

What Makes International Students Satisfied with a Japanese University?

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The present study investigated the satisfaction of international students. The factor analysis revealed the three factors of 'learning and research', 'living and adaptation' and 'Japanese language ability'. The ten variables were used to predict the satisfaction of international students and found five significant variables in predicating the satisfaction of international students. These were suitability of curriculum, progress of research, having a good friend, cultural adaptation and part-time work. Among these, the suitability of the curriculum was the most significant predictor. Furthermore, the path analysis for learning and research indicated significant mutual causal relationships between research progress and supervisor's advice. The level of Japanese language skills is not necessarily required to receive advice from their supervisors, although Japanese language skills help to understand the content of classes.

Key Words: international students, universities in Japan, satisfaction, Japanese expression skills, learning and research

In 1983, the Japanese Government announced a plan to increase the number of international students in Japanese institutes for higher education to 100,000 (Ministry of Education, Science, Sports and Culture, Government of Japan, 1999, 2000; hereafter, Ministry of Education and Science). The original target of 100,000 (about 3 percent of international students) was close to being achieved in 2003. Yet, the figures for the year 1999 indicated only a ratio of 1.5 percent of international students compared to domestic students (55,755 international students and approximately 3,612,000 Japanese students). This ratio is quite low when compared to 17.3 percent in Great Britain (1997), 8.6 percent in Germany (1997), 7.0 percent in France (1998) and 6.0 percent in the United States (1998).

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In order to attract international students to Japanese universities, the Japanese government has been providing scholarships. The ratio of international students to scholarships provided by the Japanese Government is extremely high at 16.2 percent (8,323 out of 51,298 international students in 1998). Great Britain, while having a large number of international students, only offered national scholarships to 3,670 international students or 1.9 percent in 1995. Similarly, the United States offered government scholarships to 3,631 international students out of 481,280 or 0.8 percent during the year 1997. The figure for Germany was at 3.4 percent, and France at 7.5 percent. In addition to the Japanese government scholarships, scholarships by the Association of International Education, Japan (AIEJ) and private foundations also provide various financial support (Association of International Education, Japan, 1999). As such, along the lines of providing financial support, the Japanese government has been trying hard to recruit international students.

With respect to the lives of international students in Japan, there seems to be three different aspects that aid in investigating their satisfaction. The first aspect is academic life, including curriculum, classes, supervisor's advice, research progress and facilities. These elements of academic

life are directly related to the purpose of international students to come and study in Japan. The second aspect is that of daily life, including housing conditions, friends, part-time jobs and cultural adaptation. These elements of daily living rather indirectly affect their academic purpose. The third aspect, Japanese language ability, seems to be related to both aspects of academic life and daily living. Based upon ten elements (i.e., variables) of the afore-mentioned three aspects, in order to improve the lives of international students in Japan, the present study investigated how much these variables affect the satisfaction of international students.

Previous Survey Reports

The survey given at the University of Tokyo was reported in March, 2001 (Special Committee on Living and Studying of International Students, 2001). This survey showed that 74.4 percent of international students or 459 out of 617 international students (a total enrollment was 1,949) were 'relatively satisfied' or 'satisfied'. According to this survey, about 15 percent of international students showed their dissatisfaction with the supervisor's educational and research related advice. About 7 percent of international students expressed difficulties in constructing good relationships with other Japanese students and professors in the same research section. The survey generally showed a fairly high rating on the overall levels of satisfaction held by international students at the University of Tokyo.

Nagoya University also conducted a survey for international students focusing on communication problems in November and December, 1999 (Working Group of Questionnaire Survey on Nagoya University's International Graduate Students, 2001). The survey by Nagoya University especially scrutinized relationships among international students, Japanese students and their supervisors. The number of international students that responded was 297 out of 670 graduate students (44.3% of total students). This survey indicated the ironic and interesting trend where the higher the Japanese language ability of international students, the less they felt satisfied with their friendship with Japanese students.

A survey on international students enrolled in short-term exchange programs in Japan (Institute for Comparative Education, Hiroshima University, 1998) that received 1,007 responses from private and national universities in Japan showed that among them, 38.2 percent were 'very satisfied' and 49.4 percent were 'relatively satisfied' with their overall impression of living and learning in Japan. Less than half of the international students (45%) showed an interest in content

and instruction of classes offered through their short-term programs. About 35 percent of international students evaluated the teaching methods of these classes as 'good' while about 22 percent evaluated methods as being 'poor'. This survey report also suggested that international students from Asia are likely to have fewer friends than those from North America and Europe.

