Measuring Japanese Internationalization:
A Survey of English Education
and Attitudes (III)
—— Correlation of Data from 2nd Pretest ——

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INTRODUCTION

This paper concerns an in-depth study by correlation analysis of data drawn from a pretest survey of Japanese professionals who have done research overseas concerning their English studies and how they view that education in relation to using English for research. The survey was given to over 100 college instructors, medical doctors and dentists who had done research overseas at least once for longer than one month. Reporting of raw data and primary statistical results has already been covered in our previous paper entitled "Measuring Japanese Internationalization: A Survey of English Education and Attitudes (II) —— Revision of Questionnaire and 2nd Pretest——". Research objectives, survey procedures, and general discussion of results are given in that paper and our first one listed in the Appendix.

Here, a two step correlation analysis of 38 items taken from the survey is carried out to find significant relationships between them. These will then be used in revising and improving the questionnaire. Table 1 is a list of the items. The procedure of and results from the correlation analysis of both raw and adjusted data of these items will be given below.

METHODS

It was necessary to convert raw data into numerical values for the correlation. Multiple choice responses (A to H) were assigned the numbers 1 to 8 and yes/no answers given a 1 or 2. Fill-in queries were also allotted numbers in the following manner.

ITEM 1: Specialty and ITEM 15: College Degree. Respondents of these two items were divided into two groups: (1) Applied Arts and Medical Sciences, and (2) Liberal Arts. Division in this way was necessary because of basic differences in foreign language requirements (number of classes per week and year) at most Japanese universities.

ITEM 4: First Country where Research was Conducted. Coding for the separate countries was as follows- America 1, Canada 2, England, Australia and Ireland 3, Other countries 4.

ITEM 5: Total Time for All Research Overseas. The total number of months as calculated from the times each researcher left Japan until returning was used.

ITEMs 7 & 18: Times English Studied/Week in (H. S. or Col.) and

ITEMs 8 & 19: Length of Class Period in (H. S. or Col.). These fill-in data were placed in the correlation equation in raw form.

ITEMs 9 & 20: English Instruction Type in (H. S. or Col.) and

ITEM 26: English Instruction Type for Preparation. The number of different types checked by the respondent were summed and used for these items.

ITEMs 12 & 23: Years of Outside English in (H. S. or Col.) and

ITEM 28: Years of English Study after Finishing School: The respondents with experience studying English outside or after finishing school were required to fill in the length of that study. Since those indicating no such experience would naturally have zero years of study, that value was allotted and the raw data were used as is.

ITEM 16: Year Degree Received. The year graduated from college in two digit form (ex. 1980＝80) was adopted.

Table 1: ITEMs Drawn from the 2nd Pretest Survey

ITEM   NAME   ITEM   NAME

(Category One: Personal Information)

1. Specialty
2. Period Born
3. Times Research Done Overseas

4. First Country where Research was Conducted
5. Total Time for All Research Overseas

(Category Two: High School)

6. Type of High School
7. Times English Studied/Week
8. Length of Eng. Class Period
9. English Instruction Type

10. Sat. with English Classes
11. Outside English Study
12. Years of Outside Study
13. Fluency of Eng. after H. S.

(Category Three: College)

14. Type of College
15. College Degree
16. Year Degree Received
17. Years English Studied
18. Times English Studied/Week
19. Length of English Class

20. English Instruction Type
21. Sat. with Eng. Classes
22. Outside Eng. Study
23. Years of Outside Study
24. Fluency of Eng. after Col.

(Category Four: Overseas Research)

25. Preparation by School English
26. Instruction Type for Prepar.
27. Study after Finishing School
28. Years of Study after Finishing School
29. Satisfaction for Speaking Ability at Beginning

30. Satisfaction for Speaking Ability at End
31. Sufficiency of Eng. Study to Live in Foreign Country
32. Regular Overseas Travel as Professional
33. Frequency of Travel as Professional

(Category Five: Importance of English Education)

34. Importance of Increasing English in High School
35. Importance of Increasing English in College
36. Importance of Increasing English in Graduate School
37. Importance of English Outside School
38. Continuing English Studies

ITEM 33: Frequency of Travel as a Professional. Those stating regular overseas travel as a professional (ITEM 32) were asked how often they go overseas in that capacity. As in ITEMs 12, 23 & 28, those who answered negative to ITEM 32 were given zeros for this item.

Correlation analysis was conducted in two steps. In the first step, data from all the respondents were used to find 'ball-park' correlations between the items. To achieve a response rate of 70 for all items in this preliminary analysis, non-responses were allotted mock values in the correlation equation. In multiple and yes/no questions, answers with the highest frequency were inserted, and in fill-ins the average response value was.

The next step concentrated on the moderate to strong correlations found, and by adjusting the data to eliminate non-responses, more accurate correlate figures were derived. Thus, the adjusted N becomes equal to or less than the lowest response value of the two items.

RESULTS

In this section results from the Step One and Step Two correlation analyses will be reported.

Step One: A low overall non-response rate is noted for the survey as a whole. Of the 38 items, 12 were filled in by all participants. Of the remaining 26, 11 had only one or two blank responses. The average number of non-responses/item was 3.7. Allotment of values for non-response blanks is explained in *METHODS*.

Results of this analysis are given in the correlation tables in "our previous paper." In this study, correlations of Pearson product-moment $r \geq 0.500$ were considered strong, and from 0.300 to 0.499 determined to be at moderate levels. All correlations above 0.220 for $N=70$ were significant ($\alpha \leq .05$). Statistical significance was calculated using Student's t test ($df = N-2$, $\rho = 0$). There were 14 strong correlations and more than 75 moderate ones in the Step

One correlations.   Moderate and strong correlations, and items with low adjusted response rates can now be further analyzed in Step Two for their more accurate correlation values using adjusted response data.

Step Two: Results of correlation after data was adjusted will be reported for each item in its respective category after a brief summary of the category as a whole.

Category One: Personal Information

The first category asked for personal information and basic data concerning the respondents' research overseas.   There are five items and at least one moderate correlation was found in each.

ITEM 1: Specialty (Adjusted N=66).   The first item correlated strongly with two other items and moderately with eight.   These are listed along with correlation (r), Student's t value (t), and adjusted response rate (A) in Table 2.

