), in spite of this information being necessary to improve teaching and learning Arabic.

Among a variety of learners' characteristics, motivation is the most important one to understand learning behavior, academic performance and satisfaction, and language proficiency (Gardner, 2014; Guilloteaux & Dörnyei, 2008; Valle-rand, Pelletier, Blais, Briere, Senecal, & Vallieres, 1992). Examination of motivations for learning Arabic will not only make important contributions to the literature, but also lead to improved teaching and learning of Arabic. For this, an appropriate instrument to assess Arabic learning motivation is necessary. However, there is a lack of adequate measures to assess the characteristics of Arabic learners in Japan, including Arabic learning motivation, with few exceptions such as interest in Arabic culture (Sumi & Sumi, 2015), orientation (Sumi & Sumi, 2016), and some subjective learning outcomes concerning Arabic learning including learning satisfaction, learning anxiety, and subjective achievement (Sumi & Sumi, 2015; Sumi & Sumi, 2016a).

### 1.2. Motivation within Self-Determination Theory

Various theoretical approaches have been applied to understand learning motivation (Dörnyei & Ushioda, 2013; Graham & Weiner, 1996; Linnenbrink-Garcia, Patall, & Pekrun, 2016). One such the widely used approach is the self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2002), which is a dominant theory of motivation in psychology (Gagné, Forest, Gilbert, Aubé, Morin, Malorni, 2010). It has also been frequently used to understand motivation for foreign language learning (Busse & Walter, 2013; Mori & Gobel, 2006; Oga-Baldwin, Nakata, Parker, & Ryan, 2017). Self-determination theory proposes that based on a multidimensional view of motivation for an activity, motivation can be distributed along a continuum from lower to higher levels of self-determination (i.e., the self-determination continuum; Grolnick & Ryan, 1987; Ryan & Deci, 2000a, 2002).

The motivational construct having the lowest level of self-determination on

the continuum is amotivation, which is characterized by a lack of motivation for the activity. Thus, individuals with amotivation lack any intention for their activity. Amotivation can be caused by persisting negative feedback, especially de-meaning feedback, on an individual's behavior (Deci & Ryan, 2012).

In addition, the motivational construct that presents intermediate level of self-determination is extrinsic motivation, which refers to behaviors that are instrumental or done to attain outcomes separable from the behaviors itself (Ryan & Deci, 2000b). Extrinsic motivation is composed of four forms that vary in their degree of self-determination: external, introjected, identified, and integrated regulations, in decreasing order of self-determination. According to the self-determination theory, the difference in these forms depends on the extent of the internalization of the values underlying the behavior (Deci & Ryan, 2012). Such internalization makes the behavior internally regulated and enhances self-determination in the behavior.

The least self-determined form, i.e., the highly controlling form (Deci & Ryan, 2012) of extrinsic motivation is external regulation. This form refers to behaviors regulated by external sources and reflects the classic definition of extrinsic motivation, where an individual acts to gain rewards or avoid punishment. Introjected regulation refers to behaviors intended to avoid negative feelings such as guilt and shame, or to enhance feelings of self-worth. Although this form of regulation is more self-determined than external regulation, the underlying values of behavior arising from this regulation are only partially internalized. Identified regulation is an even more internalized, relatively autonomous form of extrinsic motivation. It refers to behaviors that individuals prioritize for themselves. Individuals exhibiting identified regulation fairly identify with the values or meanings underlying the behaviors and accept them as their own. The most self-determined form of extrinsic motivation is integrated regulation. This form refers to behaviors of which the underlying values are fully internalized. Therefore, the behaviors governed by integrated regulation are incorporated into an individual's sense of self.