Method

Participants and Responses

The present study delivered questionnaires to all 759 international students enrolled at Hiroshima University (reported on May 1, 2001) in Japan through administrative offices in charge on campus. A total of 309 international students or 41.2 percent returned questionnaires. A breakdown of the participants is as follows. 196 graduate students (63.43% of the total responses), 27 undergraduate students (8.74%), 65 research students (21.04%), 11 others and 5 unanswered. 119 students were from China, 31 students from Korea, 9 students from Taiwan, 10 students from Malaysia, 27 students from Indonesia and 111 students from other countries (2 students did not specify). There were 161 males and 144 females. 149 students were supported by government scholarships while 151 students had no scholarship. The average age of the 309 students was 29 years and 8 months with a standard deviation of 4 years and 9 months.

Hiroshima University is one of the most prestigious national universities, where 529 international students (69.70% of the total enrollment) are enrolled at the graduate level (331 in the doctoral program and 198 in the master's program). Only 44 students (5.80%) were enrolled at the undergraduate level. The remaining 186 students (24.51%) are research students (non-official students accepted by university faculty staffs to do research). Therefore, the sample of the present study represents mostly graduate students from China. However, this tendency reflects a demographic likelihood of international students in Japanese national universities.

Questionnaire

Ten questions related to possible variables concerning the satisfaction of the learning and living environment at Hiroshima University were asked. These questions were scored 0 'strongly disagree', 1 'disagree', 2 'neutral', 3 'agree' and 4 'strongly agree'. One general 'Yes' or 'No' question as to whether international students are satisfied with their living

and learning was added at the end of the questionnaire. In addition, the present survey inserted one simple question, 'I can say what I want to in Japanese', which international students were required to answer a 5-point scale from 'strongly disagree' to 'strongly agree'. The exact wording of the questions is shown in the Appendix.

Procedure

International students could return questionnaires by putting them into an attached envelope and depositing them in the collection box located in each faculty's administrative office or they could send them via in-campus mail. Their names were not disclosed to anyone. The questionnaires were collected during the period from May 10 to June 4, 2001

Results

Means and Correlations of Ten Variables

The means, standard deviations and correlations of ten variables concerning satisfaction of learning and living held by international students are reported in Table 1. Since there were some missing values, each variable differs in the number of subjects. The correlation analysis was carried out using the number of matched cases (i.e., a subject answers both questions) between two variables out of ten. There are many significant correlations among the ten variables.

When taking only cases with correlation coefficients larger than $r=.30$, there are seven such cases. Those are, between understanding of classes and progress of research ($r=.34, p<.01$), understanding of classes and Japanese language ability ($r=.32, p<.01$), progress of research and supervisor's advice ($r=.42, p<.01$), progress of research and suitability of curriculum ($r=.31, p<.01$), supervisor's advice and suitability of curriculum ($r=.31, p<.01$), a good friend and housing conditions ($r=.31, p<.01$), and a good friend and cultural adaptation ($r=.43, p<.01$). Among these significant correlations, research progress of international students is strongly related to adequate advice provided by their supervisors. Additionally, the high correlation between having a good friend and cultural adaptation suggests that international students may feel well adapted to Japanese culture when they have good, reliable friends. However, correlations only represent relationships between two variables. Thus, the following analyses are conducted to examine the details of academic and daily satisfaction held by international students.

Factor Analysis for Ten Variables

The ten variables were created to measure various aspects of satisfaction held by international students. In order to investigate factors constructing satisfaction or dissatisfaction of international students, a factor analysis was conducted over the ten variables. The factor analysis used in the present study was the maximum-likelihood method of Promax solution with

Table 1. Means, Standard Deviations, Correlations Concerning Variables of the Satisfaction of International Students