Table 2: Strong and Moderate Correlations with ITEM 1: Specialty

ITEM		r	t	A
3	Times Research Done Overseas	.3200	2.797**	66
7	Times Eng. Studied/Week in H. S.	.3285	2.580*	57
10	Sat. with H. S. Eng. Classes	−.3123	−2.546*	62
15	College Degree	.9318	20.54**	66
17	Years of Eng. Studied in College	.3884	3.372**	66
18	Time Eng. Studied/Week in College	.3249	2.548*	57
21	Sat. with College Eng. Classes	−.5499	−5.142**	63
23	Years of Outside Study in College	.3038	2.531*	65
24	Fluency of Eng. after College	−.4373	−3.890**	66
38	Continuing English Study	−.3644	−3.131**	66

* α <.05,   ** α <.01

As expected, Specialty and College Degree (ITEM 15) correlated almost perfectly.   The only other strong correlation was with ITEM 21: Satisfaction with College English Classes.   The negative

sign means that while professionals in the liberal arts fields indicated satisfaction with the college English classes they took, those in the applied and medical fields checked more dissatisfied answers. ITEM 24: Fluency of English Speaking after College showed the same strong trend. Namely, professionals in liberal arts believed they were more fluent in English speaking than their counterparts at the end of college.

Other items in the moderate correlation ranges with this same trend were-ITEM 10: Satisfaction with H. S. English Classes; ITEM 38: Continuing English Studies- in general, professionals in liberal arts said they are still studying English while applied and medical field respondents indicated they are not; and ITEM 25: Preparation by School English- liberal arts respondents chose answers which stated that their school English education prepared them more for research overseas than applied and medical arts professionals did. Also, ITEM 13: Fluency of English after H. S. showed the same trend which, although not reaching the moderate correlation levels, was significant ($-.2732$, -2.272, $a < .05$, $N = 66$). ITEM 5: Total Time for All Research was also close to moderate levels ($-.2801$, -2.278, $a < .05$, $N = 63$) and indicates a tendency for applied and medical field professionals to spend longer times overseas.

Correlations between Specialty and ITEMs 7 & 18: Times English Studied/Week in H. S. and College, ITEM 17: Years of English Studied in College, and ITEM 23: Years of Outside Study in College all show the basic differences in amount of foreign language studies for students in the two specialty groups. Professionals in the liberal arts gave larger values for all these items while those in applied and medical fields recorded smaller values. In the same manner, ITEM 3: Times Research Done Overseas showed the same trend.

ITEM 2: Period Born ($N = 70$). There were one strong and three moderate correlations with this item, Table 3. The strong correlation is with ITEM 16: Year Degree Received as would be expected. This item and Type of High School (ITEM 6) were moder-

Table 3: Strong and Moderate Correlations with ITEM 2: Period Born

ITEM	r	t	A
6 Type of High School	.3404	2.985＊＊	70
13 Fluency of English after H. S.	−.3338	−2.921＊＊	70
16 Year Degree Received	.8957	16.40＊＊	69
23 Years of Outside Study in College	.2979	2.554＊	69

＊ $a<.05$,　＊＊ $a<.01$

ately correlated. In this survey, the older respondents tended to graduate from public high schools and the younger from private ones. The younger respondents also stated doing more outside studies in college (ITEM 23) and indicated higher levels of English speaking abilities after high school (ITEM 13) than their older counterparts. In addition, ITEM 24: Fluency of English Speaking after College, was near moderate correlation levels, and was significant $(−.2528, −2.155, a<.05, N=66)$.

ITEM 3: Times Research Done Overseas $(N=70)$. This item and six others were moderately correlated, Table 4. Respondents with more experience doing research overseas were more satisfied with their college English classes (ITEM 21) and their speaking abilities at both beginning and end of research (ITEMs 29 & 30). However, there was only a low correlation with it and satisfaction with high school English classes, ITEM 10 $(−.1773, N=67)$.

Regular Travel as a Professional (ITEM 32) correlated moderately, but not at a strong level as should be expected. The correla-

Table 4: Moderate Correlations with ITEM 3: Times Research Done
　　　　Overseas

ITEM	r	t	A
1 Specialty	.3200	2.797＊＊	66
21 Sat. with Col. Eng. Classes	−.3093	−2.622＊	67
29 Sat. for Speaking Ability at Begin.	−.3652	−3.162＊＊	67
30 Sat. for Speaking Ability at End	−.3934	−3.424＊＊	66
32 Regular Travel as Professional	−.3352	−2.846＊＊	66
37 Importance of Eng. Outside School	.3003	2.499＊	65

＊ $a<.05$,　＊＊ $a<.01$

tion with ITEM 37: Importance of English Outside of School indicates that professionals with fewer times overseas considered this item more important.

See ITEM 1 for the remaining correlation.

ITEM 4: First Country where Research was Conducted (N＝70). There was only one moderate correlation. It was with ITEM 8: Length of Eng. Class Period in H. S. (.3064, 2.575, $a < .05$, N＝66).

ITEM 5: Total Time for All Research Overseas (Adjusted N＝67). This item was in moderate correlation with Importance of Increasing English in H. S., College, and Graduate School items (ITEMs 34, 35 & 36, respectively). The correlations, t & alpha-values and adjusted N values are-

ITEM 34:	.3349,	2.844,	$a < .01$	66
ITEM 35:	.3580,	3.068,	$a < .01$	66
ITEM 36:	.2932,	2.434,	$a < .05$	65

The respondents who spent longer periods overseas conducting research indicated that increasing English in school was less important.

Category Two: High School

The second category mainly concerned English studied while the respondents were in high school. All eight items had at least one moderate level correlation.

ITEM 6: Type of High School (N＝70). Three moderate correlations were found. See ITEM 2: Period Born for the first one. ITEM 16: Year Degree Received which is also strongly correlated with ITEM 2 was moderately correlated here (.3329. 2.884, $a < .01$, N＝69). Many respondents in this survey who attended public high school were in the older age groups and, as expected, generally earned their college degrees before the younger respondents attending private high schools.

Type of high school and ITEM 9: English Instruction Type in

High School reached a moderate correlation level (.4149, 3.756, $a < .01$, N=70). Respondents from private high schools chose a greater number of instruction types that they learned English under than those who went to public schools.

