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A TEST OF THE GOODNESS OF FIT HYPOTHESIS FOR ADJUSTMENT OF HIGH SCHOOL STUDENTS: THE RELATIONSHIP BETWEEN NEEDS AND SUBJECTIVE ADJUSTMENT IN SCHOOL LIFE

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ABSTRACT

The purpose of this study was to test the goodness of fit hypothesis: adjustment is better when personality attributes are matched with environmental demands than when they are not. A questionnaire of subjective adjustment, including scales for needs in school life and environmental demands corresponding to the needs, was administered to junior and senior high school students. To assess person-environment fit, discrepancy scores were calculated by subtracting environmental demands scores from needs in school life scores. In order to test the goodness of fit hypothesis, the differences between mean subjective adjustment scores for high and low discrepancy groups were examined. Results showed that low discrepancy students had greater subjective adjustment than the high. Correlation coefficients were calculated among needs in school life, environmental demands, discrepancy scores, and subjective adjustment scores. Results indicated that the discrepancy scores were a better predictor of subjective adjustment than needs in school life or environmental demands scores separately, thus supporting the hypothesis.

Key Words: goodness of fit hypothesis; school adjustment; needs in school life; junior and senior high school students

INTRODUCTION

In recent years, adjustment problems of junior and senior high school students, such as school refusal/nonattendance and violence, attracted a great deal of attention. These problems of adjustment were often attributed to personality attributes, and in most previous research, predictions of adjustment level were made, using only such personality attributes as personality traits and personal needs (Kojima & Matsuda, 1999; Miura, Shibuya & Handa, 1987). However, the concept of adjustment implies the interaction between the person and his/her environment (Okubo, 2005). It is therefore necessary to incorporate the person-environment interaction, rather than using personality attributes alone, to predict the person's adjustment.

The person-environment interaction has previously been defined as "person-

environment fit” (French, Rodgers & Cobb, 1974; Kulka, Klingel & Mann, 1980) or “goodness of fit” (Lerner, 1983; Lerner, Baker & Lerner, 1985). Although the terms are different, they are almost synonymous (Okubo, 2002). Goodness of fit might be construed as a process variable in Kurosawa’s (1995) process interactionism, which attempted to explain the interaction effect of person and environment on behavior and adjustment.

The purpose of this study was to examine the relationship between the person-environment interaction as a process variable and the person’s adjustment level, and test the goodness of fit hypothesis for adjustment, which states that adjustment is better when personality attributes match environmental demands than when they do not. From the hypothesis, we predicted that discrepancy scores between personality attributes and environmental demands were a better predictor of the adjustment level than personality or environmental variables separately, as have been shown by Okubo and Kato (2005).

To test the hypothesis properly, it becomes important to measure personality variables that can be compared with environmental demands, and at the same time make the congruence between them meaningful. A review of the relevant literature suggests that it is advisable to focus on needs rather than characters or temperaments as personality variables in the research targeting adolescents (Okubo, 2002). Following Okubo and Kato (2005), we chose needs as the personality variables in this study.

Life in school environment occupies the greater parts of daily life of junior and senior high school students. Their adjustment problems, such as school refusal/nonattendance and violence, arise in the school, and it must be the problems’ main environment. In this regard, focusing on the needs of students in school life should be useful for understanding adjustment problems in school environment.

Okubo and Aoyagi (2004) found three factors in school life: relationship with friends, academic achievement, and relationship with teachers. Because the three existed in every junior and senior high school, they must have had influence on school adjustment (Okubo, 2005). Okubo and Aoyagi (2004) developed School Life Scale that could measure them easily, and examined its reliability and validity, but the scale was not intended to measure personal needs. To test the goodness of fit hypothesis, it was necessary to develop a scale for needs in school life. A scale for the needs, based on School Life Scale, was developed in Study 1, and the goodness of fit hypothesis tested in Study 2.

STUDY 1

The purpose of Study 1 was to develop a scale for needs in school life, which had three subscales of need for relationship with friends, need for academic achievement, and need for relationship with teachers.