Variable	# of Subjects	1	2	3	4	5	6	7	8	9	10
1 Understanding of Classes	300	—									
2 Progress of Research	294	.34**	—								
3 Use of Facilities	303	.10	.22**	—							
4 Supervisor's Advice	303	.17**	.42**	.25**	—						
5 Suitability of Curriculum	301	.29**	.31**	.24**	.31**	—					
6 A Good Friend	301	.23**	.21**	.23**	.24**	.19**	—				
7 Housing Condition	305	.14*	.18**	.21**	.12*	.20**	.31**	—			
8 Cultural Adaptation	304	.28**	.29**	.13*	.20**	.23**	.43**	.29**	—		
9 Part-time Work	302	-.05	-.04	-.07	-.11*	-.08	-.11	-.17**	-.12*	—	
10 Japanese Language Ability	304	.32**	.16**	.01	-.05	-.03	.12*	.01	.24**	.17**	—
Mean		0.58	0.53	0.98	1.20	0.53	0.74	0.79	0.71	1.22	0.34
Standard Deviation		0.96	0.93	0.89	0.80	0.93	0.96	0.95	0.87	1.07	1.08

Note 1. * $p<.05$ ** $p<.01$.

Note 2. Scores of variables vary from -2 to +2.

Table 2. Factor Analysis of Variables Related to Satisfaction of the Learning and Livelihood of International Students

Variables	Factor I - Learning and Factor II - Living and Factor III - Japanese			Commonality
	Research	Adaptation	Ability	
2 Progress of Research	.752	-.097	.124	.544
4 Supervisor's Advice	.644	-.010	-.143	.387
5 Suitability of Curriculum	.452	.101	-.097	.249
1 Understanding of Classes	.330	.073	.325	.309
6 A Good Friend	.011	.625	.021	.407
8 Cultural Adaptation	.039	.572	.146	.427
7 Housing Condition	-.003	.524	-.072	.256
9 Part-time Work	-.028	-.303	.266	.122
10 Japanese Language Ability	-.105	-.001	.852	.695
3 Use of Facilities	.293	.157	-.071	.151
Variable Explained (%)	27.92	13.53	11.43	
Accumulative Variable Explained (%)	27.92	41.45	52.89	
		II	III	
Correlations	I	.56	.23	
	II	-	.29	

Note: n=309. Maximum-likelihood method of Promax solution with Kaiser's normalization.

Kaiser's normalization. The result of the analysis is reported in Table 2.

There were three factors found in the analysis. The first factor is related to 'learning and research' which included the four variables of progress of research, supervisor's advice, suitability of curriculum and understanding of classes. The second factor is related to 'living and adaptation' including a good friend, cultural adaptation, housing conditions and part-time work. The third factor was constructed by the single variable of Japanese language ability. The variable of use of facility was not included in any of the above factors.

The three factors found among the ten variables, in fact, reflect the life of international students. Their purpose in coming to Japan is to study what they intend to do in the future. Thus, the first factor is directly related to academic life. The second factor of living and cultural adaptation is rather an auxiliary aspect of life, but it is also important for maintaining their motivation of study. The third factor of expression skills in the Japanese language is fundamental for learning and living in Japan. It was interesting that the third factor of language ability was independent from the first and second factors.

Table 3. Results of Discriminant Analysis for Predicting the Satisfaction of International Students

Variables	Discriminant Function	Mahalanobis'	F-value	Sig.
	Coefficients	Distance		
Suitability of Curriculum	0.790	2.385	9.370	**
Progress of Research	0.612	2.552	5.611	*
A Good Friend	0.608	2.548	5.701	*
Cultural Adaptation	0.603	2.605	4.428	*
Part-time Work	-0.448	2.576	5.064	*

Note1. * p<.05. ** p<.01.

Note2. n=297. 12 cases out of 309 did not answer the 'Yes' or 'No' question of satisfaction.

Discriminant Analysis for Predicting Satisfaction of International Students

Neither the correlations analysis nor the factor analysis provides a detailed description of what makes international students satisfied with life at Hiroshima University. Therefore, a stepwise discriminant analysis was carried out for identifying significant variables predicting the satisfaction of life of international students. The 12 international students who did not specify 'Yes' or 'No' to the question regarding overall satisfaction on the questionnaire were omitted, and 297 cases out of 309 were used for this analysis. Five variables out of the ten were found to be significant predictors of international students' satisfaction. The results are reported in Table 3.