The fully self-determined form of motivation is intrinsic motivation. Therefore, this form lies at the opposite end of the self-determination continuum from amotivation. Intrinsic motivation is characterized by undertaking behaviors for interest, enjoyment, and satisfaction inherent in the behaviors itself (Ryan & Deci, 2000b). Within the self-determination theory, although intrinsic and extrinsic motivations are adjacent on the self-determination continuum, they are clearly differentiated. While extrinsically motivated behaviors are instrumental in nature, intrinsically motivated behaviors are performed for their own sake (Deci, Vallerand, Pelletier, & Ryan, 1991; Ryan & Deci, 2000b).

In addition to the six forms of motivation, self-determination theory presents the contrasting two forms of motivation that are composed on the self-determination continuum: controlled motivation and autonomous motivation (Deci & Ryan, 2012; Ryan & Deci, 2000a). Controlled motivation is composed of rela-

tively less self-determined forms of extrinsic motivation, external and introjected regulations. In contrast, autonomous motivation is defined by the combination of relatively more self-determined forms of extrinsic motivation, identified and integrated regulations, and intrinsic motivation. The distinction between controlled and autonomous motivation, in comparison to the overall amount or intensity of motivation, is more important for the prediction of an individual's performance, engagement, and well-being (Deci & Ryan, 2012; Ryan & Deci, 2000a).

Numerous studies on motivation have been conducted using validated measures based on self-determination theory in various fields, such as education (Vallerand et al., 1992; Deci et al., 1991), health care (Ryan, Patrick, Deci, & Williams, 2008), treatment (Ryan, Plant, & O'Malley, 1995), sports (Vallerand, 2007), gaming (Lafrenière, Verner-Filion, & Vallerand, 2012), and work (Gagné et al., 2010). The same applies to studies on motivation for language learning (Benson, 2013; Boo, Dörnyei, & Ryan, 2015; Dörnyei & Ushioda, 2013). Although there are a number of studies with language learners in Japan, most of them are with English learners (Nakata, 2010; Noels, 2013); few studies include Arabic learners, as mentioned above. To explore Arabic learners' motivation, which is an important aspect of understanding them, it is necessary to have a useful Japanese measure to assess their Arabic learning motivation, based on the self-determination theory.

### 1.3. The Purpose of This Study

The purpose of this study was to develop a reliable and valid measure of Arabic learning motivation based on self-determination theory for Japanese learners of Arabic. This new measure, called the Arabic Learning Motivation Questionnaire (ALMQ), was developed based on the Academic Motivation Questionnaire (AMQ; Sumi, 2013). The AMQ is a brief, 15-item Japanese measure, designed to assess motivation for learning at university, primarily in Japanese students. It has five subscales corresponding to the forms of motivation from self-determination theory: amotivation, external regulation, introjected regulation, identified regulation, and intrinsic motivation. These subscales are composed of 2, 3, 3, 3, and 4 items, respectively, rated on a 5-point scale that ranges from 1 (strongly disagree) to 5 (strongly agree). Each item is a short sentence using a simple expression (e.g., "I like my university studies" in Japanese). The reason for the exclusion of integrated regulation (Sumi, 2013) is that it has often been omitted from the self-determination continuum, mainly because of the difficulty in empirically distinguishing integrated regulation from identified regulation, especially in education research (Gagné, Forest, Gilbert, Aube, Morin, & Malorni, 2010; McLachlan, Spray, & Hagger, 2011; Vallerand et al., 1992).

The AMQ has adequate reliability and construct validity (Sumi, 2013). The internal consistency reliabilities for the subscales were satisfactory, with Cronbach's alphas ranging from 0.78 to 0.89 and 0.73 to 0.85 in two different samples,

respectively. Test-retest reliabilities over a 4-week period were acceptable ( $r_s = 0.64$  to  $0.74$ ). Both exploratory and confirmatory factor analyses supported the 5-subscale structure of the AMQ. The subscale scores of the AMQ were correlated in the expected direction, with scores on the related measures, including those of learning-related satisfaction, efforts, self-efficacy, self-actualization, and adjustment. In addition, correlations between the subscale scores supported the theoretically expected simplex structure, which refers to a correlational pattern between the forms of motivation that is most positive correlations between scores on subscales of adjacent forms of motivation on the self-determination continuum and less positive or more negative correlations between scores on subscales of more distant forms (Gagné et al., 2010; Noels, Pelletier, Clément, & Vallerand, 2000; Ryan & Connell, 1989). This correlational pattern supports construct validity for the AMQ.