METHOD

Development of Needs in School Life Scale

School Life Scale developed by Okubo and Aoyagi (2004) was transformed into a scale to measure needs in school life. In the process, we sought opinions of two high school teachers. Because we wanted to measure needs in school life, not in other parts of daily life, in our study, the instruction was as follows: “Now, we ask you about your school life. How much do you agree with each of the following questions, when you think about your

school life?" The scale had 21 items, on a 5-point scale format.

Participants

Participants in the present study were 371 junior high school students, 179 boys and 192 girls, and 447 senior high school students, 344 boys and 103 girls.

RESULTS AND DISCUSSION

Factor analysis

Factor analysis, with principal factor method and varimax rotation, found three factors from the initial set of 21 items (see Table 1): need for relationship with friends, need for academic achievement, and need for relationship with teachers, as expected. Alpha coefficients were as follows: need friends, .895; need achievement, .885; and need teachers, .830. Reliability for Needs in School Life Scale was sufficiently high. Items for each

Table 1 Results of factor analysis of Needs in School Life Scale

Scale Item	Loadings on Factors:	F1	F2	F3
Factor 1 need for relationship with friends($\alpha = .895$)				
I want friends who are comfortable talking		.814	.130	.111
I want to have many close friends		.782	.056	.117
I want friends to like me		.780	.125	.133
I want to have fun with friends		.715	.198	.099
I want friends to understand me		.702	.031	.186
I want to confide my worry to friends		.624	-.022	.263
I want friends who have the same interests as mine		.622	.116	.162
Factor 2 need for academic achievement($\alpha = .885$)				
I want to understand the content of classes		.145	.800	.166
I am trying to put efforts on getting good grades		.118	.766	.124
I am trying to study hard		.044	.761	.156
I don't want to have anything left that I do not understand		.078	.705	.236
I am always trying to take school lessons eagerly		.064	.680	.248
I want to enjoy studying		.216	.594	.239
Factor 3 need for relationship with teachers($\alpha = .830$)				
I want teacher to support me when it gets tough		.139	.098	.657
I want to consult with teacher		.051	.108	.648
I want teacher to understand me		.282	.104	.606
I want to ask teacher many questions		.065	.319	.571
I want teacher to listen to students		.274	.178	.548
I want to follow teacher's advice		-.043	.277	.531
I want teacher to be fair to everyone		.234	.180	.501
I want teacher to teach clearly in class		.237	.285	.419
Eigenvalues		7.001	3.130	1.884
Variance accounted for		33.339	14.904	8.972
Cumulative variance accounted for		33.339	48.243	57.215

Table 2 Means and standard deviations of Needs in School Life Scale and results of ANOVA

	Male		Female		ANOVA		
	Junior high school (N=179)	Senior High school (N=354)	Junior high school (N=192)	Senior High school (N=93)	Gender F-value	School stage F-value	Interaction F-value
Need for relationship with friends	25.224 (5.641)	25.345 (5.813)	27.208 (6.170)	26.935 (5.219)	15.603***	0.028	0.189
Need for academic achievement	21.497 (5.330)	21.438 (5.414)	22.338 (5.044)	21.290 (4.774)	0.719	1.832	1.461
Need for relationship with teachers	25.559 (5.808)	23.737 (6.102)	26.745 (5.542)	24.199 (5.975)	14.124***	8.289**	1.301

(SD) **p<.01 ***p<.001

factor were shown in Table 1.

Gender and school stage differences

To examine gender and school stage differences, two-way analysis of variance was performed on three subscores of Needs in School Life, with gender and school stage as independent variables (Table 2). As for need friends, a significant main effect of gender was found, $F(1,814)=15.603$, $p<.001$: Girls were higher than boys on the score. About need teachers, results showed significant main effects of gender, $F(1,814)=14.124$, $p<.001$, and school stage, $F(1,814)=8.289$, $p<.01$: Girls were generally higher than boys, and junior high school students were higher than the seniors. The results for girls, higher for needs friends and teachers than boys, indicated that they had strong need for relatedness. Since a previous study also found stronger need for relatedness among girls (Okubo & Kato, 2005), the current results were in agreement. The result that junior high school students were higher than the seniors on the score seemed to indicate that with transition to a higher stage of education, relationship with teachers became less important.

