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Assessing changes in mood state in university students following short-term study abroad

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Assessing changes in mood state in university students following short-term study abroad

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Abstract

Short-term study-abroad (STSA) programs provide an alternative for students who would otherwise not engage in international academic activities. Though improvements in the levels of intercultural sensitivity and general academic aspects attained by STSA programs have been examined, little is known about the impact they have on the mood state of students. Here, we examined changes in mood state associated with participation in a cohort of Japanese university students. Mood state was assessed using the Profile of Mood States (POMS), the Satisfaction With Life Scale (SWLS) and the Gratitude Questionnaire (GQ-6). Results indicated that the POMS mean scores of Vigor-Activity and SWLS peaked immediately following participation in the STSA program, and remained at comparable levels for up to one month. These results suggest that STSA programs positively enhance the mood state of college students, indicating that the benefits arising from participation may extend beyond those typically reported in the academic domain.

Introduction

Though the multifaceted benefits of participation in study-abroad programs are well documented [1], the percentage of Japanese students engaging in international academic programs remains low at approximately 1% [2]**.** To counter that low take-up, universities in Japan have developed a variety of study-abroad programs [3] to increase the number of domestic students gaining international academic experience by targeting subgroups of the student population that are less likely, or more reluctant, to seek international experience during their college years. Such efforts are believed to help foster more "globalized" academic environments, which are thought to be an important prerequisite for prospective domestic and international students [4-5]. To help students overcome the barriers that may prevent their participation in STSA programs, universities have resorted to different strategies, such as minimizing language requirements or offering access to financial support.

It is generally reported that long-term study-abroad programs, lasting one or more semesters, bring greater benefits than short-term (STSA) programs [6]. However, [3] argued that STSA programs should not be overlooked as they target a subgroup of the student

population that would otherwise not engage in any type of international academic activity. Moreover, STSA programs provide a more accessible and affordable alternative than long-term programs. [7] have noted that the majority of more recent study abroad-programs have a short-term character. As a result of this trend, most universities in Japan now offer STSA programs as part of their official curricula.

The benefits associated with study-abroad programs have been measured in various ways, including both intercultural sensitivity [5] and desire to attend graduate school [6], which are fundamental issues in the context of international education. Assessing the long-term impact of international study, Yokota et al. [8] reported that students who undertook study abroad, compared with those who did not, adapted better to new and different cultural environments. Notably, this positive outcome was associated not only with advanced language or technical skills but also with fundamental competences of emotional intelligence and socialization, leaving students with an overall progressive outlook on life.

Other studies have shown positive effects in how participants of STSA programs perceive themselves in a globalized context after obtaining international experience. Using large-scale surveys, [9] reported that students who took part in a five-week STSA exchange program had higher levels of self-assessed "global awareness" when compared with students who only took classes about intercultural understanding in their country of origin. [10] examined participants undertaking a three- to four-week STSA program, and assessed notions associated with global consciousness before, during and after the program. Their results indicated that a participant's self-assessed acquired practical knowledge about the world was significantly enhanced on completion of the program.

Few studies have examined the value of more time-limited exchange programs, such as those lasting only one week [6, 11], and how such programs compare with those of longer duration. However, given the poor take-up of international study by Japanese students [12], and the increasing costs of study-abroad programs, a full investigation of the effects of time-limited STSA programs appears warranted.

Our goal in this paper was to examine changes in the mood state of individuals participating in a one-week STSA program. We employed metrics that are typically applied in experimental psychology (see Methods for details), but which have thus far been less favored

in the field of study-abroad research [13-14]. To examine the impact on the mood state of students participating in the one-week STSA program, data collection was performed at two time-points before and two time-points after their time abroad.

Methods

Participants

The target sample group consisted of 40 (24 males, 16 females) Japanese undergraduate students attending a Japanese university. They participated in a short-term study-abroad program of one week duration, called the Global Fieldwork Project (more details in section below). Students taking part in the program were enrolled in several different majors: Letters (30%); Economics (17.5%); Sociology (15%); Life Sciences (7.5%); Policy Science (7.5%); Gastronomy Management (5%); Business Administration (5%); Science and Engineering (5%); Comprehensive Psychology (2.5%); International Relations (2.5%); and Information Science and Engineering (2.5%). A total of 42.5% of participants in the STSA program were freshmen, 40% were sophomores, 15% were juniors and 2.5% were seniors. The program had two destinations, with 65% of the students conducting the fieldwork in Penang, Malaysia, and 35% conducting the fieldwork in Phnom Pen, Cambodia.