First, as it was expected that the ALMQ, like the AMQ, would have five subscales corresponding to the forms of motivation from self-determination theory, the subscale structure of the ALMQ was tested using factor analyses. Next, internal consistency reliability was assessed. Test-retest reliability was examined at a four-week interval, which is the same interval used to assess the temporal stability of the AMQ (Sumi, 2013).

Third, the relationships between scores on the ALMQ subscales and the scales of subjective learning outcomes, which are distinct from learning motivation, were examined to assess the construct validity of the ALMQ. Empirical research has shown that desired learning outcomes, which are distinguished from learning motivation, has generally been more negatively related to less self-determined forms of motivation (e.g., amotivation), and more positively related to more self-determined forms of motivation (e.g., intrinsic motivation; Deci & Ryan, 2012; Ryan & Deci, 2000b, 2017). In addition, compared with these self-determined forms, moderate self-determined forms of motivation (e.g., introjected regulation) have been more weakly related to learning outcomes (Deci & Ryan, 2012; Ryan & Deci, 2000b, 2017). In accordance with Van den Broeck, Ferris, Chang, & Rosen (2016), these relationships between constructs to be distinguished would be indicated by correlation coefficients falling below 0.70, because correlations exceeding 0.70 is required for the split-half reliability of a measure to assess single construct (Nunnally & Bernstein, 1994). Therefore, it was expected that the scores on the subscale of the more self-determined form would be moderately and positively correlated with the scores for subjective effort, satisfaction, comprehension, and achievement concerning Arabic learning, as desired learning outcomes, and moderately (less than 0.70) and negatively correlated with scores for subjective anxiety about Arabic learning, as an undesired learning outcome. Moreover, it was expected that scores on the subscale of the moderate self-determined forms would be more weakly correlated with the scores on scales of these subjective learning outcomes. Finally, the simplex structure of intercorrelations between scores on the ALMQ subscales was examined as an index of construct validity of the ALMQ.

## 2. Method

### 2.1. Participants

The participants were 448 students who were taking more than one class per week of Arabic as a foreign language (296 women, 152 men; ages 18 to 36 years,  $M = 20.96$ ,  $SD = 2.29$ ). They were students from nine Japanese universities in various majors, except Arabic majors. This is because Arabic majors might have a relatively biased motivation for Arabic learning such as a higher level of intrinsic motivation (Sumi & Sumi, 2016). The number of the participants from each university ranged from 29 to 92.

### 2.2. Measures

#### 2.2.1. Arabic Learning Motivation Questionnaire

The ALMQ contains 15 items (e.g., “I like studying Arabic” in Japanese), which were constructed by modifying items from the AMQ to measure motivation for Arabic learning. The modification of the items was carefully made by two professors who were experts in self-determination theory, learning motivation and Arabic learning. Each item is a short sentence using plain Japanese, like the AMQ. Four Arabic students in Japanese universities checked the modified items and commented on them. The items were revised based on their comments and further examined by the professors. Finally, several students learning Arabic confirmed that the items were suitable. The items of the ALMQ corresponded to the five forms of motivation in the AMQ: two items for amotivation, three items for each form of extrinsic motivation, and four items for intrinsic motivation. Although the AMQ uses a 5-point response scale, the items of the ALMQ were rated on a 7-point response scale that ranged from 1 (strongly disagree) to 7 (strongly agree). There were no reverse worded items. Each subscale score was calculated by summing the responses across subscale items, with higher scores indicating greater levels of that form of motivation.

