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Applying Flow Theory to the Evaluation of the Quality of Experience in a Summer School Program Involving E-interaction

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Abstract — In 2008, we, Hosei University Information Technology Research Center (HITEC) and Hosei University Research Institute, California (HURIC), started a new project to evaluate our overseas intensive English and ICT learning program for high school students. This evaluation focuses on participants' quality of experience while attending the program. The approach has been developed from the perspective of a psychological theory, called "flow theory." This paper introduces our new project as a preliminary example of how flow theory can be applied to evaluate educational programs, what kinds of analyses can be conducted for its purpose, and what can be learned from the results for future modification and development of such educational programs toward their effectiveness and enjoyability.

I. INTRODUCTION

A. *Overview of the "California Summer English & ICT Training Program (EICT)"*

Since 2004, Hosei University Information Technology Research Center (HITEC) and Hosei University Research Institute, California (HURIC) have been closely collaborating to organize an oversea summer intensive learning program, called "California Summer English & ICT Training Program (EICT)," for students from 3 affiliated high schools of Hosei University. The EICT program is a Hosei University-High School Joint Project, and it is designed to provide effective English and ICT learning environments for the affiliated high school students. The concept of the program is to "learn ICT in English and learn English through ICT," and the program consists of two periods of sessions: (1) pre-training classes offered in Japan and (2) California summer intensive classes. For the pre-training session in Japan, participating students are provided laptop computers with English OS at the beginning of the academic year and they are given a series of classes and lectures on computer literacy in English using environments, such as communication via email, creation of home page, power point presentation, etc. They also learn practical basics of computers, such as designing and producing adders using TTL (hardware training) and JAVA programming (software training), which are normally taught at the first and second year levels at specialized math and science universities. In addition, the participating high school students interchange with American high school students who are learning Japanese at Mills High School, an affiliated high school in Millbrae, California, through videoconferencing and email during the pre-training period. In summer, the students go and stay at California State University, East Bay (CSUEB) for 3 weeks, and receive intensive ESL and High Tech. lectures by instructors of the university. During the stay in California, the high school students also deepen their friendships with Mills High School students in person through a home stay program and several occasions for interchange. For the EICT program, each student has his or her own research topic, develops it through the program, and gives a distance presentation on the topic on the last day of the training in California to their school teachers, instructors, and family members in Japan via a videoconferencing system connecting Hosei IT Center and a distance lecture room at CSUEB. All the activities and lectures of the EICT program are geared toward this final presentation, and students must carry out their own tasks independently. Since the EICT program was launched in 2004, English language skills of participating students have been evaluated yearly before and after the program and statistically meaningful improvement has been witnessed in spite of its short period of training [1].

B. *Flow Experience and its Theory*

In 2008, after 4 years of successful operation of the EICT program, we, HITEC and HURIC, have now started a new project to evaluate the EICT program, focusing on participants' quality of subjective experience from the perspective of flow theory, as a next step for its future modification and refinement. Flow theory provides a model of human development which explains how individuals develop higher levels of skills or abilities through daily experiences called "flow." Flow is an optimal state of experience in which an individual feels cognitively efficient, deeply involved, and highly motivated with a high level of enjoyment [2][3]. In this state, an individual is fully functioning by stretching existing skills while tackling optimal challenges perceived in an activity. There, most of the person's attention is directed to the activity at hand to express and realize personal potentials.

According to the theory, two criteria must be satisfied in order to experience flow [3][4][5]. That is, (1) the individual's perceived challenges of activities at hand and his or her perceived abilities or skills to take up the challenges must be in balance, and (2) the levels of the two experiential dimensions must be relatively high. In other words, the quality of subjective experience is a function of the perceived challenges and skills. Moreover, previous flow research has suggested that the flow experience has significant potential for fostering important aspects of personality, such as self-esteem and psychological resilience, developing academic and social skills and commitment, cultivating and promoting meaningful life challenges and social integration, improving the quality of life and life satisfaction, and promoting positive attitudes toward the future [6]. Therefore, according to these previous findings, it may be possible that experiencing flow in the activities and classes of the EICT program not only develops the English language skills and ICT related knowledge of participating students, but also promotes their psychological well-being if they can experience a great deal of flow while attending the program.