NEO-Five Factor Inventory (NEO-FFI)

To ensure that participants of the STSA program were a representative student sample, we asked participants to rate items in the NEO Five-Factor Inventory (NEO-FFI, [15]), and compared them with the scores given by a group of students from the same university who neither participated in the program nor spent any time overseas during the same period. There were 39 undergraduate students (17 males, 22 females) in the comparison group, comprised of 35.9% from the College of Life Sciences and 46.1% from the College of Pharmaceutical Sciences (25.6% freshmen, 74.4% sophomores). The NEO-FFI is a shortened version of the NEO Personality Inventory-Revised, an implementation of an empirically validated five-factor model of human personality [16]. The FFI is one of the most extensively applied models of personality currently in use [17], describing individual differences in terms of five personality

traits: Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. This personality model has been examined using both cross-sectional and longitudinal studies on populations of different ages and cultural backgrounds [18-20].

Profile of Mood States (POMS)

The mood states of participants were assessed using a Japanese translation of the Profile of Mood States (Second Edition, Adult Short Form, POMS 2®, Kanekoshobo Inc., Tokyo, Japan). The POMS was designed to assess the mood states of individuals aged 13 years and older [21]. It consists of a collection of self-rating scales to score various aspects related to mood and feelings experienced, allowing for a quick assessment of transient, fluctuating feelings, as well as enduring affective states. The POMS is composed of six scales: Anger-Hostility (AH), Confusion-Bewilderment (CB), Depression-Dejection (DD), Fatigue-Inertia (FI), Tension-Anxiety (TA), and Vigor-Activity (VA). Higher POMS scores indicate greater intensity of the corresponding composite construct. Note that only VA has a positive valence, while all other scales have a negative connotation. An aggregate score of total mood disturbance (TMD) can be computed based on the six scores, with greater scores indicating higher disturbance. The POMS individual scales, or the TMD score, have been employed to monitor natural changes in mood state or alterations in mood state following behavioral interventions in clinical, athletic and psychology research settings [22-24]. A few studies have employed the POMS in researching study-abroad programs (e.g. [25]).

Satisfaction With Life Scale (SWLS)

The Satisfaction With Life Scale (SWLS; [26]) consists of five items developed to measures an individual's satisfaction with life as a whole, regardless and beyond specific domains such as health and finances. Satisfaction with life is thought to be a fundamental component of the construct of subjective well-being [27]. The SWLS has been largely applied to clinical and non-clinical populations across different cultural contexts [28-29].

Gratitude Questionnaire (GQ-6)

The Gratitude Questionnaire (GQ-6) is a six-item scale used to assess the individual disposition of experiencing the emotion of gratitude, conceptualized as an affective trait reflecting one's tendency to attend and respond to the role of other people in giving rise to positive outcomes that benefit the self [30]. GQ-6 scores have been found to be positively correlated with SWLS scores [31], as well as subjective scores of happiness [32] and job satisfaction [33].

Global Fieldwork Project (GFP)

The GFP is a project-oriented, fieldwork-based program, structured such that students first explore possible themes of interest and concerns regarding the country they are about to visit, and then pursue those themes with the assistance of local university students ("buddies") during the STSA period. The program began with a classroom orientation session at the end of June (i.e., about the time when the spring term ends and the summer vacation begins).

In the initial orientation session of one day duration, students were required to form groups of three, discuss possible topics of study, and devise a fieldwork plan to execute during the STSA. The topics were quite diverse, reflecting their interests and backgrounds. Students were encouraged to form hypotheses about various socioeconomic aspects of the country they were about to visit.

Approximately one month after the orientation session, students traveled to Malaysia or Cambodia – the two destinations of the STSA – led by a faculty member whose role was to oversee the entire program and provide assistance to the students when necessary.

During the study abroad period, their work consisted of gathering first-hand information to test their hypotheses, achieved through questionnaires and interviews with local people. The interviews were conducted in collaboration with their assigned "buddies". Apart from the group-based fieldwork, the program included an introductory lecture by a local university professor, an orientation session and a farewell party. Excluding travel time to and from the overseas destination, the total period spent abroad was six days.

Two to four weeks after their return from overseas, students were required to present their findings in front of an invited audience of fellow students and academics. As part of their presentation, they reported on whether or not their initial hypotheses about the socioeconomic

conditions of the visited country were confirmed. Through personal interviews, students also reported about their overall experience of the GFP and the specific study period.