#### 2.2.2. Arabic Learning Outcomes Measures

The five subjective aspects of Arabic learning outcomes were assessed using the Japanese measures. All the measures had three items, which were rated on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Good internal consistency reliability with Cronbach’s alpha exceeding 0.80 and single factor structure were found for the measures (Sumi & Sumi, 2015, 2016; Sumi & Sumi, 2016a).

##### 1) Subjective effort in Arabic learning

The Arabic Learning Effort Scale (Sumi & Sumi, 2015) was used to assess the students’ perceived exertion of learning Arabic (e.g., “I am trying hard to learn Arabic” in Japanese). Higher scores indicate greater subjective effort to learn Arabic.

##### 2) Satisfaction with Arabic learning

Overall satisfaction while learning Arabic was assessed using the Arabic Learning Satisfaction Scale (Sumi & Sumi, 2015; e.g., “I am satisfied with my Arabic

lessons” in Japanese), with higher scores indicating greater satisfaction with Arabic learning.

### 3) Subjective comprehension of Arabic learning content

The Arabic Learning Comprehension Scale (Sumi & Sumi, 2016a) was used to measure general understanding of the content of Arabic learning, which is evaluated by the students (e.g., “I understand the content of Arabic well” in Japanese). Higher scores indicate greater subjective comprehension of Arabic learning content.

### 4) Subjective achievement in Arabic learning

The Arabic Learning Achievement Scale (Sumi & Sumi, 2015) was used to measure general achievements or grades on tasks and tests of the Arabic class, which are evaluated by the students (e.g., “I think my grade in Arabic is good” in Japanese). Higher scores indicate greater subjective achievement in Arabic learning.

### 5) Anxiety about Arabic learning

Anxiety about Arabic learning was measured using the Arabic Learning Anxiety Scale (Sumi & Sumi, 2016), which was designed to assess discomfort and distress associated with Arabic learning (e.g., “I feel anxious about acquiring the Arabic language” in Japanese). Higher scores indicate greater anxiety about Arabic learning.

## 2.3. Procedure

Questionnaires were administered by a teacher outside class after obtaining informed consent from the participants. Of the 448 participants, only 214 students (Sample A) agreed to participate in two questionnaire sessions, and completed the ALMQ again four weeks (Time 2) after the first questionnaire session (Time 1). Sample A was comprised of 139 women and 75 men with a mean age of 20.64 (SD = 1.91). There were no significant differences in the female to male ratio,  $\chi^2(1, N = 662) = 0.08$ , and mean age,  $t(660) = 1.74$ , between the Sample A and the whole sample. All the participants voluntarily participated in this study, which was independent of their courses. Ethical clearance for the study was obtained from the ethical committee of the institutions involved in the study.

## 2.4. Data Analysis

First, exploratory factor analysis and confirmatory factor analysis were performed to confirm the hypothesized subscale structure of the ALMQ. The data from half of the sample were subjected to exploratory factor analysis, and then the data from the other half were subjected to a confirmatory factor analysis. Second, Cronbach’s alphas for the whole sample and test-retest correlations for Sample A were calculated to assess reliability of the ALMQ. Third, to evaluate the construct validity, correlations between scores on the ALMQ subscale and the learning outcomes scales were examined. Finally, to confirm the simplex structure between the ALMQ subscales, intercorrelations between the scores on the subscales were assessed.



### 3. Results

For factor analysis, the sample was randomly divided into two groups of equal size: Sample 1 ( $n = 224$ ) and Sample 2 ( $n = 224$ ). There were no significant differences between the groups with regard to sex,  $\chi^2(1, N = 448) = 0.04$ , and age,  $t(446) = 0.33$ . For Sample 1 and Sample 2, the result of the Kaiser-Meyer-Olkin test of sampling adequacy was good (0.80 and 0.81, respectively), and the Bartlett's test of sphericity was significant ( $\chi^2$ s = 3077.91 and 3508.61,  $dfs = 105$  and  $105$ ,  $ps < 0.01$ , respectively), suggesting that both sets of data from the two samples were appropriate for factor analysis of the ALMQ.