C. Overview of Analyses to Evaluate the EICT Program in 2008

The final goal of our project is to make the EICT program enjoyable and effective by producing the flow experience in participating students. As a first step to achieve the goal, we have started with the examination of how high school students who participated in EICT2008 (California Summer English & ICT Training Program in 2008) experienced the program. For the examination, we focused on their quality of experience, especially their flow experience. As mentioned earlier, the quality of experience is a function of the perceived challenges and skills. Thus, we also examined the students' levels of perceived challenges and skills in different activities and classes of EICT2008 as important criteria for the evaluation. Moreover, in order to examine the relationships of the flow experience and psychological wellness of the participating students, we conducted a series of correlation analyses between their average intensity of flow experience during the intensive training period in California and several indicators of psychological well-being at the end of the program.

II. METHODS

A. Participants

Twenty-one students from 3 high schools affiliated to Hosei University registered to participate in EICT2008, starting in January 2007. Among them, 7 students (4 males and 3 females) were from Hosei University High School, 6 (all males) from Hosei University Second High School, and 8 (all females) from Hosei University Girls' High School. During the training period in Japan, a student (male, senior) from Hosei University Second High School dropped out the program and a student (female, senior) from Hosei University Girls' High School joined it instead. The final participants who completed EICT2008 were a total of 21 high school students, consisting of 9 males and 12 females, of whom 19 were juniors and 2 were seniors.

B. Procedure

In order to evaluate what experiences the participating high school students had in EICT2008, we used a modified Experience Sampling Method (ESM) [7][8]. For the general ESM procedure, participants carried pre-programmed wristwatches which signaled them 8 times daily for a weekly total of 56 signals to fill out an ESF (Experience Sampling Form). The ESF was designed to elicit information on the participants' locations, activities, thoughts, and accompanying psychological states. For this study, however, we asked participants to fill out the ESFs only after the target activities and classes of EICT2008 to report their subjective experiences there: 6 times in Japan (after the pre-training classes) and 9 times during the stay in California (after 3 different intensive English classes, 3 different intensive High Tech. classes, a field trip, a preparation class for the final presentation, and the final presentation). In addition, in order to examine the students' psychological wellness, we administered a questionnaire which included measures of self-efficacy, will for meaningful life, anxiety, self-esteem, and Jujitsu-kan in daily life, at the beginning of EICT2008 (January, 2007), a week before leaving for California (July, 2008), on the last day of California intensive training (August, 2008), and 3 weeks after returning to Japan (September, 2008).

C. Measures

1) *Quality of Experience*: We examined the quality of experience with eleven experiential items on the ESF: concentration, enjoyment, interest, Jujitsu-kan (a Japanese sense of fulfillment), happiness, activeness, satisfaction, strength, excitement, perceived importance to oneself, and perceived importance to future goals. We measured the experiential items on 3 different rating scales; 4 experiential variables – happiness, activeness, strength, and excitement – were measured by 7-point semantic differential items: happy-sad, active-passive, weak-strong, and excited-bored; 3 experiential variables – concentration ("How well were you concentrating in the class?"), enjoyment ("Were you enjoying the class?"), and satisfaction ("Were you satisfied with yourself?") – by a 10 point rating scale ranging from "not at all" to "very much"; and 3 experiential variables – interest ("Was the class interesting?"), perceived importance to oneself ("How important was the class to you?"), and perceived importance to future goals ("How important was the class to your future goals?") – by a 9 point rating scale ranging from "not at all" to "very much." In addition, we measured the participating students' Jujitsu-

kan (“What level of Jujitsu-kan were you getting in the class?), perceived challenges (“Level of challenges of the class”), and perceived skills (“Level of your skills for the class”) by a 9 point rating scale ranging from “low” to “high.”

2) *Intensity of Flow*: In order to measure the intensity of the flow experience, we used the composite of a set of ESF experiential variables, concentration, enjoyment, interest, and Jujitsu-kan, which are expected to be concurrently high in flow [9]. Interest and Jujitsu-kan were measured on a 9 point rating scale (1 – 9) and concentration and enjoyment were measured on a 10 point rating scale (0 – 9). Thus, we first standardized raw scores of each variable by using sample means of the variables, and then summed up the resulting standardized scores of these variables to make a continuous measure of flow. We labeled this composite variable as “flow-score,” and the higher the flow-score is, the more intensely a participant experiences flow.