Study Design

During the orientation day, approximately one month prior to the scheduled departure date (Time 1, T1), participants were requested to answer the items in the POMS, SWLS, GQ-6 and NEO-FFI. In order to mask the long-term goal of these tasks, participants were instructed to answer the items as part of their normal classroom activities. The same was true for the comparison group when completing the NEO-FFI.

Because the current study spanned no more than three months, the NEO-FFI was completed only once. The POMS, SWLS and GQ-6 were completed four times in total: (i) during the orientation day; (ii) one day before departure (T2, mid-August for the students heading to Cambodia; early September for the students heading to Malaysia); (iii) the day they arrived back in Japan (T3, end of August for students that visited Cambodia; mid-September for students that visited Malaysia); and (iv) during the final presentation session, held over a single weekend at the end of September (T4).

Statistical analysis

We employed a two-way, repeated measures analysis of variance (rm-ANOVA) with group (STSA and comparison groups) as a between-subjects factor, and the NEO-FFI traits (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness) as within-subject factors. We employed a one-way rm-ANOVA to examine the individual components of the POMS mood state (Anger-Hostility, Confusion-Bewilderment, Depression-Dejection, Fatigue-Inertia, Tension-Anxiety, and Vigor-Activity), with time (T1, T2, T3, T4) as a within-subject factor. A similar analysis was performed using the data from the SWLS and GQ6. Degrees of freedom were adjusted using Greenhouse-Geisser estimates of sphericity (Mauchly's sphericity test). All analyses were performed using SPSS version 25 (IBM, New York, USA).

Results

NEO-FFI trait differences between study-abroad and comparison groups

We first examined whether our study-abroad group differed from the comparison group on the five NEO-FFI traits. A two-way repeated measures ANOVA revealed a significant main effect for NEO-FFI traits ($F(2.289, 173.974) = 4.327$, $p = 0.011$, Greenhouse-Geisser corrected), but no main effect of group ($F(1, 76) = 2.442$, $p = 0.122$). Moreover, there was no interaction between the NEO-FFI traits and group ($F(2.289, 173.974) = 0.2401$), $p = 0.816$). Post-hoc tests using Bonferroni correction revealed that the mean score for the NEO-FFI Extraversion trait ($M = 25.78$, $SD = 8.63$) and Agreeableness trait ($M = 30.24$, $SD = 5.87$) differed significantly ($p < 0.001$). These results provide confirmatory evidence that there were no latent personality trait differences between the study-abroad and comparison groups.

POMS

Vigor-Activity (VA) scores across time

We entered the scores of the component VA in a one-way rm-ANOVA, with time (T1, T2, T3, T4) as a within-subjects factor. The results showed a significant main effect of time ($F(3, 117) = 24.078$, $p < 0.0001$). Post-hoc tests using Bonferroni correction for multiple comparisons indicated that the mean VA score at time T3 ($M = 13.67$, $SD = 4.621$), collected the day after participants returned from abroad, was larger than the mean score at both time T1 ($M = 9.08$, $SD = 4.891$), T2 ($M = 8.98$, $SD = 4.452$) and T4 ($M = 11.53$, $SD = 3.883$). Furthermore, the mean score at T4 was larger than the scores collected at T1 and T2, and smaller than the score at T3. These results are shown in Fig 1 (a).

Fig 1. POMS scores across time. (a) Vigor-Activity (VA), (b) Confusion-Bewilderment (CB), (c) Fatigue-Inertia (FI), and (d) Tension-Anxiety (TA). T1: one month before departure overseas, T2: one day before departure, T3: the day of arrival back in Japan, and T4: 2-4 weeks after their return. The asterisk (*) indicates statistically significant

pairwise differences ($p < 0.05$ level), corrected for multiple comparisons using the Bonferroni method.

Confusion-Bewilderment (CB), Fatigue-Inertia (FI) and Tension-Anxiety (TA) scores across time

Mean scores of the CB component were entered in a one-way rm-ANOVA, with time (T1, T2, T3, T4) as a within-subjects factor. The results showed a significant main effect of time ($F(3, 117) = 4.083$, $p < 0.013$). Post-hoc tests using Bonferroni correction indicated that the mean CB score at time T1 ($M = 6.80$, $SD = 4.334$), collected at the initial orientation session, was larger than the mean score at both time T2 ($M = 5.05$, $SD = 3.721$) and T3 ($M = 5.22$, $SD = 3.899$). These results are shown in Fig 1 (b).

Similarly, Fig 1 (c) shows that there was a significant main effect of time on the FI component ($F(3, 117) = 2.730$, $p < 0.047$), with post-hoc tests using Bonferroni correction indicating that the mean FI score at time T1 ($M = 7.67$, $SD = 4.281$) was larger than the mean score at time T2 ($M = 5.90$, $SD = 3.875$).