ITEM 7: Times English Studied/Week in High School (Adjusted N=61). Three items from the college category had moderate correlations with this-

15:	College Degree	.3369	2.677	$a < .01$	58
18:	Times Eng. Studied/Week	.3219	2.612	$a < .05$	61
21:	Satisfaction Eng. Classes	−.2825	−2.262	$a < .05$	61

Respondents with degrees in applied arts or medical sciences stated they had less English lessons per week in high school than the liberal arts majors. Responses correlated between this item and its companion for amount of college English classes (ITEM 18).

Finally, a negative direction with Satisfaction with College English Classes was noted which means that those who reported taking less high school English per week were less satisfied with their English classes in college than the respondents who stated having more classes.

See ITEM 1 for another moderate correlation.

ITEM 8: Length of High School English Class Period (Adjusted N=66). Only First Country where Research was Conducted reached moderate correlations with this, see ITEM 4.

ITEM 9: English Instruction Type in High School (N=70). There were two moderate correlations. See ITEM 6 for the first with type of high school. The next was with this item's companion for the college category, ITEM 20: English Instruction Type in College (.3393, 2.953, $a < .01$, N=70). The last was with ITEM 32: Regular Overseas Travel as a Professional (−.3154, −2.659, $a < .01$, N=66). Those who indicated taking less types of instruction also answered no to going overseas regularly in a professional

Table 5: Moderate Correlations with ITEM 10: Satisfaction with High School English Classes

ITEM	r	t	A
1 Specialty	−.3123	−2.546*	62
15 College Degree	−.3379	−2.827**	64
19 Length of College Eng. Classes	−.3107	−2.487*	60
21 Sat. with College Eng. Classes	.4427	3.887**	64
29 Sat. for Speaking Ability at Begin.	.3287	2.719**	63
30 Sat. for Speaking Ability at End	.3803	3.185**	62

* $\alpha<.05$,   ** $\alpha<.01$

capacity.

ITEM 10: Satisfaction with High School English Classes (Adjusted N=66). The six moderate correlations are listed in Table 5. This item correlated with three from the college category. Those who selected satisfied answers for this item had a tendency to graduate with degrees in the liberal arts, ITEM 15. The satisfied group also indicated that they had longer English class periods in college, ITEM 19. Finally, this and its companion ITEM 21 were moderately correlated.

Satisfaction with high school English also was correlated with the respondents' satisfaction for their English speaking ability at both the beginning and end of their research overseas, ITEMs 29 & 30. A similar trend was found in the college category. See ITEM 1 for one more correlation.

ITEM 11: Outside English Study in High School (Adjusted N=69). One strong and three moderate correlations were found. The strong correlation was with ITEM 12: Years of Outside English Study in High School which is as expected (−.9070, −17.27, $\alpha<.01$, N=66). The next correlation was with this item's companion from the college category, ITEM 22: Outside English Study in College (.3058, 2.646, $\alpha<.01$, N=69). Those who studied English outside in high school also tended to continue studying

outside in college.

The remaining two moderate correlations were with items covering Preparation (for research overseas) by School English (ITEM 25)- those who stated having done some type of English studies outside of high school gave responses indicating that they felt that their English education in school prepared them well while the answers from those who had no outside studies tended to be at the opposite end of the scale (.3684, 3.069, $a < .01$, N=60); and English Instruction Type for Preparation (ITEM 26)- those who did outside study chose more school instruction types that prepared them than those who didn't take outside studies ($-.2997$, -2.552, $a < .05$, N=68).

There was a near moderate level correlation with ITEM 37: Importance of Outside English (.2759, 2.278, $a < .05$, N=65).

ITEM 12: Years of Outside Study in High School (Adjusted N=69). There were five correlations at moderate levels or higher. See ITEM 11 above for a strong correlation. The companion item, Years of Outside Study in College (ITEM 23), correlated at a moderate level (.3369, 2.840, $a < .05$, N=69).

This and ITEM 25: Preparation (for overseas) by School English was correlated to $-.4044$, -3.338, $a < .01$, N=59, showing that respondents who had less years of outside study in high school thought that their English studied in school did not prepare them so well while those with more years had the opposite feelings. A similar trend was found with ITEM 31: Sufficiency of English Study to Live and Study in a Foreign Country ($-.3205$, -2.599, $a < .01$, N=61). Those with less outside study years indicated that their English was not sufficient to live and study in a foreign country, but those with more years had stronger feelings of sufficiency towards this.

The last, ITEM 37: Importance of Outside English ($-.3298$, 2.638, $a < .01$, N=61), showed that the more years the respondents had studying outside high school, the more important they felt such outside English study was and those who had done none or

had less time in such studies felt it was less important.

ITEM 13: Fluency of English after High School (N=70). This item and four others correlated at moderate levels. The ITEM 2: Period Born correlation denotes that the older the respondent, the poorer he felt his fluency in speaking English was while the younger ones gave answers showing they felt they were more fluent. Likewise, ITEM 16: Year Degree Received indicates the same trend (−.4564, −4.199, $\alpha<.01$, N=69).

Correlation with the companion item, Fluency of English Speaking after College (ITEM 24), was at a strong level (.7776, 10.20, $\alpha<.01$, N=70).

English Instruction Type for Preparation (ITEM 26) correlated with this item (−.3810, −3.348, $\alpha<.01$, N=68). Those feeling their English speaking ability after high school was high chose more types of instruction that helped them prepare for overseas research than those who felt their English was poor.

This item had many correlations with other items near the moderate level- ITEM 1: Specialty −.2732, ITEM 18: Times English Studied/Week in College −.2881, ITEM 25: Preparation by School English .2751, ITEM 31: Sufficiency of English to Live and Study in a Foreign Country .2800, and ITEM 32: Regular Travel as a Professional .2849.

Category Three: College

This category concerns college English and English classes. It contains 11 items, the most from any category in this survey. Except one, all items had at least one moderate correlation.

ITEM 14: Type of College (Adjusted N=69). Unlike its companion, ITEM 6: Type of High School, there were no moderate level or stronger correlations found with this item.

ITEM 15: College Degree (Adjusted N=67). This item was correlated at moderate or stronger levels with ten others, Table 6.

