

THE ACQUISITION OF JAPANESE AS A SECOND LANGUAGE AND INTELLIGENCE¹

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I. INTRODUCTION

Whether intelligence has anything to do with language acquisition has been of interest to those who are involved in language teaching.

In one study, verbal intelligence measured by the Modern Language Aptitude Test (MLAT) was discovered to be a most powerful trait associated with achievement for learning French (Gardner and Lambert, 1959). In another study, intelligence measured by an IQ test was related to the learning of French in U.S. schools (Pimsler, Mosberg and Morrison, 1962), although the above finding was only true of low level intelligence. Also, intelligence was correlated with language learning which was taught by cognitive-code type methods when compared to audio-lingual methods (Chastain, 1969). A high correlation was also found with French for English-speaking Canadian students (Genesee, 1978).

On the other hand, one study showed that intelligence did not appear to be an important factor in the acquisition of foreign language (Lambert and Tucker, 1972). In another study, motivation of the learners was more influential (Gardner, 1959). Also, motivation and situation such as living in a bi-lingual culture were more powerful factors (Jones and

Lambert, 1967).

Thus, there has not been consistency in intelligence correlations with language acquisition.

Therefore, the present study was designed to investigate the relationship between Japanese language acquisition as a second language and intelligence. It was also hoped that the present study would provide some information concerning Japanese language teaching to the present investigator who was involved in teaching the language, since the results would have highly significant implications.

II. HYPOTHESIS

The hypothesis for the present study consisted of the following; Japanese language acquisition for English speaking college students would be correlated with their intelligence.

III. PROCEDURES

Measurement: The measurement of Japanese language acquisition was by the examination results tested at preliminary, mid-term, and final examinations for the class of elementary Japanese² at the University of Massachusetts. The course was taught and tested by Prof. Chisato Kitagawa of the Asian Study programs. The investigator was his graduate teaching assistant who was in charge of its honor's section. The three examinations consisted of grammar, listening comprehension, composition, translation, and the examinations were all graded in points.

The measurement of intelligence was by the Wechsler

Adult Intelligence Scale (WAIS). A WAIS was administered individually by the investigator during the Fall semester, 1974. The investigator was certified to administer the Wechsler Intelligence Scale by Springfield College.

The WAIS is one of the most popularly used intelligent tests in most psychological and psychiatric clinics in the United States. Its original edition was developed in 1939 by Dr. David Wechsler and his colleagues in Bellevue Psychiatric Hospital, New York. One of the most outstanding characteristics that the WAIS has is its diagnostic power with high reliability and validity (Wechsler, 1955). Another characteristic is the fact that it has subscales: *Verbal* and *Performance* together with *Full* scale.

The scale consists of eleven tests as follows:

Verbal Tests

Information
Comprehension
Arithmetic
Similarities
Digit Span
Vocabulary

Performance Tests

Digit Symbol
Picture Completion
Block Design
Picture Arrangement
Object Assembly

SAT (Scholastic Aptitude Test) was also used for the study in a hope that this measure would provide some information on the matter concerned here. The SAT scores were voluntarily reported by the subjects. The SAT was administered to most U.S. high school students who were candidates for colleges and universities. Therefore, the students were supposed to know the SAT scores.

Subjects: The subjects chosen for this investigation were 13 students (5 males and 8 females) at the University of Massachusetts, all taking Elementary Japanese #126. They

were carefully selected from those who had not known Japanese previously and had just started learning Japanese as a second language for the first time: Those who knew more than ABC Japanese were excluded from selection. The subjects ranged from 17 to 27 years old.

Limitations: The present attempt was limited as follows:

1) No attempt was made to control the subjects' previous familiarity or background of Japanese language, Japanese people and culture except the fact mentioned in the procedure. It was hard to control factors such as this, but this might have been a critical factor for this sort of study.

2) Japanese language acquisition was limited to the test results (mean), and intelligence was limited to the IQ measured by the WAIS.

3) It was also limited to the period of one semester.

IV. RESULTS

Table 1 shows the test results for Japanese language and the WAIS. For Japanese language acquisition, the mean of the three examinations was employed for comparison. For the I.Q., Full score and two subscores on the WAIS, that is, the Verbal and Performance scores, were used. And each of them was independently compared with the mean of its Japanese test results. Since all subjects except two knew their SAT (verbal and mathematics) scores, These scores were also compared with the mean of the Japanese test results.