There was also a significant main effect of time on the mean scores for the TA component ($F(3, 117) = 4.954$, $p < 0.003$). Post-hoc tests using Bonferroni correction indicated that the mean TA score at time T1 ($M = 8.65$, $SD = 4.554$) was larger than the mean score at both time T2 ($M = 6.68$, $SD = 4.129$) and T3 ($M = 6.43$, $SD = 3.974$). These results are shown in Fig 1 (d).

Anger-Hostility (AH) and Depression-Dejection (DD) scores across time

There was no significant difference between the mean scores across time on either the AH component ($F(3, 117) = 2.505$, $p = 0.075$) or the DD component ($F(3, 117) = 1.128$, $p = 0.302$).

Satisfaction With Life Scale (SWLS) scores across time

Mean SWLS scores were entered in a one-way rm-ANOVA, with time (T1, T2, T3, T4) as a within-subjects factor. The results showed a significant main effect of time ($F(3, 117) = 12.201$, $p < 0.001$). Post-hoc tests revealed that the mean SWLS at T3 ($M = 21.70$, $SD =$

6.313) was greater than the mean score at both T1 (M = 18.60, SD = 6.997) and T2 (M = 19.25, SD = 6.392). Also, the mean score at T4 (M = 22.17, SD = 7.243) was greater than the scores at both T1 and T2. These results are shown pictorially in Fig 2.

Fig 2. SWLS across time at T1, T2, T3 and T4 (see caption for Fig. 1 for details). The asterisk (*) indicates statistically significant pairwise differences ($p < 0.05$ level), corrected for multiple comparisons using the Bonferroni method.

Gratitude Questionnaire (GQ6) scores across time

A one-way rm-ANOVA, with time (T1, T2, T3, T4) as a within-subjects factor, revealed a significant main effect for time on the mean scores on the Gratitude Questionnaire (GQ6) ($F(3, 117) = 3.482$, $p < 0.018$). However, post-hoc tests using Bonferroni correction for multiple comparisons failed to detect pairwise differences between samples collected at different time points.

Discussion

We sought to examine changes in the affective state of Japanese university students participating in a short-term study-abroad (STSA) program of one week duration, in which fieldwork activities by the visiting students were undertaken with the help of local students (in either Cambodia or Malaysia). We first provided confirmatory evidence that the individuals taking part in the program were a representative sample of students, using the NEO-Five Factor Inventory to establish that there were no significant differences in major personality traits between study-abroad participants and a comparison group drawn from across the university sector. We next employed POMS to assess the mood states of the study-abroad group, as defined by the categories Anger-Hostility, Confusion-Bewilderment, Depression-Dejection, Fatigue-Inertia, Tension-Anxiety and Vigor-Activity. Our results show that Vigor-Activity increased significantly during their stay overseas (T3), when compared with the levels

observed before their departure (T2) (see Fig 1(a)), and generally remained high throughout the following weeks (T4).

Mood states, as measured by scales such as the POMS, have been shown to be enhanced using a variety of different manipulations, including meditation [34-35], sitting isometric yoga [36], massage therapy [37], exposure to nature [38] and physical activities [39]. Here, we attribute the observed enhancements in the scores of Vigor-Activity to participation in the study-abroad program. In addition, using the Satisfaction With Life Scale (SWLS), we showed that participation in STSA programs, even when limited to one week duration, effected a significant improvement in a core component of subjective well-being that was sustained for at least a few weeks after the students returned from overseas (see Fig 2). However, contrary to our expectations, no differences in GQ-6 scores were detected.

We conclude that STSA programs limited in duration to just one week are capable of positively impacting the affective state of students. This is important because short-term programs provide a more accessible alternative to long-term programs in terms of both time and money, and because they are likely to be a realistic entry point for students who otherwise would not consider the possibility of obtaining overseas experience during their years in college. Continued validation of STSA programs using scales such as the BEVI (Beliefs, Events, Values Inventory), IDI (Intercultural Development Inventory) and GPI (Global Perspectives Inventory) (reviewed in [40]) will enable educators to construct more accurate expectations of the long-term benefits of participating in such programs. To gauge the relative value of the affective state change in students afforded by STSA programs, it may also be advantageous in future studies to monitor university students over an extended time-period (e.g., one year) to assess the level of variation in their affective state with other significant events in the college calendar (e.g., exam and holiday periods).

Declaration of conflicting interests

The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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