Table 6: Strong and Moderate Correlations with ITEM 15: College Degree

ITEM		r	t	A
1	Specialty	.9318	20.54 **	66
7	Time English Studied/Week in H. S.	.3369	2.677 **	58
10	Sat. with H. S. English Classes	−.3379	−2.827 **	64
17	Years of Eng. Studied in College	.3555	3.043 **	66
20	Eng. Instruction Type in College	.3016	2.550 *	67
21	Sat. Eng. Classes in College	−.5001	−4.547 **	64
23	Years of Outside Study in College	.2902	2.426 *	66
24	Fluency of Eng. after College	−.4094	−3.618 **	67
25	Preparation by School English	−.2928	−2.332 *	60
38	Continuing English Study	−.3137	−2.664 **	67

* $a < .05$,   ** $a < .01$

Correlations with ITEM 1, ITEM 7 and ITEM 10 are explained above.

Five items from the college category correlated with ITEM 15. First, there were basic differences in English classes taught to the separate degree holders. Respondents from the applied arts and medical fields reported having studied less years of English in college (ITEM 17) than liberal arts majors and also stated being taught by fewer types of instruction (ITEM 20). ITEM 18: Times English Studied/Week in College was also near moderate levels and showed the same trend (.2593, 2.009, $a < .05$, N=58). In addition, the near moderate correlation with Years of Outside Study in College (ITEM 23) indicated that liberal arts degree holders studied more years outside than did applied arts and medical science degree holders did.

For the affective items, ITEM 21 having a strong correlation and ITEM 24 at a moderate level indicated that applied arts and medical science degree holders gave significantly lower answers to satisfaction of their English classes in college and to their feelings towards fluency of their English speaking after graduating than did holders of liberal arts degrees. The same trend was seen at near moderate levels with ITEM 25: Preparation (for research overseas) by School English. Liberal arts degree holders gave

indications that they felt their school English prepared them for research while the other group gave responses at the other end of the scale.

Finally, holders of liberal arts degrees generally stated that they were continuing their English studies in some form at the time of this survey. The applied arts and medical science degree holders reported, overall, that they were not doing so, however.

ITEM 16: Year Degree Received (Adjusted N=69). There were one strong and six moderate correlations here. See ITEM 2 for the strong one with Period Born and ITEMs 6 & 13 in the high school category for two other moderate ones. The three correlations with items in the college category are given below-

20	Eng. Instruction Type	.3008	2.582	$\alpha<.05$	69
23	Years of Outside Study	.2906	2.467	$\alpha<.05$	68
24	Fluency of Eng. after Col.	−.3756	−3.317	$\alpha<.01$	69

The first item shows that the more recent the degree was earned, the greater number of different instruction types were studied in college. As with age (ITEM 2), the correlation with ITEM 23 indicated that the respondents who obtained their degrees more recently also stated having more years of outside study. Fluency feelings towards English speaking after completing college were different as noted by the correlation between these items, those getting degrees less recently felt less fluent than did those who earned them more recently.

The remaining moderate correlation was with ITEM 26: English Instruction Type for Preparation (.3466, 2.979, $\alpha<.01$, N=67). The more recent degree earners checked more types of instructions that prepared them for overseas research. Likewise, at a near moderate level correlation, the same group chose answers indicating they felt that their school English prepared them more for overseas research than the group getting degrees less recently (−.2924, −2.369, $\alpha<.05$, N=62).

Table 7: Strong and Moderate Correlations with ITEM 17: Years of English Studied in College

ITEM	r	t	A
1 Specialty	.3884	3.372**	66
15 College Degree	.3555	3.043**	66
18 Times Eng. Studied/Week in College	.5515	5.035**	60
20 Eng. Instruction Type in College	.5183	4.903**	69
21 Sat. with College English Classes	−.4000	−3.487**	66
22 Outside English Study in College	−.3478	−3.036**	69
23 Years of Outside Study in College	.4486	4.078**	68
24 Fluency of Eng. after College	−.4545	−4.177**	69
29 Sat. for Speaking Ability at Begin.	−.3059	−2.571*	66

$*\ \alpha<.05,\quad **\ \alpha<.01$

ITEM 17: Years of English Studied in College (Adjusted N=69). Two strong and seven moderate correlations were found, Table 7. See ITEM 1: Specialty for a moderate correlation. Most correlations were with items in the college category.

See ITEM 15 for the first one in this category. The two strong correlations were with ITEMs 18 & 20 and indicated that years of English taken were both positively related with times per week it was taken and the number of different instruction types studied under. Also, respondents with more years of English study in college were more likely to have done outside English study (ITEM 22) and more years of such study (ITEM 23).

The feelings towards college English class satisfaction and English speaking fluency after college also correlated moderately (ITEMs 21 & 24). Respondents with more years of English study had more positive feelings in both than those with less years.

The same trend was found at a moderate level in ITEM 29: Satisfaction for Speaking English at the Beginning of research overseas.

ITEM 18: Times English Studied/Week in College (Adjusted N=61). Table 8 lists the three strong and six moderate correla-

Table 8: Strong and Moderate Correlations with ITEM 18: Times English
Studied/Week in College

ITEM		r	t	A
1	Specialty	.3249	2.548*	57
7	Times English Studied/Week in H. S.	.3219	2.612*	61
17	Years of Eng. Studied in College	.5515	5.035**	60
20	Eng. Instruction Type in College	.4915	4.335**	61
22	Outside English Study in College	−.5003	−4.438**	61
23	Years of Outside Study in College	.6438	6.408**	60
24	Fluency of Eng. after College	−.4288	−3.646**	61
25	Preparation by School English	−.4466	−3.634**	55
26	Eng. Instruction Type for Prep.	.4683	−4.072**	61

$* \ a<.05, \ ** \ a<.01$

tions with this item. ITEMs 1 & 7 are explained above in the first category.

As reported above, this and ITEM 17 were strongly correlated. English Instruction Type (ITEM 20) was near strong correlation levels and Outside English Study and Years of Outside English Study (ITEMs 22 & 23) were both strongly correlated. All these items had the same trends as they did with ITEM 17. ITEM 24: Fluency of English Speaking after College was moderately correlated. The more times English classes were taken per week, the stronger the fluency feelings were and the fewer, the weaker. A near moderate correlation with Satisfaction of College English Classes (ITEM 21) having the same direction was also noted (−.2728, −2.205, $a<.05$, N=60).