A Pearsonian correlation was calculated among the variables mentioned above, since the purpose of the study

was to see the relationship between Japanese language acquisition and intelligence. The formula for the Pearsonian correlation, r , is as follows:

$$r = \frac{n\sum XY - \sum X \sum Y}{\sqrt{n\sum X^2 - (\sum X)^2} \sqrt{n\sum Y^2 - (\sum Y)^2}}$$

where X = the test result (mean) of Japanese language

Y = the WAIS score/SAT score

n = the number of the subjects

The results are shown in Table 2 and Figs. 1 - 5. None of the results of the present study indicated significant correlation between the two variables.

Table 1. IQ, SAT AND JAPANESE RESULTS

Sub- ject	WAIS			SAT		JAPANESE			
	(Verb)	(Perf)	(Full)	(Verb)	(Math)	(1)	(2)	(3)	(Mean)
1	130	125	130	-	-	95	98	100	98
2	109	107	109	-	-	40	85	45	57
3	127	107	120	520	530	95	95	98	96
4	145	132	142	670	770	70	100	65	78
5	128	119	126	400	300	70	88	68	75
6	144	127	139	660	650	92	100	99	97
7	144	125	138	720	600	73	100	85	86
8	137	123	133	800	780	70	93	60	74
9	132	124	130	730	540	40	85	55	60
10	127	117	124	480	510	90	95	75	87
11	142	129	139	600	672	96	100	98	98
12	133	120	129	570	440	96	95	80	90
13	126	114	122	500	525	90	85	75	83

Table 2. THE RESULTS OF THE CORRELATIONS

Variables	Correlation
Full vs Japanese	0.417
Verb vs Japanese	0.497
Perf vs Japanese	0.252
SAT	
Verb vs Japanese	0.163
Math vs Japanese	0.114

Abbreviation used in the tables are as follows; Verb: Verbal, Perf: Performance, Math: Mathematics.