Exploratory factor analysis using principal component analysis was performed with all items of the ALMQ for Sample 1. As a result, the eigenvalues for the first eight factors were 5.77, 3.13, 1.77, 1.44, 1.02, 0.40, 0.31 and 0.26. Based on eigenvalues greater than 1.0, scree test and factor interpretability, five factors were retained, accounting for 87.51% of the total variance. The promax rotation method was applied to the five extracted factors, which were expected to be interrelated. As shown in **Table 1**, all items had factor loadings of 0.78 or higher on a single factor and 0.33 or lower on all other factors. The items loading highly on each factor were the same as those that were previously hypothesized to constitute the corresponding subscales. The first, second, third, fourth and fifth factors corresponded to subscales for intrinsic motivation, identified regulation, external regulation, introjected regulation, and amotivation, respectively.

To confirm the five-factor structure obtained from the exploratory factor analysis, confirmatory factor analysis was conducted on Sample 2. The goodness of fit indices indicated an acceptable fit of the five-factor structure to the data,  $GFI = 0.93$ ,  $AGFI = 0.90$ ,  $RMSEA = 0.05$ ,  $SRMR = 0.03$ ,  $NFI = 0.87$ ,  $CFI = 0.99$ . As shown in **Table 2**, all absolute values of the standardized factor loadings were over 0.78 and were statistically significant ( $ps < 0.01$ ).

**Table 1.** Factor loadings for exploratory factor analysis for Sample 1 ( $n = 224$ ).

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	0.14	0.05	0.02	0.04	<b>0.81</b>
2	-0.12	-0.05	0.20	-0.02	<b>0.82</b>
3	0.06	0.06	<b>0.82</b>	-0.07	0.27
4	0.10	-0.09	<b>0.84</b>	0.11	-0.05
5	-0.05	-0.03	<b>0.84</b>	0.06	-0.08
6	0.07	-0.07	-0.12	<b>0.82</b>	0.12
7	-0.07	0.12	0.07	<b>0.78</b>	0.12
8	-0.10	0.31	-0.14	<b>0.78</b>	-0.02
9	-0.12	<b>0.88</b>	0.05	-0.21	-0.05
10	-0.12	<b>0.88</b>	0.05	-0.30	-0.16
11	0.05	<b>0.82</b>	-0.10	0.07	0.12
12	<b>0.86</b>	0.33	-0.02	0.07	-0.19
13	<b>0.86</b>	-0.10	0.09	0.08	0.12
14	<b>0.83</b>	0.05	-0.03	-0.08	0.06
15	<b>0.82</b>	0.05	0.05	-0.05	-0.04
Eigenvalue	5.77	3.13	1.77	1.44	1.02
% of variance	38.47	20.85	11.77	9.61	6.81

Note: Factor loadings in bold indicate the factor in which the item was judged to belong.



**Table 2.** Standardized factor loadings for confirmatory factor analysis for Sample 2 (n = 224).

Item	Subscale				
	Amotivation	External regulation	Introjected regulation	Identified regulation	Intrinsic motivation
1	0.89				
2	0.92				
3		0.87			
4		0.87			
5		0.92			
6			0.78		
7			0.81		
8			0.81		
9				0.95	
10				0.89	
11				0.84	
12					0.86
13					0.85
14					0.90
15					0.88

Note. All factor loadings are significant,  $p < 0.01$ .

**Table 3** presents the means, standard deviations, range of corrected item-total correlations, and Cronbach's alphas for the ALMQ subscales. Cronbach's alphas were high (0.86 to 0.90). Test-retest correlations were calculated between the ALMQ subscale scores for Sample A at Time 1 and Time 2. All these correlations were very high (0.69 to 0.79).