The last two correlations were with ITEM 25: Preparation by School English and ITEM 26: English Instruction Type for Preparation. The more times English was taught per week was related to a greater feeling that college English prepared the respondents for research overseas and to a greater number of instruction types being picked for the preparation while the reverse was true for those reporting fewer times per week.

ITEM 19: Length of College English Classes (Adjusted N=62). This only correlated moderately with ITEM 10: Satisfaction of H. S. English Classes. See ITEM 10 above.

ITEM 20: English Instruction Type in College (N=70). There were four strong correlations and nine moderate ones, Table 9. Correlation with ITEM 9 is explained in the high school category. ITEMs 15, 16, 17 & 18 are dealt with above. There were also moderate and strong correlations with ITEMs 22 & 23, respectively. These followed the same trends as in ITEMs 17 & 18. ITEMS 21 & 24 also showed the same trends here as in those two.

Two strong correlations with items concerning preparation (ITEMs 25 & 26) indicated the direct relation between number of instruction types studied under and how prepared the respondents felt they were to conduct research overseas as well as with the number of instructions chosen that prepared them.

The two remaining correlations (ITEMs 29 & 30) were with the

Table 9:   Strong and Moderate Correlations with ITEM 20:   English Instruction Type in College

ITEM		r	t	A
9	Eng. Instruction Type in H. S.	.3393	2.953*	70
15	College Degree	.3016	2.550*	67
16	Year Degree Received	.3008	2.582*	69
17	Years of Col. English Studied	.5183	4.903**	69
18	Times Eng. Studied/Week in College	.4915	4.335**	61
21	Sat. with College English Classes	−.3947	−3.463**	67
22	Outside English Study in College	−.3798	−3.385**	70
23	Years of Outside Study in College	.5143	4.909**	69
24	Fluency of Eng. after College	−.3695	−3.571**	70
25	Preparation by School English	−.5008	−4.517**	63
26	Eng. Instruction Type for Prep.	.5679	5.606**	68
29	Sat. for Speaking Ability at Begin.	−.4377	−3.925**	67
30	Sat. for speaking Ability at End	−.2960	−2.479*	66

* $\alpha < .05$,   ** $\alpha < .01$

Table 10: Strong and Moderate Correlations with ITEM 21: Satisfaction with College English Classes

ITEM		r	t	A
1	Specialty	−.5499	−5.142**	63
3	Times Research Done Overseas	−.3093	−2.622*	67
10	Sat. with English Classes in H. S.	.4427	3.887**	64
15	College Degree	−.5001	−4.547**	64
17	Years of Col. English Studied	−.4000	−3.487**	66
20	Eng. Instruction Type in College	−.3947	−3.463**	67
24	Fluency of Eng. after College	.4128	3.654**	67
29	Sat. for Speaking Ability at Begin.	.3169	2.631*	64
30	Sat. for Speaking Ability at End	.3093	2.541*	63

* $a<.05$,　** $a<.01$

respondents' satisfaction for their speaking ability at the beginning and end of the research. Those who chose fewer instruction types had less satisfied feelings at both beginning and end, and those who chose more types were more satisfied.

ITEM 21: Satisfaction with College English Classes (Adjusted N=67). This item also had numerous strong and moderate correlations, Table 10. The first two (ITEMs 1 & 3) are explained in Category One and ITEM 10 in Category Two. Except for ITEM 24, those in the college category are described above. ITEM 24: Fluency of English Speaking after College was related to this item. Respondents who reported being dissatisfied with their English classes also did not feel so fluent in English speaking when they finished college while those that were more satisfied showed the opposite feelings.

The same trend was also found with satisfaction feelings at the beginning and end of the participants' research overseas (ITEMs 29 & 30).

ITEM 22: Outside English Study in College (N=70). Table 11 lists the correlations with this item. See ITEM 11 for its compan-

Table 11: Strong and Moderate Correlations with ITEM 22: Outside
English Study in College

ITEM	r	t	A
11 Outside English study in H. S.	.3058	2.646**	69
17 Years of Col. English Studied	−.3478	−3.036**	69
18 Years Eng. Studied/Week in College	−.5003	−4.438**	61
20 Eng. Instruction Type in College	−.3798	−3.385**	70
23 Years of Outside Study in College	−.7424	−9.072**	69
24 Fluency of Eng. after College	.4169	3.782**	70
25 Preparation by School English	.3766	3.175**	63
26 Eng. Instruction Type for Prep.	−.3721	−3.256**	68

* $\alpha<.05$,   ** $\alpha<.01$

ion item from high school. ITEM 3: Times Research Done Overseas was close to correlating moderately (−.2819, −2.424, $\alpha<.05$, N=70). Respondents who answered yes to ITEM 22 generally had more study times abroad.

Years of Outside English Study (ITEM 23) was strongly related to this, as expected. Fluency of English Speaking after College (ITEM 24) showed a moderate correlation, those with outside study experience reported greater feelings of fluency than did the respondents who had no such experience. The other college category items are discussed above.

The preparation items (25 & 26) also related moderately here in the same way as they did with ITEMs 18 & 20. ITEM 30: Satisfaction for Speaking Ability at End was near moderate levels (.2832, 2.360, $\alpha<.05$, N=66).

ITEM 23: Years of Outside English Study in College (Aajusted N=69). Five strong and seven moderate correlations were found, Table 12. See Category One for ITEMs 1 & 2. The companion item for the high school category (ITEM 12) correlated moderately and ITEM 11: Outside English Study in H. S. was near that level (−.2874, −2.457, $\alpha<.05$, N=69).