3) *Self-efficacy, Will for Meaningful Life, Anxiety, Self-esteem, and Jujitsu-kan in Daily Life*: In order to examine psychological wellness of the participating students, we administered a battery which included measures of self-efficacy, will for meaningful life, anxiety, self-esteem, and Jujitsu-kan, several times over the entire EICT2008 program. We used a Japanese version of Sherer’s self-efficacy scale [10], translated by Narita et al. [11], to measure their self-efficacy, used Kondo and Kamata’s will for meaningful life scale [12] to measure their will for meaningful life, used a Japanese version of Spielberger’s State Trait Anxiety Inventory [13], translated by Shimizu and Imasakae [14], to measure their tendency to generate anxiety in daily life, and used a Japanese version of Rosenberg’s self-esteem scale [15], translated by Yamamoto, Matsui, and Yamanari, [16], to measure their overall self-esteem. In addition, we used a single item, “I think my life is fulfilling (or I am getting Jujitsu-kan in daily life),” to measure the students’ Jujitsu-kan, a Japanese sense of fulfillment, in their daily lives [6].

III. RESULTS and DISCUSSION

A. Quality of Experience in Different Classes and Activities of EICT2008

The main purpose of our project reported in this paper was to evaluate a Hosei University-High School Joint Project, “California Summer English & ICT Training Program in 2008,” by examining participants’ quality of experience from the perspective of flow theory. For the purpose, first the high school students’ quality of experience was compared between 5 categories of activities in EICT2008; (1) class activities in Japan, (2) class activities in California, (3) a field trip in California, (4) a preparation class for the final presentation, and (5) the final presentation. Table 1 shows the results. The high school students’ levels of perceived challenges and skills were the highest in the final presentation, whereas their perception of challenges was the lowest in the field trip and their perception of skills was the lowest in the classes taught in Japan (challenges, $F(4, 307) = 5.52$, $p < .001$; skills, $F(4,307) = 2.57$, $p < .05$). The levels of concentration, enjoyment, Jujitsu-kan, and flow experience as the composite of concentration, enjoyment, interest, and Jujitsu-kan were also the highest in the final presentation, whereas the levels of concentration and Jujitsu-kan were the lowest in the classes in Japan and the levels of flow and enjoyment were the lowest in the preparation class for the final presentation (concentration, $F(4, 307) = 4.01$, $p < .01$; enjoyment, $F(4, 306) = 3.64$, $p < .001$; Jujitsu-kan, $F(4, 307) = 3.92$, $p < .001$; flow, $F(4, 304) = 2.66$, $p < .05$). As for the levels of happiness, activeness, strength, excitement, perceived importance to themselves, and perceived importance to future goals, the high school students scored the highest in the final presentation, while they scored the lowest in the preparation class for the final presentation for happiness and activeness, scored the lowest in the classes taught in Japan for strength and excitement, and scored the lowest in the field trip for perceived importance to themselves as well as to their future goals (happiness, $F(4, 307) = 6.44$, $p < .001$; activeness, $F(4, 307) = 5.10$, $p < .001$; strength, $F(4, 307) = 6.74$, $p < .001$; importance to oneself, $F(4, 306) = 3.30$, $p < .05$; importance to future goals, $F(4, 306) = 4.01$, $p < .01$). According to these results, the students appeared to have the most positive experiences in the final presentation where their perceptions of challenges and skills were both the highest. They showed higher concentration, felt more enjoyment, felt more Jujitsu-kan, felt happier, more active, stronger, and excited, felt more personal relevance and to their future goals, and most importantly they experienced flow more intensely in the final presentation, as compared to other types of activities. On the other hand, the high school students appeared to have relatively fewer positive experiences in the classes in Japan and the preparation class for the final presentation as compared to other activities of EICT2008.

Table 1 High school students’ quality of experience in different activities of EICT2008

	Classes in Japan	Classes in California	Field Trip	Preparation for Presentation	Final Presentation	*F*
	(*N* = 120)	(*N* = 125)	(*N* = 21)	(*N* = 21)	(*N* = 21)	
Challenges	6.29	6.63	5.43	7.05	7.86	5.52***
Skills	4.76	5.20	5.52	5.24	5.90	2.57*
(Challenge – Skill)	1.53	1.43	-.10	1.81	1.95	1.90
Flow (composite)	-.37	.13	.16	-.88	1.88	2.66*
Concentration	6.60	7.14	7.00	7.33	8.00	4.01**
Enjoyment	7.11	7.13	7.48	5.71	7.67	3.64**
Interest	6.78	6.65	6.33	6.24	7.38	1.36
Jujitsu-kan	6.32	6.85	6.95	6.52	7.76	3.92**
Happiness	4.98	5.21	5.38	4.10	6.05	6.44***
Activeness	4.65	5.13	5.24	4.64	5.95	5.10***
Satisfaction	5.77	6.17	6.43	6.24	6.86	1.63
Strength	4.49	5.16	5.19	4.52	5.71	6.74***
Excitement	4.87	5.35	5.57	5.00	6.00	4.19**
Importance to oneself	7.02	7.02	6.71	7.76	8.19	3.30*
Importance to future goals	6.50	5.98	5.00	6.67	7.10	4.01**

Reported *p*-levels are two-tailed. * $p < .05$; ** $p < .01$; *** $p < .001$.

