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ARAKI, OKAMURA, & HAMATANI

## THE EFFECT OF ACTIVITIES FOR EFFECTIVE PROCESSING IN AN ADVENTURE EDUCATION PROGRAM ON PARTICIPANTS' PERSONAL DEVELOPMENT

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The purpose of this study was to determine the effect of preplanned activities for effective processing, such as framing, debriefing, and transferring, on participant's depth of reflection and personal development. Adventure education programs based on experiential learning methods had spread slowly in Japanese outdoor education. However, recent research concluded that adventure programs without constructed activities for processing affected personal growth and development. Sugeran (2000) describes that some participants are able to reflect spontaneously to understand the meaning of the experience. Other participants are not able to reflect spontaneously about the experience and are unable to extract meaning from the experience. Activities for effective processing support participants in organizing the meaning of their experience and becoming aware of new ideas from other members. Therefore, activities for effective processing are not essential in adventure education, but they promote more effects of adventure education.

The subjects were 14 college students who participated in a six-day adventure camp. The treatment group (n=7) incorporated three activities for effective processing to encourage participants' reflection. The control group (n=7) took part in other activities when the treatment group did activities for processing. The first day, the treatment group created a full value contract at the end of a half-day hike. Meanwhile, the control group completed low elements of a challenge course set up using the natural environment around the trail during a half-day hike. The second treatment occurred when both groups had group meetings immediately after a 2-day adventure hike (the fourth day of the program). The treatment group debriefed the experience of adventure hiking, and the control group discussed the group project for the final day. The final treatment involved an assignment about transferring their camp experience to school and home situations on the last day. Treatment group members expressed their learning on a piece of paper and shared them with the other group members. On the other hand, the control group made a bench as a group project to present to the lodge's owner.

In order to measure the depth of reflection, the Camp Experience Reflection Scale (CERS) was developed by the researchers. One hundred statements relating to reflective experience were gathered from 31 subjects who were participants in an adventure education program sponsored by Outward Bound Japan. An open-ended questionnaire was used to ask subjects what they thought about themselves, the other group members, previous events, and the value of the experience in the future during instructed reflective learning. In order to develop a pilot test, nine professors who specialize in outdoor education evaluated generality of these statements. Fifty six items and a 7-point Likert-type scale based on evaluation was administered to 210 college students after reflective time during a 4-day educational camp. Factor analysis using oblique rotation was repeated until all scores on each factor exceed .40. Nine factors: *Social Skills, The Other Recognition, Self-Recognition, Group Recognition, Commons, Applying, Respect, Observation, and Gaps* were obtained. The final version of the Camp Experience Reflection

Scale (CERS) consisted of 18 items and was developed choosing two items that had the highest loading on each factor. This inventory was administered after each of the three processing activities. Participants' personal development was measured using the Evaluation Scale of Nature-experience Programs (ESNP) and the Self-Enhancement Scale (SES). The ESNP was developed to evaluate the general effects of educational camps by Tanii & Fujiwara (2001). In this study, three sub-scales, consisting of 12 items relating to the outcome of adventure program, were selected, such as *Leadership*, *Interpersonal Skill* and *Self-Development*. The SES was developed by Kajita (1980) and contains 31 statements in four sub-scales, *Achievement Motivation*, *Self-Effort*, *Self-Confidence* and *Perceived Self*. The ESNP and SES were administered three times before, after, and two-months after the six-day adventure camp. Data were analyzed using the Mann-Whitney U and Friedman tests.

The results showed that total CERS scores of the treatment group were higher than the control group, but the scores after adventure hiking showed a significant difference. The factors, *The Other Recognition*, *Respect*, and *Commons* of the treatment group were significantly higher than the control group after the 2-day adventure hike. Because each factor is related to the others, it was considered that there were interpersonal conflicts and cooperation among the group members during the 2 days of stressful hiking. Additionally, the sub-scales, *The Other Recognition*, *Observation*, and *Applying*, of the treatment group were significantly higher than the control group at the final processing activity. It was postulated that activities for effective processing made students remember the camp experience and focused goal setting after the camp. It should be mentioned that total scores and the sub-scales scores from the ESNP and SES reported from the treatment group increased after camp and maintained two months after the camp more than control group, but there was no statistically significant difference between the groups. The result of the Friedman test showed that the treatment group's *Leadership* score significantly increased two months after the camp in comparison with before camp. The results partially supported previous studies concluding that intentional processing for effective learning has positive effects (Priest, 1996). Though the treatment did not strongly influence the outcome of the camp, spontaneous reflection on the camp experience and the three experimental processing activities could influenced the ESNP and SES after the camp.

The results suggested that activities for effective processing after a stressful expedition and at the end of a program promoted understanding about the meaning of the experience for participants, although it is not essential for a positive outcome of the program. For further study, it is recommended that the influence of spontaneous reflection be examined to evaluate causality between reflection and outcome.

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