Table 12:　Strong and Moderate Correlations with ITEM 23:　Years of
Outside English Study in College

ITEM		r	t	A
1	Specialty	.3038	2.531	65
2	Period Born	.2979	2.554*	69
12	Years of Outside Study in H. S.	.3369	2.840**	69
15	College Degree	.2902	2.426*	66
16	Year Degree Received	.2906	2.467*	68
17	Years of Col. English Studied	.4486	4.078**	68
18	Times Eng. Studied/Week in College	.6438	6.408**	60
20	Eng. Instruction Type in College	.5143	4.909**	69
22	Outside English Study in College	−.7424	−9.072**	69
24	Fluency of Eng. after College	−.5025	−4.757**	69
25	Preparation by School English	−.5606	−5.244**	62
26	Eng. Instruction Type for Prep.	.3847	3.361**	67

* $\alpha<.05$,　** $\alpha<.01$

Most college category correlations are explained above. ITEM
24 was strongly related to this item. Those with more outside
study experience had stronger feelings towards being fluent Eng-
lish speakers after college.

The same strong level of correlation was found with ITEM 25
concerning preparation feelings. Those with more outside study
experience felt more prepared for their research while those with
less, felt less prepared. Also, the same groups listed, respectively,
more or less types of school instructions that helped prepare them
(ITEM 26).

ITEM 24:　Fluency of English Speaking after College (N=70).
The last item in this category had two strong and 11 moderate
correlations, Table 13. ITEMs 1 and 13 are explained in their
separate categories and items corresponding to college English are
above.

There were correlations with ITEMs 25 & 26 as there were
between these and most other college category items. Fluency
related to both preparatory feelings and the number of instruction
types that helped prepare for the overseas research. The final

Table 13: Strong and Moderate Correlations with ITEM 24: Fluency of
English Speaking after College

ITEM	r	t	A
1 Specialty	−.4373	−3.890 ∗∗	66
13 Fluency of English after H. S.	.7778	10.20 ∗∗	70
15 College Degree	−.4094	−3.618 ∗∗	67
16 Year Degree Received	−.3756	−3.317 ∗∗	69
17 Years of Col. English Studied	−.4545	−4.177 ∗∗	69
18 Times Eng. Studied/Week in College	−.4288	−3.646 ∗∗	61
20 Eng. Instruction Type in College	−.3695	−3.571 ∗∗	70
21 Sat. with College English Classes	.4128	3.654 ∗∗	67
22 Outside Eng. Study in College	.4169	3.782 ∗∗	70
23 Years of Outside Study in College	−.5025	−4.757 ∗∗	69
25 Preparation by School English	.4662	4.116 ∗∗	63
26 Eng. Instruction Type for Prep.	−.4831	−4.482 ∗∗	68
31 Suff. of Eng. Study to Live in a Foreign Country	.3083	2.552 ∗	64

∗ $a<.05$, ∗∗ $a<.01$

moderate correlation was with ITEM 31, a positive relation be-
tween fluency feeling in speaking English after college and feel-
ings of sufficiency to live and study overseas from studying Eng-
lish in Japan.

Category Four: Overseas Research

In this category nine items dealt with the respondents' research
overseas. All items had at least one strong or moderate correla-
tion.

ITEM 25: Preparation by School English (Adjusted N=63).
There were correlations with items from all five categories, three
strong and ten moderate. See Table 14. Correlations with items
from the previous three categories are described in their respective
categories above.

This item and ITEM 26: English Instruction Type for Prepara-

Table 14:　Strong and Moderate Correlations with ITEM 25:　Preparation by School English

ITEM		r	t	A
1	Specialty	−.2915	−2.300*	59
11	Outside English Study in H. S.	.3684	3.069**	60
12	Years of Outside Study in H. S.	−.4044	−3.338**	59
15	College Degree	−.2928	−2.332*	60
16	Year Degree Received	−.2924	−2.369*	62
18	Times Eng. Studied/Week in College	−.4466	−3.634**	55
20	Eng. Instruction Type in College	−.5008	−4.517**	63
22	Outside English Study in College	.3766.	3.175**	63
23	Years of Outside Study in College	−.5606	−5.244**	62
24	Fluency of Eng. after College	.4662	4.116**	63
26	Eng. Instruction Type for Prep.	−.6230	−6.221**	63
30	Sat. for Speaking Ability at End	.3087	2.514*	62
37	Importance of Eng. Outside School	.3715	2.995**	58

* $\alpha<.05$,　** $\alpha<.01$

tion were strongly correlated.　The respondents who held stronger feelings towards being prepared by English from school also chose more types of instructions that helped them prepare.　Prepared feeling and satisfaction of speaking ability at the end of research overseas (ITEM 30) were moderately related, the stronger the prepared feeling, the stronger the satisfaction.　ITEM 29:　Satisfaction for Speaking Ability at Beginning was close to moderate levels (.2885, 2.353, $\alpha<.05$, N=63).

The final correlation was with Importance of English Outside School (ITEM 37).　A strong feeling towards being prepared by English in school was related to a strong feeling that English studied outside of school is important.

ITEM 26:　English Instruction Type for Preparation (Adjusted N=68).　There were two strong and eight moderate correlations and they are given in Table 15.　See Category Two and Category Three for items correlating with this. Besides, the strong correla-

Table 15:   Strong and Moderate Correlations with ITEM 26:   English
Instruction Type for Preparation by School English

ITEM	r	t	A
11 Outside English Study in H. S.	−.2997	−2.552*	68
13 Fluency of English after H. S.	−.3810	−3.348**	68
16 Year Degree Received	.3466	2.979**	67
18 Times Eng. Studied/Week in College	.4683	4.072**	61
20 Eng. Instruction Type in College	.5679	5.606**	63
22 Outside English Study in College	−.3721	−3.256**	68
23 Years of Outside Study in College	.3847	3.361**	67
24 Fluency of Eng. after College	−.4831	−4.482**	68
25 Preparation by School English	−.6230	−6.221**	63
37 Importance of Eng. Outside School	−.3234	−2.669**	63

* $a < .05$,   ** $a < .01$

tion with ITEM 25 above, ITEM 37: Importance of English Outside
School also correlated with instruction type for preparation.

ITEM 27:   English Study after Finishing School (N=70).   Only
ITEMs 28 & 38 correlated to moderate or strong levels.   Years of
English Studied after Finishing School correlated to a high degree,
as expected (−.6141, −6.086, $a < .01$, N=63).   Continuing English
Study (ITEM 38) correlated moderately (.3398, 2.979, $a < .01$,
N=70).   The respondents who stated they studied English after
school and before going overseas also said they were continuing
studies at the time of the survey.