Since we now had Needs in School Life Scale, which had been shown to have adequate reliability, we turned to the test of the goodness of fit hypothesis in Study 2.

STUDY 2

It was predicted that better person-environment fit would be positively related to school life adjustment, and that discrepancy scores had higher correlations with the adjustment than each of personality or environmental variables separately. The purpose of Study 2 was to test the predictions.

METHOD

Questionnaire

A questionnaire was administered, which included the following scales: Needs for School Life, environmental demands, and subjective feeling of adjustment. To measure personal needs, Needs for School Life Scale, developed in Study 1, was used. Environmental demands were assessed for school situations. Questions for the demands were phrased in the following form: "I believe that my school wants me to" for relationship with friends, academic achievement, and relationship with teachers, corresponding to the needs in school life. For subjective feeling of adjustment, the feeling of fit scale developed by Okubo (2005) was used. The scale was composed of sense of comfort, task and purpose,

and acceptance, and absence of sense of inferiority.

Participants

Participants in the present study were 296 junior high school students, 142 boys and 154 girls, and 212 senior high school students, 145 boys and 67 girls.

RESULTS AND DISCUSSION

Discrepancy Scores

To assess person-environment matching, i.e. goodness of fit of the hypothesis, discrepancy scores were calculated by subtracting environmental demand scores from Needs in School Life Scale scores. The scores were indices of discrepancy between the person and his/her environment, with high scores indicating a poor match between them, and low scores a good match.

Discrepancy scores and subjective feeling of adjustment

We used t tests to determine whether students with a good match were better adjusted than those with a poor match. Students in the upper 25% and lower 25% of the discrepancy scores were selected to represent the high and low groups. We followed Lerner's (1983) and Okubo and Kato's (2005) studies, and calculated subscore means for the feeling of fit scale. Results were as follows: The students in the low discrepancy group for relationship with friends had a greater sense of comfort ($t=9.69$, $df=283$, $p<.001$), higher level of task and purpose ($t=7.15$, $df=283$, $p<.001$), greater sense of acceptance ($t=7.53$, $df=283$, $p<.001$), and weaker sense of inferiority ($t=5.98$, $df=283$, $p<.001$) than the high discrepancy groups (Table 3). Those in the low discrepancy group for academic achievement had a greater sense of comfort ($t=7.67$, $df=304$, $p<.001$), higher level of task and purpose ($t=8.52$, $df=304$, $p<.001$), greater sense of acceptance ($t=4.99$, $df=304$, $p<.001$), and weaker sense of inferiority ($t=3.37$, $df=304$, $p<.01$) than the high discrepancy groups (Table 4). Those in the low discrepancy group for relationship with teachers had a greater sense of comfort ($t=7.70$, $df=279$, $p<.001$), higher level of task and purpose ($t=7.99$, $df=279$, $p<.001$), greater sense of acceptance ($t=5.79$, $df=279$, $p<.001$), and weaker sense of inferiority ($t=5.72$, $df=279$, $p<.001$) than the high discrepancy groups (Table 5).