B. *Relationships between High School Students' perceptions of Challenges and Skills and the Overall Quality of Experience*

Flow theory postulates that the quality of subjective experience increases as perceived challenges and skills increase in balance. Thus, in order to examine how the quality of experience changed as perceived challenges and skills changed, a series of correlation analyses was performed between the high school students' perceived challenges and skills and their overall quality of experience in EICT2008. As Table 2 shows, the students' perceived skills were positively associated with the intensity of flow (r = .42, p < .001), concentration (r = .30, p < .001), enjoyment (r = .28, p < .001), interest (r = .30, p < .001), Jujitsu-kan (r = .44, p < .001), happiness (r = .21, p < .001), activeness (r = 41, p < .001), satisfaction (r = .51, p < .001), strength (r = .43, p < .001), excitement (r = .17, p < .01), importance to oneself (r = .24, p < .001), and importance to future goals (r = .27, p < .001). That is, as their perception of skills increased, the students showed higher concentration, felt more enjoyment, showed more interest, felt more Jujitsu-kan, felt happier, more active, stronger, and excited, felt more personal relevance and to their future goals, and experienced flow more intensely. On the other hand, the students' perception of challenges was positively associated only with their perception of importance to themselves (r = .11, p < .10: marginal significance), but otherwise it was negatively associated with enjoyment (r = -.10, p < .10: marginal significance), happiness (r = -.12, p < .05), activeness (r = -.15, p < .01), satisfaction (r = -.12, p < .05), and strength (r = -.17, p < .01). In other words, as their perception of challenges increased, the students felt more importance of the activities to themselves, but they felt less enjoyment, felt less happy, less active, and less strong, and felt less satisfaction with themselves. As mentioned earlier, flow theory assumes that the quality of subjective experience increases as perceived challenges and skills increase in balance. However, the results showed that the quality of experience increased only as perceived skills increased, but not as perceived challenges increased. This is probably because the levels of challenges were quite high for the high school students throughout EICT2008. Indeed, as shown in Table 2, the average level of perceived challenges was 6.52 on the 9 point rating scale. Thus, it is quite possible that the students were almost always in situations where perceived challenges were higher than perceived skills when attending the EICT2008 classes. Flow theory labels such situations as an "anxiety" state. Then, in such situations, as the students' level of perceived skills increased and approached the level of perceived challenges, their quality of experience would have increased, while in the same situations, if their level of perceived challenges further increased, their quality of experience must have further become detrimental for the students, as the results showed.

Table 2 Correlations between high school students' levels of skills and challenges and the quality of experience while attending classes of EICT2008

Quality of experience	Skills	Challenges	*M*	SD
Skills	**1.00**	**-.13***	**5.10**	**1.81**
Challenges	**-.13***	**1.00**	**6.52**	**1.91**
Flow (composite)	**.42*****	**.01**	**-.01**	**3.24**
Concentration	**.30*****	**.09**	**6.99**	**1.71**
Enjoyment	**.28*****	**-.10~**	**7.08**	**1.89**
Interest	**.30*****	**-.01**	**6.70**	**1.83**
Jujitsu-kan	**.44*****	**.06**	**6.69**	**1.74**
Happiness	**.21*****	**-.12***	**5.11**	**1.36**
Activeness	**.41*****	**-.15****	**4.98**	**1.42**
Satisfaction	**.51*****	**-.12***	**6.08**	**2.10**
Strength	**.43*****	**-.17****	**4.90**	**1.38**
Excitement	**.17****	**-.08**	**5.20**	**1.42**
Importance to oneself	**.24*****	**.11~**	**7.13**	**1.73**
Importance to future goals	**.27*****	**.09**	**6.24**	**2.09**

n = 308. Reported *p*-levels are two-tailed. ~ *p* < .10; * *p* < .05; ** *p* < .01; *** p < .001.