The most significant predicting variable according to the discriminant function coefficients was the suitability of the curriculum ($F=9.370$, $p<.01$). This is quite understandable if we consider the reason why international students come and study at a Japanese university: to pursue their academic career. The second predicting variable was the progress of research ($F=5.611$, $p<.05$) which is also related to the academic life of international students. The third predicting variable was to have a good friend ($F=5.701$, $p<.05$). The fourth predicting variable was cultural adaptation ($F=4.428$, $p<.05$). These two variables are rather related to the daily life of international students. The fifth variable that is a significant predictor is having a part-time work ($F=5.064$, $p<.05$). This variable was different from the others in that it had a negative discriminant function coefficient of -0.448 which indicates that the more international students spend their time at part-time work, the less they are satisfied. As a part-time job restricts their time to study, this is also understandable. Other variables of understanding classes, use of facilities, supervisor's advice, housing conditions and Japanese language ability was not significant predictors for the overall satisfaction of international students.

As shown in Table 4, the five significant variables shown in Table 3 predicted that 216 cases out of 262 who responded are generally satisfied with learning and living at the university (i.e., 'Yes' answers). This was 82.44 percent. In the same way, 27 cases out of 35 who expressed an overall dissatisfaction (i.e., 'No' answers) were properly classified. This was 77.14 percent. Therefore, the correctly classified cases overall were 243 out of 297 or 81.8 percent. This percentage indicates that these five variables predict satisfaction or dissatisfaction of international students relatively well.

Table 4. Classification Results for the Satisfaction of International Students

Actual Group	Predicted Group	
	Satisfied	Unsatisfied
Satisfied (n=262)	216 82.44%	46 17.56%
Unsatisfied (n=35)	8 22.86%	27 77.14%

Note. 243 out of 297 cases or 81.8 percent were correctly classified.

Path Analysis for Academic Life of International Students

Causal relations in the academic life of international students are not simply determined by the variables indicating the satisfaction of international students. Therefore, the causal relations of the five variables making up the first factor of 'learning and research' and the third factor of 'Japanese ability' (see Table 2) are investigated through the use of standard partial regression coefficients calculated by the series of multiple regression analyses of the stepwise method. The causal relations of the five variables were depicted in Figure 1.

Strong mutual inter-causal relationships were found between the variables of supervisor's advice and progress of research. The more the international students receive adequate advice from their supervisors, the more their research progresses ($\beta=.352$, $p<.001$; ' β ' refers to a standard partial regression coefficient). This tendency is also true in the opposite situation. The more research progresses, the more adequate advice international students receive from their supervisors ($\beta=.391$, $p<.001$). There were also mutual inter-causal relationships between progress of research and suitability of curriculum ($\beta=.147$, $p<.01$ from suitability of curriculum to progress of research; and $\beta=.168$, $p<.01$ from progress of research to suitability of curriculum). Suitability of curriculum also had a mutual inter-causal relationship with the supervisor's advice ($\beta=.164$, $p<.01$ from suitability of curriculum to supervisor's advice; and $\beta=.162$, $p<.01$ from supervisor's advice to suitability of curriculum). However, these causal relationships concerning curriculum were weaker than we expected since dissatisfaction of international students was mainly caused by the unsuitability of the curriculum.

As we expected, the variable of Japanese expression skills was causally inter-related with the understanding of classes. When international students have good levels of Japanese language ability, they are likely to be able to understand the context of their classes ($\beta=.273$, $p<.001$), and

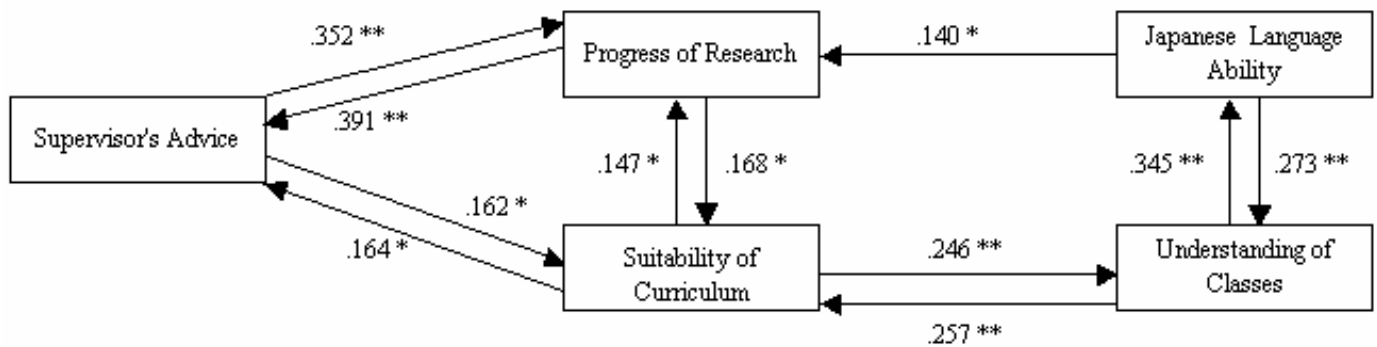


Figure 1. *Casual relations of learning and research by international students at a Japanese university*