In addition, we performed the same analyses for junior and senior high school students separately, and obtained similar results. Therefore, it may be concluded that the student who had personal needs and environmental demands matched was better adjusted to his/her school environment. Together with Lerner's (1983) study, which focused on temperaments, Kulka, Klingel and Mann's (1980) study, which focused on abilities and motives, and Okubo and Kato's (2005) study, which focused on psychological needs as personality variables, respectively, the current results supported the goodness of fit hypothesis that

Table 3 Means of subjective feeling of adjustment for high and low discrepancy groups: Relationship with friends

	High discrepancy group (N=130)	Low discrepancy group (N=155)	t-value
Sense of comfort	30.046 (10.098)	40.065 (7.315)	9.688***
Existence of task and purpose	20.115 (6.885)	25.452 (5.715)	7.150***
Sense of acceptance	13.869 (4.661)	17.439 (3.319)	7.528***
Absence of sense of inferiority	17.946 (5.093)	21.187 (4.056)	5.978***

df=283 (SD)

*** $p<.001$

Table 4 Means of subjective feeling of adjustment for high and low discrepancy groups: Academic achievement

	High discrepancy group (N=161)	Low discrepancy group (N=145)	t-value
Sense of comfort	32.199 (10.031)	40.255 (8.126)	7.667***
Existence of task and purpose	20.323 (6.723)	26.366 (5.558)	8.515***
Sense of acceptance	14.969 (4.469)	17.359 (3.829)	4.996***
Absence of sense of inferiority	18.888 (4.950)	20.731 (4.571)	3.372**
df = 304 (SD)			**p < .01 ***p < .001

Table 5 Means of subjective feeling of adjustment for high and low discrepancy groups: Relationship with teachers

	High discrepancy group (N=137)	Low discrepancy group (N=144)	t-value
Sense of comfort	31.073 (9.724)	39.188 (7.897)	7.696***
Existence of task and purpose	19.803 (6.487)	25.528 (5.496)	7.995***
Sense of acceptance	14.409 (4.712)	17.340 (3.746)	5.788***
Absence of sense of inferiority	17.912 (4.769)	20.910 (4.005)	5.716***
df = 279 (SD)			***p < .001

personality attributes when matched with environmental demands provided better adjustment than when not matched.

Personal needs, environmental demands, P-E discrepancy, and subjective feeling of adjustment

Correlation coefficients were calculated to determine how strongly personal needs, environmental demands, and the degree of match between the needs and demands related to subjective feeling of adjustment. Results showed that, in most cases, discrepancy scores, an index of goodness of fit, were significantly related to adjustment, confirming the goodness of fit hypothesis (Table 6).

In addition, correlation coefficients were calculated for junior and senior high school students separately to examine the effect of the school stage. Results for junior high school students were similar to those reported above, except for the relation between Needs in School Life and existence of task and purpose (Table 7). On the other hand, results for senior high school students were similar to those for the whole sample, except

Table 6 Correlation coefficients between variables of Need, Demand, and Discrepancy, and indices of subjective feeling of adjustment (All participants)

	Sense of comfort	Existence of task and purpose	Sense of acceptance	Absence of sense of inferiority
Need for relationship with friends	.340***	.202***	.213***	.097*
Need for academic achievement	.021	.193***	.025	.001
Need for relationship with teachers	.078	.115**	.048	-.044
Demand for relationship with friends	.374***	.320***	.273***	.076
Demand for academic achievement	.226***	.339***	.074	.071
Demand for relationship with teachers	.247***	.293***	.185***	.056
Discrepancy for relationship with friends	-.393***	-.340***	-.347***	-.253***
Discrepancy for academic achievement	-.318***	-.326***	-.234***	-.086*
Discrepancy for relationship with teachers	-.253***	-.200***	-.157***	-.185***

*p < .05 **p < .01 ***p < .001

Table 7 Correlation coefficients between variables of Need, Demand, and Discrepancy, and indices of subjective feeling of adjustment (Junior high school students)

	Sense of comfort	Existence of task and purpose	Sense of acceptance	Absence of sense of inferiority
Need for relationship with friends	.260**	.237***	.185**	.028
Need for academic achievement	.057	.190**	.071	-.056
Need for relationship with teachers	.063	.160**	.050	-.068
Demand for relationship with friends	.371***	.427***	.314***	.089
Demand for academic achievement	.235***	.330***	.110	.088
Demand for relationship with teachers	.273***	.390***	.243***	.057
Discrepancy for relationship with friends	-.429***	-.389***	-.398***	-.306***
Discrepancy for academic achievement	-.264***	-.283***	-.252***	-.084
Discrepancy for relationship with teachers	-.246***	-.209***	-.191**	-.182**

p<.01 *p<.001

Table 8 Correlation coefficients between variables of Need, Demand, and Discrepancy, and indices of subjective feeling of adjustment (Senior high school students)