Fig. 1

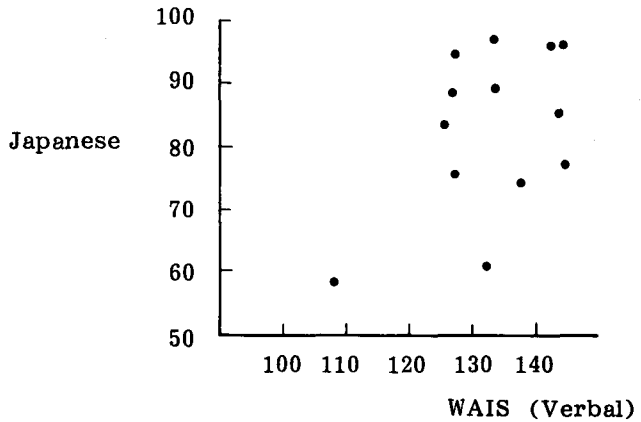


Fig. 2

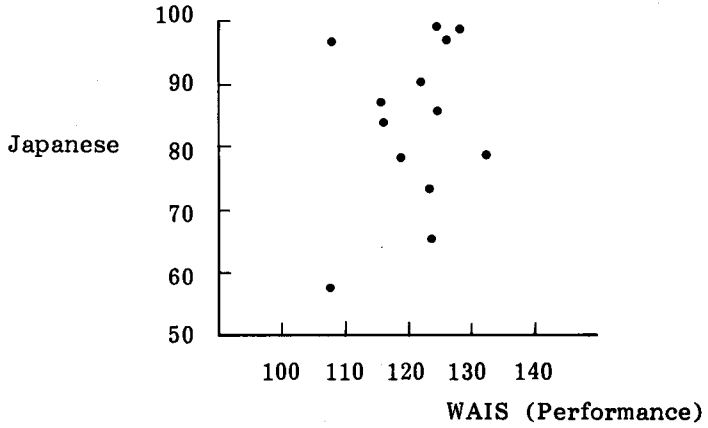


Fig. 3

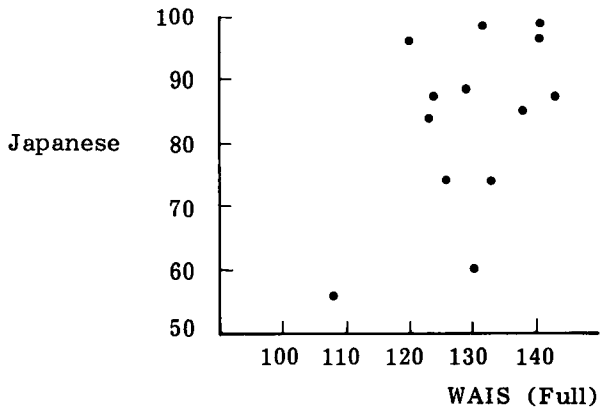


Fig. 4

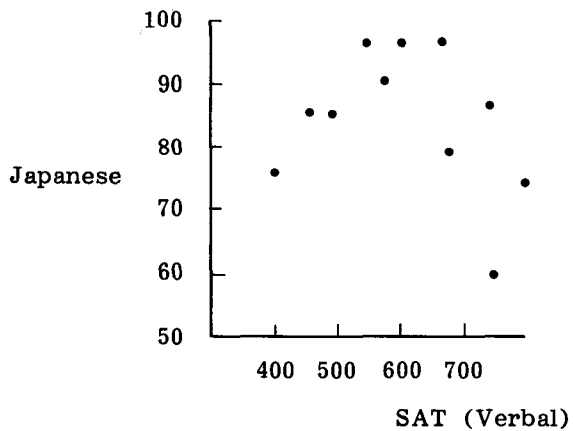
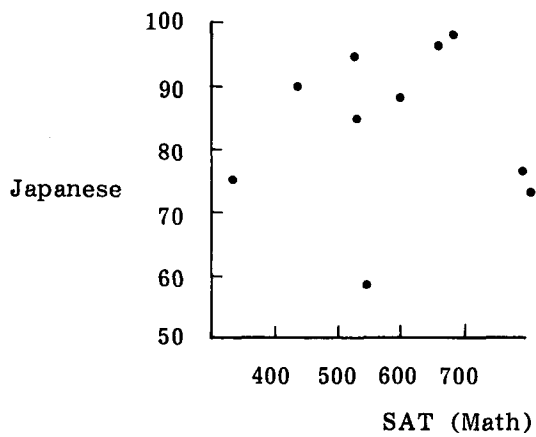


Fig. 5



V. DISCUSSION

As shown in the results (illustrated in Figures 1 - 5), the hypothesis of the present study was not successfully confirmed. In other words, Japanese language acquisition measured by the three examinations at preliminary, mid-term, and final was not correlated with intelligence measured by the WAIS. Why? To answer this question, it would be necessary to examine the following, since there seemed to be many factors which might have affected the results.

First, the number of subjects for the present study was a little bit small. To perform a safer investigation, the number of subjects should have been increased. In the present study, however, it was impossible because all the subjects that the investigator could sample in the class were used. This smallness of the sample might have influenced the results since there was not appropriate distribution in their variation in both the language test results and intelligence. That is, the present sample deviated slightly from what is known as a normal distribution: There was a tendency to rise up in the right-hand side of the frequencies except in the performance tests in the WAIS.

Fig. 6 Full score (WAIS).

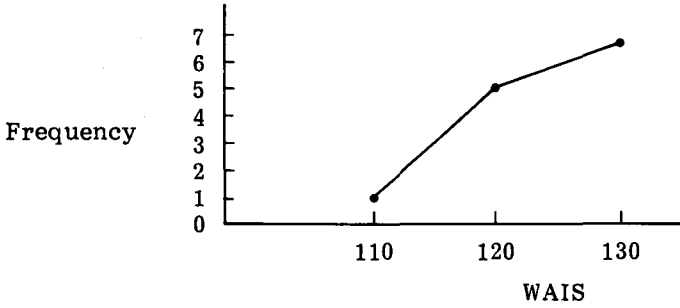


Fig. 7 Verbal (WAIS).

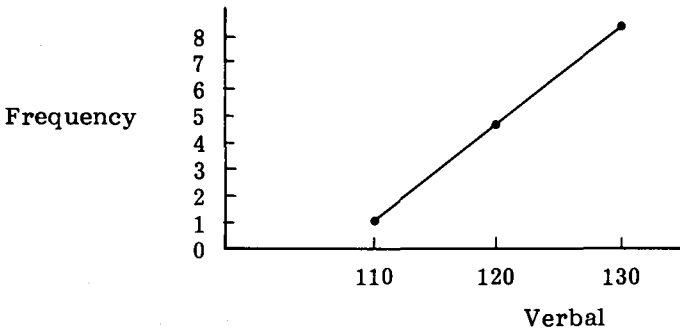


Fig. 8 Performance (WAIS).

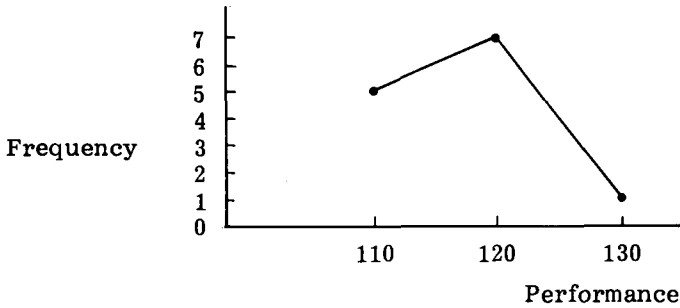


Fig. 9 Japanese test results (mean).