C. *Can High School Students' Perceptions of Challenges and Skills Predict Their Flow Experience in the EICT2008 Classes?*

In order to examine how the high school students' levels of perceived challenges and skills would predict their intensity of flow experience in different classes of EICT2008, a series of regression analyses was performed. Table 3 shows the standardized regression coefficients for perceived challenges and skills, predicting the intensity of flow in the classes in Japan, English classes in California, High Tech. classes in California, and the final presentation. As expected from the previous analyses, the level of perceived skills was a significant predictor of flow in all of these classes in EICT2008 (classes in Japan, *beta* = .29, p < .001; English classes in CA, *beta* = .32, p < .05; High Tech. classes in CA, *beta* = .52, p < .001; final presentation, *beta* = .54, p < .05). In other words, if a student's perception of his or her own skills was higher than that of the other students in these classes, it can be predicted that the student's intensity of the flow experience was higher than that of his or her counterparts in the classes. As for the students' level of perceived challenges, it predicted only the intensity of flow in the classes taught in Japan (*beta* = .30, p < .001). This result may indicate that the students perceived the levels of challenges, probably most of the time, in the English classes in CA, the High Tech. classes

Table 3 Regression analyses predicting high school students' flow experience by their perceived challenges and skills in different classes of EICT2008

	Standardized Coefficients			
	Classes in Japan	**English Classes in California**	**High Tech. Classes in California**	**Final Presentation**
Challenges	**.30*****	**.07**	**-.06**	**.05**
Skills	**.29*****	**.32***	**.52*****	**.54***
Adjusted R^2	**.13**	**.06**	**.25**	**.25**
F	**10.11*****	**3.11~**	**10.84*****	**4.25***
df	**118**	**62**	**59**	**20**

Reported *p*-levels are two-tailed. ~ *p* < .10; * *p* < .05; ** *p* < .01; *** p < .001.

in CA, and the final presentation as very high as compared to their skills, but they might sometimes perceive that challenges were relatively low in the classes taught in Japan. As shown in Table 1, the average level of perceived challenges in the classes in Japan was indeed the lowest among the other activities, except for the field trip. Thus, the students might sometimes need to be more challenged in the classes taught in Japan, and as a consequence, as the level of perceived challenges increased in the classes, the intensity of flow might have increased, as flow theory postulates.

D. *High School Students' Quality of Experience while Attending Intensive English and High Tech. Classes in California*

EICT2008 provided the high school students with intensive English and High Tech. classes while they were in CA. The classes were the core of the program. Thus, in order to obtain a general idea of how the high school students experienced the classes, their quality of experience was examined and compared between the two classes of the California training session. Table 4 shows the results. First of all, the high school students' levels of the intensity of flow, concentration, enjoyment, interest, Jujitsu-kan, happiness, excitement, perceived importance to themselves, and perceived importance to their future goals in the English classes were significantly higher than those in the High Tech. classes (flow, $F(1, 122) = 14.20$, $p < .001$; concentration, $F(1, 124) = 14.43$, $p < .001$; enjoyment, $F(1, 123) = .10.78$, $p < .001$; interest, $F(1, 123) = 11,70$, $p < .001$; Jujitsu-kan, $F(1, 124) = 3.20$, $p < .10$ (marginal significance); happiness, $F(1,124) = 6.49$, $p < .05$; excitement, $F(1,122) = 5.36$, $p < .05$; importance to oneself, $F(1, 124) = 27.61$, $p < .001$; importance to future goals, $F(1, 124) = 29.07$, $p < .001$). That is, the high school students experienced flow more intensely, showed higher concentration, felt more enjoyment, showed more interest, felt more Jujitsu-kan, felt happier and more excited, felt more personal relevance, and felt more importance to their future goals while attending the English classes than attending the High Tech. classes. More interestingly, although there was no difference in their perceived skills between the English classes and the High Tech. classes, the students rated the level of challenges significantly higher for the High Tech. classes than for the English classes ($F(1, 124) = 10.27$, $p < .01$). Indeed, as shown in Table 4, the average level of perceived challenges in the High Tech. classes was extremely high (7.18 on a 9 point rating scale). Moreover, the difference between the levels of perceived challenges and perceived skills was significantly bigger in the High Tech. classed than in the English classes ($F(1, 124) = 7.29$, $p < .01$). According to flow theory, in order to experience flow, perceived challenges and skills must be in balance and both perceived challenges and skills must be relatively high, as discussed earlier. Thus, the relatively less positive experiences the high school students had in the High Tech. classes might be resulted from the extreme high challenges and the consequential unbalance between the levels of perceived challenges and skills in the classes. The students might be in an experiential condition called "anxiety," in a flow theory's term, when they were attending the High Tech. classes offered in California.