Note 1. * $<.01$ ** $<.001$

Note 2. Path coefficients refer to standard partial regression coefficients calculated by multiple regression of stepwise method

vice versa ($\beta=.345, p<.001$). Although Japanese expression skills indirectly help in promoting the suitability of curriculum via the understanding of classes, Japanese expression skills do not directly have a mutual causal relationship with the suitability of the curriculum. A direct effect from Japanese language ability to progress of research was found ($\beta=.140, p<.01$), but there was no direct effect found in the opposite way. As no arrow goes from Japanese language ability to supervisor’s advice (see Figure 1), there is no direct casual-relationship between them.

Discussion

The present study was conducted at Hiroshima University, one of the most prestigious national universities which puts a strong emphasis upon graduate studies. Thus, the results should be carefully interpreted in consideration with this specific circumstance.

Discriminant analysis indicated five significant variables in predicating the satisfaction of international students (see Table 3). These were suitability of curriculum, progress of research, having a good friend, cultural adaptation and part-time work. As Japanese language ability was identified as an independent factor (see Table 2), the present study made a further investigation by using the path analysis for learning and research environment (see Figure 1). The results showed some interesting causal relations. Japanese language ability held by international students is not necessarily required to receive advice from their supervisors, although Japanese language ability helps to understand the content of classes. The path

analysis also indicated significant causal and mutual relationships between research progress and supervisor’s advice. These results are discussed in the following section.

Suitability of Curriculum

The suitability of curriculum was the major predicting variable for the satisfaction of international students. In fact, when the purposes of international students learning in Japan do not match the curriculum provided by the Japanese university, it is easily expected that international students will not be satisfied with the situation. The survey at Nagoya University (Working Group of Questionnaire Survey on Nagoya University’s International Graduate Students, 2001) reported that 86 out of 208 international students (41.3%) enrolled in graduate courses expressed dissatisfaction at the fact that they were not well informed as to detailed research and publications done by professors before coming to Japan. The improvement of curriculum suitability will be discussed from two perspectives. One is to create a suitable curriculum for international students and the other is to provide adequate information about the curriculum on offer.

Until recently, curricula of Japanese universities were seldom reviewed by students or by people on the outside, although various types of internal evaluation have been conducted by many universities. The Ministry of Education and Science recently announced a policy to introduce external evaluation of university curriculum (Ministry of Education and Science, 2001). This external evaluation involves not only academic specialists, but also those from private enterprises.

Once voices from international students are taken into consideration, this evaluation process will improve the suitability of curriculum.

Another perspective is to make all curriculum information easier to access by international students. Thanks to the advancement of internet technology, almost all of the institutes of higher education in Japan have already created homepages in which are provided curriculum outlines. For international students who have already been studying in Japan, guidance counseling and personal tutoring provided by the university (see details, Tamaoka, 1999; Tamaoka, Hotta, Kaneda, & Ishihara, 2000) will be useful.

Research Progress and Supervisor's Advice

Progress of research is the second important variable which affects the satisfaction of international students. This is also quite understandable because a majority of international students are graduate students in the present study (as well as the surveys of the University of Tokyo and Nagoya University) whose aim while in Japan is to pursue academic degrees. Although the discriminant analysis did not indicate supervisor's advice to be a significant predictor for students' satisfaction, research progress was causally and strongly inter-related to supervisor's advice as shown in the path model of Figure 1. The path model also revealed that other variables of suitability of curriculum and the Japanese expression skills only showed a moderate (though significant) causal relationship to progress of research. Additionally, understanding of classes had no direct effects on research progress. Thus, international students enrolled in graduate courses strongly rely on their supervisor's advice, in order to accomplish their research goals. The survey of Nagoya University hinted at this tendency by indicating that international students had some dissatisfaction with human relations and communication among Japanese students and professors in the research section.