**Table 4** shows Pearson correlations between scores on the ALMQ subscale and the learning outcomes scales. The amotivation scale scores were, in general, moderately and negatively correlated with scores on all the desired learning outcome scales ( $r_s = -0.38$  to  $-0.24$ ,  $p_s < 0.01$ ), and moderately and positively with scores on the undesired learning outcome scale, i.e., Arabic Learning Anxiety Scale ( $r = 0.28$ ,  $p < 0.01$ ).

The external regulation scale scores had significant but weak correlations with the learning outcome scales scores ( $r_s = -0.25$  to  $0.21$ ,  $p_s < 0.01$ ), except non-significant correlation with the Arabic Learning Achievement Scale scores ( $r = 0.06$ ). The introjected regulation scale scores had a significant correlation only with the Arabic Learning Satisfaction Scale ( $r = 0.11$ ,  $p < 0.05$ ). In contrast to these subscales, scores on the identified regulation and intrinsic motivation scales were significantly and positively correlated with scores on the desired learning outcome scales, and negatively with scores on the undesired learning outcome scale. These correlations with the identified regulation and intrinsic motivation scales scores were weak to moderate ( $r_s = -0.31$  to  $0.49$ ). The correlations with the identified regulation scale scores were significantly weaker than those with the intrinsic motivation scales scores ( $p_s < 0.05$ ).

Pearson correlations between the ALMQ subscale scores are presented in **Table 5**. There were significant and positive correlations between scores on the

subscales of most adjacent forms of motivation on the self-determination continuum. For example, the correlation between the scores on amotivation scale and external regulation scale was 0.34 ( $p < 0.01$ ). By contrast, there was a significant and negative correlation between scores on the subscales of the most distant forms, that is, between the scores on amotivation scale and intrinsic motivation scale ( $r = -0.41$ ,  $p < 0.01$ ). There were non-significant or weak negative correlations between scores on subscales of rather distant forms. For example, scores on introjected regulation scale were non-significantly correlated with scores on amotivation scale and intrinsic motivation scale ( $r_s = 0.09$  and  $0.08$ , respectively). Correlations between scores on subscales of somewhat distant forms were moderate and negative. For example, correlation between scores on external regulation scale and intrinsic motivation scale was  $-0.25$  ( $p < 0.01$ ).

**Table 3.** Means, standard deviations, range of scores, cronbach's  $\alpha$ , and test-retest correlations for ALMQ (N = 448).

ALMQ subscale	M	SD	Range of Scores	Cronbach's $\alpha$	Test-retest r
Amotivation	4.21	2.35	2 - 14	0.89	0.71
External regulation	4.42	2.35	3 - 17	0.89	0.69
Introjected regulation	7.72	3.82	3 - 20	0.86	0.72
Identified regulation	15.12	3.75	3 - 21	0.90	0.78
Intrinsic motivation	21.43	4.58	4 - 28	0.89	0.79

Note. Test-retest r = test-retest correlations in Sample A (n = 214).

**Table 4.** Pearson correlations between scores on ALMQ subscales and arabic learning outcome scales (N = 448).

ALMQ subscale	Arabic learning outcomes scale				
	Effort	Satisfaction	Comprehension	Achievement	Anxiety
Amotivation	-0.31**	-0.33**	-0.38**	-0.24**	0.28**
External regulation	-0.22**	-0.23**	-0.25**	0.06	0.21**
Introjected regulation	0.04	0.11*	0.06	0.09	0.07
Identified regulation	0.26**	0.33**	0.37**	0.17**	-0.11*
Intrinsic motivation	0.35**	0.43**	0.49**	0.33**	-0.31**
M	12.58	13.59	12.94	9.72	12.13
SD	3.77	3.99	3.86	4.53	4.38

Note: \*  $p < 0.05$ . \*\*  $p < 0.01$ .

**Table 5.** Pearson Correlations between ALMQ subscale scores (N = 448).

	1	2	3	4
1) Amotivation				
2) External regulation	0.34**			
3) Introjected regulation	0.09	0.14**		
4) Identified regulation	-0.39**	-0.12*	0.16**	
5) Intrinsic motivation	-0.41**	-0.25**	0.08	0.50**

Note: \*  $p < 0.05$ . \*\*  $p < 0.01$ .