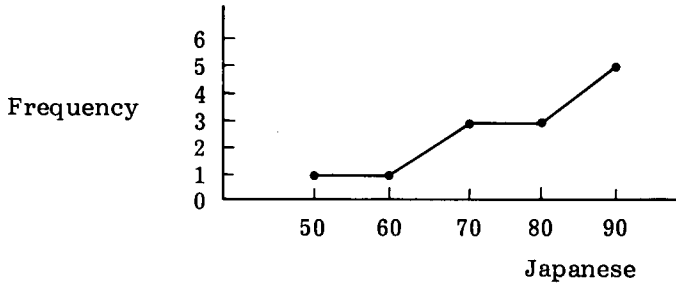


Fig. 10 SAT (Verbal).

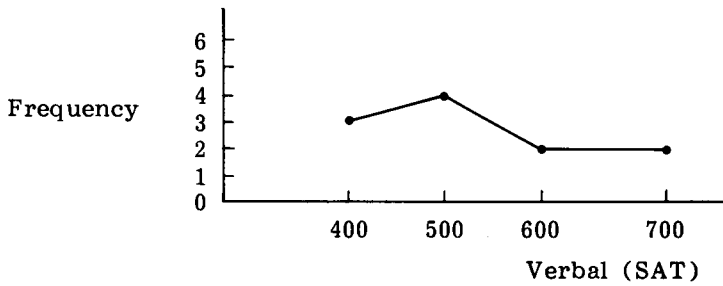
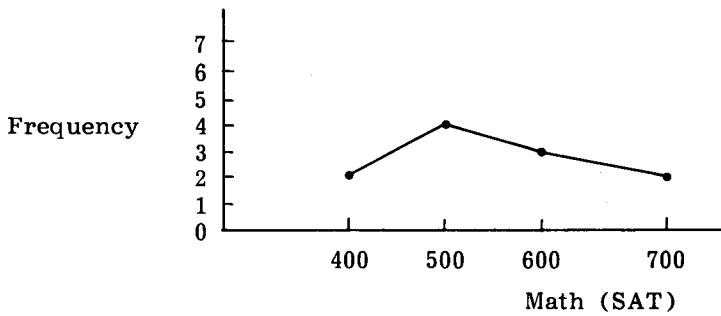


Fig. 11 SAT (Math).



The test results of Japanese language might have depended upon such factors as follows. How much and how seriously the subjects prepared for each test. For instance, there were 5 subjects (among 13 subjects) whose scores were not stabilized for each test:

Subject	The 1st	Mid-term	Final
No. 4	70	100	65
No. 7	73	100	85
No. 8	70	93	60
No. 10	90	95	75
No. 13	90	85	75

Therefore, these unstabilized results might be due to the fact that students differed at each test in their efforts. At the same time, this might lead us to question whether the test was well equipped to measure the degree of language acquisition, because the tests were arbitrarily made up not having been constructed with a statistically standardized procedure and hence the test results did not show what is known as a normal distribution.

After all, the present study might be supporting the other finding that there may be no direct relationship between language acquisition and intelligence (Lambert and Tucker, 1972). The subject's motivation or situation (environment) may be a better related factor (Gardner, 1959; Jones and Lambert, 1967; Feenstra, 1968). However, this factor was not included in the present study.

In order to examine the above, a follow-up study will be needed as follows:

- 1) Motivation needs to be investigated: This may be

done by interviewing the subjects to see why they want to learn Japanese language. On the other hand, a projective test that can assess the subjects' basic motivation will be very helpful. The Picture Arrangement Test (Tomkins, 1959) will be one possibility of this kind.

2) A case study of each subject would be useful, such that the subjects' interest and preparation for the class will be explored: For instance, does each subject like the class? How much time does each subject spend for the class and for the examinations?

3) A long-term follow-up study would be helpful to see the concerned relationship: The present results were only based on the findings of one semester period. Therefore, a year or two year-long follow-up of the language acquisition would be very helpful for assessing the concerned matter.

4) The number of subjects must be increased in order to infer safer and more reliable conclusions.

On the other hand, some factors language teachers might contribute in relation to students language acquisition should be examined in future studies; for instance, teaching skill or style might be an important factor.

In addition, which component of Japanese, i.e., listening comprehension, structure, reading comprehension, vocabulary or writing, is related to intelligence should be investigated.

NOTES

- 1) This paper was originally submitted as an independent study to the University of Massachusetts in 1974.
- 2) Course #126 Elementary Japanese in Asian Study Programs at the University of Massachusetts, Fall semester, 1974.

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