Having a Good Friend and Cultural Adaptation

The third and fourth variables significantly predicting the satisfaction of international students were to have a good friend and cultural adaptation. These two variables actually showed a strong correlation (see Table 1). A good reliable friend will be helpful to mentally support international students. As a result, cultural adaptation may be improved and vice versa. Chances for international exchange in Japanese universities have increased by means of various events organized by students' extra-curricular activities, international student centers and

local communities. A system of student volunteers will function very well in terms of assisting the learning and livelihood of international students (Tamaoka, 1999).

Part-Time Work

Japan might be one of the few countries to allow international students to have part-time jobs. The Ministry of External Affairs in Japan permits them to work up to a maximum of 28 hours per week. As a result, many international students work intensively while studying in Japan. By doing this, international students sacrifice their time that would have been used for study and research. The part-time work variable negatively predicted the satisfaction of international students (see Table 3), suggesting that the longer students are involved in part-time jobs, the more they are dissatisfied. As mentioned in the introduction of this study, the Japanese government already provides scholarships to international students at an extremely high ratio in comparison to other countries. It would be a major question to ask how much universities have to financially support international students. One of the questions related to this is whether universities have to look for part-time jobs in order to facilitate work for international students. Once universities take a position to support part-time jobs for international students, universities may further have to take intermediary responsibilities for various problems caused by employers and international students.

Japanese Language Ability

Although we expected the Japanese language ability acquired by international students to be important in the pursuit of academic degrees in Japan, the path analysis of the present study did not show a direct effect between Japanese language ability and supervisor's advice. The only one-way direct causal effect was found in that of Japanese language ability to research progress, but not the other way round. Therefore, it is concluded that Japanese language ability is not necessarily required to communicate with supervisors and in conducting research. This tendency was also supported by the survey at Nagoya University which indicated that supervisors are more likely to give advice to those with mother tongues which use kanji script (i.e., China, Taiwan and Korea) than to those with mother tongues which does not use kanji script. Putting cultural (or partly racial) matters aside, since international students from China, Taiwan and Korea tend to have better Japanese reading and writing skills than those with alphabetic

languages, Japanese language ability seems to have no relation to supervisor's advice. Approximately 63 percent of international students in the present study were graduate students, so they may be supervised in English, and often read and write research papers in English. If this is true, Japanese language ability, especially for those who do not use Japanese in their academic research, is only needed for daily living.

Conclusion

The present survey on international students closely investigated the level of satisfaction held by mostly graduate students. A major goal was to clarify priorities of international students for coming to Japan. The present study identified the two major variables of 'suitability of curriculum' and 'progress of research' for satisfaction (see Table 2), both of which are closely related to academic life. Furthermore, 'supervisor's advice' was causally related to these two variables as shown in Figure 1. Mutual causal relations among these three variables clearly map out the major reason for international students' coming to Japan as a straightforward reason, 'academic success'. Path analysis indicated that 'Japanese language ability' did not play an important role in academic research. This result may be the result of the recent trend of English as an academic media; academic research at the graduate level, especially in sciences, are often conducted in English. Graduate students regardless of their linguistic backgrounds are required to publish academic papers in English journals. After academic satisfaction, daily life comes as a secondary element. Having good friends and enjoying cultural events are helpful in having a good experiencing of life in Japan, which in turn helps maintain their academic motivation. A part-time work is generously allowed to international students in Japan. However, it should be carefully recognized that a part-time work leads frequently to dissatisfaction for various reasons. Although the present study is limited to graduate students at a national university, represented by Hiroshima University, the present study provided information regarding the priorities of satisfaction held by international students which should be given significant consideration for future reforms in Japanese universities.

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APPENDIX

Questions of ten variables (0-4 point scale)

1. I understand the classes I take at university.
2. My research (graduate thesis for undergraduate students) is progressing well.
3. The university facilities (library, cafeteria, etc) are easy to use.
4. My supervisor's advice is helpful.
5. The university's curriculum is well suited to me.
6. I have a good friend to enjoy life with.
7. I enjoy the housing conditions and environment of the place where I live.
8. I am well adjusted to life in Japan.
9. I spend a lot of time at part-time jobs.
10. I can say what I want to in Japanese.

A question of overall satisfaction ('Yes' or 'No' question)

Overall, are you satisfied with your livelihood and learning?