## 4. Discussion

In this study, a new measure of motivation for learning Arabic among Japanese learners was developed based on the AMQ (Sumi, 2013), which is an existing measure for academic motivation and grounded in self-determination theory. As expected, the five-subscale structure of the developed measure, the ALMQ, was fully supported by both exploratory and confirmatory factor analyses. The subscales, just like those of the AMQ, corresponded to the five forms of motivation as proposed by self-determination theory. Additionally, each subscale comprised the expected items. The results indicate that the ALMQ consists of five subscales, which assess motivational constructs with a different level of self-determination.

The new measure was found to be reliable. High Cronbach's alphas (more than 0.80) of the subscales indicate excellent internal consistency reliability (Nunnally & Bernstein, 1994). Compared to the AMQ, the ALMQ subscales have better internal consistency. In addition, since the test-retest correlations over a four-week interval were very high, all the subscales showed good temporal stability. These test-retest correlations were slightly higher than those of the AMQ (Sumi, 2013).

The ALMQ also showed preliminary evidence of construct validity. The results support the hypothesized relationships between scores on the ALMQ subscales and subjective learning outcomes scales. In general, the scores for less self-determined forms of motivation (i.e., amotivation and external regulation) were negatively correlated with the scores for desired learning outcomes (i.e., subjective effort, satisfaction, comprehension, and achievement concerning Arabic learning), and positively correlated with scores for undesired learning outcome (i.e., anxiety about Arabic learning). Alternatively, the scores for more self-determined forms of motivation (i.e., identified regulation and intrinsic motivation) were positively correlated with scores for desired learning outcomes and negatively correlated with scores for undesired learning outcome. On the other hand, the scores for introjected regulation as a moderate self-determined form were weakly or non-significantly correlated with scores for the subjective learning outcomes. Additionally, these correlation values ( $r_s < 0.50$ ) were much lower than 0.70, which is the upper bound of the correlation between scores on measures assessing different constructs (Van den Broeck et al., 2016). Therefore, the discriminant validity of the ALMQ subscales was supported by their correlations with the measures of subjective learning outcomes as conceptually predicted (Deci & Ryan, 2012; Ryan & Deci, 2000b, 2017).

The ALMQ, like the AMQ, has an appropriate construct validity with a theoretically expected correlational pattern between the scores on the ALMQ subscales as well as with relationships to measures of subjective learning outcomes. The results showed that, as a general rule, most positive correlations are found between scores on the ALMQ subscales of more adjacent forms of motivation on the self-determination continuum, and less positive or more negative correlations are found between scores on the subscales of more distant forms of it. This

correlational pattern indicates an acceptable simplex structure as predicted by self-determination theory (Gagné et al., 2010; Noels et al., 2000; Ryan & Connell, 1989).

Although the results of the present study provide preliminary support for the reliability and construct validity of the ALMQ, several limitations require consideration concerning this study. First, the sample was limited to non-Arabic majors in university. Further research should replicate the present findings with other population, especially workers learning Arabic for work (Suzuki, 2006). In addition, research with Arabic major students could provide interesting results. Second, it is necessary to examine test-retest correlations over a longer interval. Third, to further assess construct validity of the ALMQ, it is recommended to confirm the relationships to other than learning outcomes, such as satisfaction with basic psychological needs (Deci & Ryan, 1985, 2004) that are assumed within self-determination theory. Finally, future research focusing on additional psychometric properties of the ALMQ, including predictive and convergent validity, appears warranted.

Although with the limitations, the present findings support the use of the ALMQ to assess the motivation of Japanese learners of Arabic based on self-determination theory. The ALMQ is a short scale which is useful in research studies within wider contexts. The use of the ALMQ is expected to advance our understanding of Japanese learners of Arabic.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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