ITEM 28:   Years of English Studied after Finishing School
(Adjusted N=63).   Two correlations, one with ITEM 27 above and
the other with ITEM 38: Continuing English Study, were found.
The correlation for ITEM 38 was −.2984, −2.442, $a < .05$, N=63.

ITEM 29:   Satisfaction for English Speaking Ability at Begin-
ning (Adjusted N=67).   This item correlated with one strong and
eight moderate items, Table 16. See Category One for ITEM 3,

Table 16: Strong and Moderate Correlations with ITEM 29: Satisfaction for Speaking Ability at Beginning

ITEM		r	t	A
3	Times Research Done Overseas	−.3652	−3.162**	67
10	Sat. with English Classes in H. S.	.3287	2.719**	63
17	Years of Col. English Studied	−.3059	−2.571*	66
20	Eng. Instruction Type in College	−.4377	−3.925**	67
21	Sat. with College Eng. Classes	.3169	2.631*	64
30	Sat. for Speaking Ability at End	.6950	7.733**	66
31	Suff. of English Study to Live in a Foreign Country	.4818	4.330**	64
32	Regular Travel as Professional	.2978	2.515*	65
38	Continuing English Study	.3205	2.728**	67

* $\alpha < .05$, ** $\alpha < .01$

Category Two for ITEM 10 and Category Three for the items pertaining to college English.

In this category, there were three important correlations-ITEM 30: Satisfaction for English Speaking Ability at End which, as might be expected, had a strong correlation; a moderate correlation with ITEM 31: Sufficiency of English to Live and Study Overseas which means that respondents who were satisfied with their English speaking ability at the beginning of research overseas also felt their English was sufficient to live and study there while those who reported low satisfaction levels had corresponding low feelings of sufficiency; and ITEM 32: Regular Travel as a Professional indicating that more satisfaction at beginning related to going overseas as a professional regularly.

The remaining correlation was with ITEM 38: Continuing English Study. The positive correlation showed that satisfaction with speaking ability at the beginning of research related to continuance of English studies.

ITEM 30: Satisfaction for English Speaking Ability at End (Adjusted N = 66). This item showed much the same levels of

Table 17: Strong and Moderate Correlations with ITEM 30: Satisfaction for Speaking Ability at End

ITEM		r	t	A
3	Times Research Done Overseas	−.3934	−3.424**	66
10	Sat. with English Classes in H. S.	.3803	3.185**	62
20	Eng. Instruction Type in College	−.2960	−2.479**	66
21	Sat. with College Eng. Classes	.3093	2.541*	63
25	Preparation by School English	.3087	2.514*	62
29	Sat. for Speaking Ability at Begin.	.6950	7.733**	66
31	Suff. of English Study to Live in a Foreign Country	.4653	4.139**	64
32	Regular Travel as Professional	.4155	3.654**	66

$*$ $a<.05$, $**$ $a<.01$

correlations, listed in Table 17, as ITEM 29. There were one strong and seven moderate ones. See the categories above for previous correlations. As with ITEM 29, Sufficiency of English to Live and Study Overseas (ITEM 31) and Regular Travel as a Professional (ITEM 32) both correlated moderately. It should also be noted that the correlation with ITEM 32 and this item was at a much higher level than it was between ITEM 29 & 32.

ITEM 31: Sufficiency of English to Live and Study Overseas (Adjusted N=64). There were four moderate correlations. For the first two, see ITEMs 12: Years of Outside Study in H. S. and ITEM 24: Fluency of English Speaking after College above. In this category see ITEMs 29 & 30 for correlations with satisfaction at beginning and end of research overseas for English speaking ability.

ITEM 32: Regular Travel as a Professional (Adjusted N=66). Moderate correlations with ITEM 3: Times Research Done Overseas, ITEM 9: English Instruction Type in H. S., and ITEMs 29 & 30: Satisfaction for English Speaking Ability at (Beginning and End) were found. As expected, there was a strong correlation with ITEM 33: Frequency of Travel as a Professional (−.7972, −10.56,

$a<.01$, N＝66).

ITEM 33: Frequency of Travel as a Professional (Adjusted N＝66). The only correlation above low levels was with ITEM 32 above. ITEM 30: Satisfaction for English Speaking Ability at End was near moderate levels ($-.2764$, -2.301, $a<.05$, N＝66).

Category Five: Importance of English

The last category concerns the respondents' general feelings towards English in school and outside, and if they were continuing English at the time of the survey. There are five items. All had at least one moderate correlation.

ITEM 34: Importance of Increasing English in H. S. (Adjusted N＝69). See ITEM 5: Total Time for All Research for a moderate correlation. Two other strong ones were noted- with ITEM 35: Importance of Increasing English in College (.8872, 15.62, $a<.01$, N＝68), and with ITEM 36: Importance of Increasing English in Graduate School (.6120, 6.239, $a<.01$, N＝67).

ITEM 35: Importance of Increasing English in College (Adjusted N＝69). This item followed the same trend as ITEM 34. See ITEM 5 and ITEM 34 for explanations of their correlations. The remaining correlation was with ITEM 36: Importance of Increasing English in Graduate School (.7234, 8.512, $a<.01$, N＝68).

ITEM 36: Importance of Increasing English in Graduate School (Adjusted N＝68). See ITEMs 5, 34 & 35 for three previous correlations. One further moderate correlation was with ITEM 38: Continuing English Study (.3620, 3.155, $a<.01$, N＝66).

ITEM 37: Importance of English Outside School (Adjusted N＝65). There were three moderate correlations- ITEM 3: Times Research Done Overseas, ITEM 25: Preparation by School English, and ITEM 26: English Instruction Type for Preparation.

ITEM 38: Continuing English Study (N=70). Correlations with ITEM 1: Specialty, ITEM 15: College Degree, ITEM 27: English Study after Finishing School, ITEM 28: Years of English Studied after Finishing School, ITEM 29: Satisfaction for Speaking Ability at Beginning, and ITEM 36: Importance of Increasing English in Graduate School. See the respective categories for explanations.

DISCUSSION

The results above have disclosed some important relations, or lack of, between the items. Summary of these and how they relate to English education in Japan and the Japanese researcher who actually goes overseas and uses English in a professional context will be covered in this section.