Table 4 High school students' quality of experience while attending English and High Tech. classes in California

Quality of experience	English ($N = 63$)	High Tech. ($N = 62$)	F
Challenges	6.10	7.18	10.27**
Skills	5.37	5.03	0.96
(Challenge – Skill)	0.73	2.15	7.29**
Flow (composite)	1.29	-1.09	14.20***
Concentration	7.71	6.56	14.43***
Enjoyment	7.67	6.57	10.78***
Interest	7.25	6.03	11.70***
Jujitsu-kan	7.14	6.55	3.20~
Happiness	5.52	4.89	6.49*
Activeness	5.26	5.00	0.90
Satisfaction	6.33	6.01	0.67
Strength	5.23	5.10	0.27
Excitement	5.63	5.02	5.36*
Importance to oneself	7.83	6.21	27.61***
Importance to future goals	7.00	4.95	29.07***

Reported p-levels are two-tailed. ~ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

E. *Relationships between High School Students' Flow Experience while Attending Classes in California and their Self-efficacy, Will for Meaningful Life, Anxiety, Self-esteem, and Jujitsu-kan in Daily Life*

Previous flow research has suggested that the flow experience has significant potential for helping individuals to develop psychological well-being. Thus, in the last part of the analysis, we examined the relationships between the high school students' intensity of the flow experience while attending the classes in California and several indicators of psychological well-being measured on the last day of California intensive training. Table 5 shows partial correlations between the variables, controlling for the effects of the same well-being indicators measured one week before the students left for US. As shown in the table, the high school students' flow experience in the California intensive classes was positively associated with their self-efficacy ($r = .42$, $p < .10$ (marginal significance)), will for meaningful life ($r = .48$, $p < .05$), and Jujitsu-kan ($r = .53$, p

Table 5 Partial correlations between high school students' flow experience while attending classes in California and their self-efficacy, will for meaningful life, trait-anxiety, self-esteem, and Jujitsu-kan at the end of California training

	Partial r[a]	M	SD
Self-efficacy	.42~	72.00	15.99
Criterion	.48*	27.61	4.75
Trait-anxiety	-.72***	45.50	9.77
Self-esteem	.33	29.97	7.60
Jujitsu-kan in daily life	.53*	3.39	.78

n = 21. Reported p-levels are two-tailed. ~ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
[a] Partial correlations controlling for the effects of self-efficacy, will for meaningful life, trait-anxiety, self-esteem, and Jujitsu-kan, measured one week before leaving Japan.

< .05), and it was negatively associated with their trait-anxiety (r = -.72, p < .001). That is, if a high school student experienced flow more intensely than his or her counterparts while attending the California intensive classes, the student felt a higher self-efficacy, showed a stronger will for meaningful life, felt a stronger Jujitsu-kan, and felt less anxiety than his or her counterparts at the end of EICT2008. Thus, experiencing flow while attending the classes appeared to have some impact on the high school students' psychological wellness and, if this is really the case, the EICT program should be designed to promote the flow experience in participants, probably by adjusting the levels of challenges of the activities and skills to tackle them from the perspective of flow theory.

IV. CONCLUSION

Our project aimed to evaluate "California Summer English & ICT Training Program in 2008," by examining participants' quality of experience from the perspective of flow theory. The results showed that the level of challenges appeared to be very high for the participating high school students throughout EICT2008, as compared to the level of their skills, especially in the High Tech. intensive classes offered in California. In order to experience flow, the levels of perceived challenges and skills must be both high and in balance. Thus, we probably need to consider how to adjust the levels of challenges and the students' skills in the High Tech. classes. We may provide more intensive and higher level High Tech. classes in Japan for the students to prepare for the California classes, or we may lower the level of California High Tech. classes. The good news is that the students appeared to have the most positive experiences in the final presentation, even though they perceived the challenges there as the highest among all of the activities and classes in EICT2008. This means that the students had developed a relatively high level of skills through the EICT program to tackle such high challenges in the final presentation. Moreover, their overall flow experience in the California intensive training appeared to boost their self-efficacy, will for meaningful life, Jujitsu-kan, and lowered their anxiety at the end of the program. In sum, although this project has several limitations such as a small sample size and insufficient numbers of activities and classes sampled for the analyses, we strongly believe that the evaluation of the EICT program from the perspective of flow theory is a quite promising approach which provides us a great deal of information on how the participating students experience it and how they cultivate themselves through the program.

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