	Sense of comfort	Existence of task and purpose	Sense of acceptance	Absence of sense of inferiority
Need for relationship with friends	.411**	.187**	.240***	.180**
Need for academic achievement	-.007	.207**	-.017	.068
Need for relationship with teachers	.094	.119	.047	.018
Demand for relationship with friends	.381***	.214**	.205**	.077
Demand for academic achievement	.218**	.380***	.016	.072
Demand for relationship with teachers	.221**	.229**	.067	.117
Discrepancy for relationship with friends	-.336***	-.273***	-.259***	-.148*
Discrepancy for academic achievement	-.386***	-.389***	-.207**	-.094
Discrepancy for relationship with teachers	-.264***	-.176*	-.104	-.171*

*p<.05 **p<.01 ***p<.001

for the relation between need friends and sense of comfort (Table 8).

In sum, although we found results for junior high school students that were not completely supportive, as a rule, better person-environment fit was positively related to better adjustment, and discrepancy scores seemed to predict adjustment more closely than personality or environmental variables alone. Therefore, in examining adjustment problems, as Okubo and Kato's (2005) study have shown, the necessity of an approach that looked into the person-environment matching was apparent.

GENERAL DISCUSSION

In Study 1, we developed Needs in School Life Scale, examined its reliability, and looked at gender and school stage differences at first. The results showed that Need in School Life Scale had three factors and sufficient reliability. In Study 2, discrepancy scores, calculated by subtracting environmental demands scores from Need in School Life scores, was used to test the goodness of fit hypothesis. The results generally supported the goodness of fit hypothesis, and indicated that adjustment problems should be approached from the viewpoint of person-environment fit.

That needs in school life as personality variables, which were studied in this study, were not directly related to school adjustment was a result consonant with the viewpoint

of person-environment fit (Okubo, 2002). Moreover, the results were consistent with Okubo and Kato's (2005) study, which focused on psychological needs in the context of Self-Determination Theory (Deci & Ryan, 2000; Ryan & Deci, 2000). The results of the two studies showed that adjustment problems could not be explained in terms of personality temperaments and characters (Okubo, 2004; Okubo & Kato, 2005). Seen from the relation theory perspective (Okubo & Kurosawa, 2003), personality attributes as an entity that disposes the person ideally for adjustment do not exist, and not only adjustment but also personality variables themselves were determined only in an interaction with the environment.

It was of great significance that in this study we found that problems of adjustment were related to person-environment fit and not to personality attributes. We believe that the findings showed the superiority of the relation theory perspective. And the findings also suggested what we should see in the internal or relational processes. We should not seek something inside the person, such as personality temperaments, characters, needs, and so on, that presumably causes problems of adjustment. Instead, we should look at the person in the relation, and in such process of analysis, something inside the person may become relevant.

For future research, it might be necessary to pay attention to quality of relatedness, i.e. how the person is related with friends and teachers. We should not focus on the person him/herself, but the relational-environmental system that surrounds the person and he/she lives in, from a variety of perspectives, to better understand problems of adjustment.

In this study, the relationship between person-environment fit and actual problem behavior was not examined. In future research, it might be necessary to examine the relationship. Recently, evidence that antisocial behavior could be adaptive was brought forward by Kato (2004), so examining the relationship further in detail should be worthwhile.

Finally, although the method of subtracting environmental demands scores from Needs in School Life scores may not be a reliable analytical method, it was for now arguably the best method available to test the goodness of fit hypothesis. It has provided the evidence that problems of adjustment should be approached from the viewpoint of person-environment fit, which would be significance for future research.

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