Specialty

The first important relations found were between the professional's specialty (including the degree he holds) and his feelings towards the English classes he took, and the degree of fluency he felt he could speak English at after finishing those classes. Both of these showed strong or close to strong correlations with the items concerning speciality (ITEMs 1 & 15). More concretely, the respondents who are specialists in the applied arts or medical fields had significantly more dissatisfaction with their English classes in college, and to a lesser extent in high school, than did the respondents who are specialists in the liberal arts.

Likewise, the groups opposed each other in how fluent they felt they could speak English after studying English in school. The applied arts/medicine group felt they couldn't speak English very well after college while the liberal arts group felt their fluency was to some degree better. This difference reached moderate correlation levels in the college category. However, the correlations were in the low levels for the high school question. Another ambiguous point was why the relations between specialty and the satisfaction researchers had towards their speaking abilities at the beginning and end of the research did not reach at least at moderate levels.

Reasons that might explain in part why there were differences between specialty, and satisfaction and fluency are: 1) the differences in years English was studied in college, and 2) the differences in times English classes were held per week in high school and college. Liberal arts specialists reported having taken significantly more years of English and more classes per week in college and more classes per week in high school. There appears to be a connection between these but further investigation is needed to clarify it.

Age

This variable studied in ITEMs 2 & 16 revealed important relations. A somewhat surprising one was with the type of high school the respondents attended. More younger professionals went to private high schools than older ones causing the moderate correlation. It is important to discover if this trend would still be significant for a larger sample.

The most important finding for correlation with age was the one with the affection variables for English speaking fluency after high school and college. For some reason, still unexplained, the correlations were stronger with ITEM 16 than ITEM 2. But, the trend is clear- older respondents significantly chose answers tending more towards below average to poor feelings for fluency after both high school and college than did their younger cohorts.

Satisfaction with English and Fluency towards Speaking Ability

This variable is important because we can use it to grasp, at least from the professional's viewpoint, which relating items were helpful or detrimental towards his English education and the research overseas. Except the items discussed above in Specialty, these two items in the high school category revealed somewhat confusing results. For example, why was there no correlation between satisfaction and fluency in high school when they correlated so well in the college category; and why was there a

moderate correlation between satisfaction with H. S. classes and the length of college classes?

In the college category, however, the correlations showed clearer trends. Satisfaction and fluency were significantly related with years of English studied in college and fluency with times of English classes per week. The professionals who studied English longer and more frequently were more satisfied with the classes and considered themselves more fluent in speaking. In addition, people who indicated more fluent feelings also stated studying under more kinds of English instruction types. With due consideration to the scope of this survey, the above suggest possible improvements in English education at the college level. That is, enable students in the applied arts and medical fields, especially those considering research as a major part of their profession, to take more English classes and provide them with a greater variety of instruction types as well.

The remaining two items concerning satisfaction of English speaking ability reveal clear relations. Besides the correlations with both satisfaction items in high school and college, English instruction type correlated to moderate levels with satisfaction at the beginning and, although somewhat lower, also with satisfaction at the end of the research. In addition, years of English study in college related significantly with satisfaction at the beginning. These reinforce the suggestions for the improvements given above.

Outside Study

This variable, measured by ITEMs 11 & 12 and 22 & 23, was related to other items in the survey. In the high school category, outside English study correlated with preparation by school English and to the importance of increasing English study outside school. For the college items, correlations with preparation were stronger and included the number of school English instruction types in college and preparation. In addition, fluency of speaking ability after college correlated, strongly with years of outside study.

The reason for these results is not so clear. The connection between preparation, including types of instruction, by school English for research overseas and any outside studies done is not easily explainable. Why did significantly more respondents who had outside studies give answers stating that English subjects taught in school completely or well prepared them for the research while those who didn't have outside study experience gave answers saying it didn't or only slightly prepared them? The reasons for the fluency relation is plausible. However, why weren't there more and stronger correlations with other affective items concerning satisfaction?

Finally, why weren't there more correlations with ITEMs 27 & 28 covering English study after college and before going overseas? Relations between this and other items in the survey could possibly exist.

It's possible that the respondents were confused by the preparation questions. Perhaps it wasn't clear that these questions concerned only English that was studied in school and shouldn't have included opinions about outside studies. One further explanation for these problems might be the low response rate of people having outside English study experience who participated in this survey, especially for the high school category. A better designed questionnaire and data from a survey with a larger sample rate might provide clearer results for some of the above questions.

Preparation for Research Overseas

One remaining variable with multiple strong and moderate correlations was dealt with in ITEMs 25 & 26. Besides those discussed in Outside Study, there were significant relations with the number of English classes per week in high school and college, and the number of English instruction types studied in college. Correlations between these, however, could very well occur because of a natural cause and effect factor. That is, respondents taking more English classes per week would have a better chance to experience a greater number of different instruction types and

would thus have a bigger pool of types to choose from than respondents who studied in less classes per week when responding to this variable. If this were the sole reason, we could expect items concerning years of English studied to also correlate strongly. Absence of those relations indicate that there are possibly other factors working in the relation. Revision of questions on preparation might bring them out.

There are rather strong relations with fluency after high school and college and this variable. Those who stated feeling more fluent also indicated that their school classes prepared them for their research, those who had poor fluency feelings gave opposite responses.

Others

Two other variables which didn't show conclusive relations were: type of school and importance of English. For high school, except for that discussed above in Age, this variable only correlated with instruction type in high school, those taking private schools listed more instruction types. College school type had no moderate or higher correlations whatsoever. This can be explained by the lopsided number of respondents in the survey who went to public instead of private schools. A more realistic mix of respondents from a larger sample might reveal relations that this survey couldn't.

Lastly, the importance of English items only correlated with themselves for the most part. The only exception was the relation with total time for all research. Longer times overseas related to a decrease in the feelings of importance of increasing English in high school, college and, somewhat weaker, graduate school. Why this trend occurred is not clear and needs further investigation.

CONCLUSION

The purpose of this paper was to investigate relations between the survey variables by analyzing correlations with the items from the questionnaire. This was successfully done and as reviewed in

the discussion, important relations were found to support the reliability of many of the questions. There were problems raised, however, with others and their review and revision is thought necessary. The authors will continue to improve the questionnaire until a reliable and valid instrument is devised.

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Notes

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