

Teachers' and Learners' Language Use in Japanese High School Classes

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日本の高等学校英語授業における教師と学習者の言語使用

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本研究の目的は、日本の高等学校英語授業における教師と学習者の L1（日本語）と L2（英語）使用に関する学習者の意識を調査することである。Nazary（2008）に基づき、公立の高等学校 3 学年・4 学科（普通・英語・工業・商業）に所属する英語学習者 684 名に質問紙調査を行った。因子分析を行った結果、1) 言語形式の説明、2) 内容理解、3) 教室内インタラクション、という 3 因子が抽出された。また、学習者の所属学年や学科による意識の変容を探るため、学年と学科の 2 要因の分散分析を行った。結果、普通科に関しては、学年の影響が顕著であり、1 学年に比べ、2、3 学年は、主に言語形式の説明とリーディングやリスニングの理解に L1 を好むことが分かった。異なる学科や学年が、授業での言語使用に関する学習者の意識に与える影響について考察し、日本の教室環境における言語使用のあるべき方向性を探るための一資料を提供する。

Key Words: EFL in Japan, Use of L1 in the L2 classroom, Beliefs

1. Introduction

Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT) reinforces a positive L2 use in classroom, stating that English classes at upper secondary schools should primarily be conducted in English (MEXT; 2009). The idea that MEXT intends is that teachers' use of English is to enrich English-language activities, which expects students to use English actively in the classroom. However, current school practice is still far from the MEXT's intention both in the use of English and in implementation of communicative activities. According to Benesse's study (2015), the average use of English was more than half of the class time at 46.2% for senior high school teachers, and 11.7% of teachers reported that they make little use of English in class. As possible reasons for not using English, the study points to concerns about teachers' L2 proficiency, anxiety about a decline in basic language knowledge such as grammar rules, anxiety about inadequate preparation for entrance examinations, and an inability to disregard the benefits of teaching in L1. It can be inferred that high school teachers find some benefits in their use of L1 in

L2 classroom and utilize it as their teaching tool regardless of the policy. However, the findings of Benesse's study (2015) are based on a questionnaire for teachers only, students' perceptions of the use of their L1 need to be examined. The issue of language choice is an integral part of course objectives and content and learners' level of understanding. This should make an investigation into learners' attitudes toward L1 and L2 use of great interest not only to researchers but to practitioners.

2. Literature Review

Studies have been carried out to examine language teachers and learners' attitudes towards L1 use in L2 classrooms (e.g., Liu, Ahn, Baek & Han, 2004; Shimizu, 2006; Nazary, 2008). They involve questionnaire surveys on the amount of teachers' use of L1 and its functions, focusing on teachers and learners' views in different teaching situations such as class settings, or learners' different proficiencies.

Liu et al. (2004) investigated high school English teachers' actual use of L1 and L2 and suggested "50% English use appears to be an appropriate and reasonable goal" (p. 633) in light of current Korean instructional practices, which are test-oriented, and teachers' and students' abilities. As for teachers' use of L1, the students believe that L1 is more effective than L2 for teaching grammar and vocabulary, while a majority of students believe the teachers' L2 to be helpful.

Students with different levels of language proficiency report different attitudes toward the functions of L1 in an EFL context (Shimizu, 2006; Nazary, 2008). These two studies examined college English learners' perceptions and reported that students of relatively high English proficiency tended to show a negative attitude toward teachers' use of L1, while students with lower proficiency favored the use of L1 to facilitate understanding of class content. Shimizu (2006) also reported students of English majors did not favor the use of L1 compared to those of non-English majors.

In one of the few studies looking at teachers' use of students' L1 and L2 in a Japanese high school setting, Shimura (2007) found that the teacher examined used much less L1 in Oral English classes than in Reading classes. He also reported that in Reading classes, the teacher used the L1 significantly more often for summarizing and explaining grammar, while in Oral English classes, the teacher used the L2 significantly more often for giving instructions. As the study suggests, different class content entails a different purpose and teaching style, which may cause students to have different degrees of expectation for levels of L1 and L2 use. However, the study did not consider the students' different curricula or grades. The students' grades and curricula should also be considered to gain a better understanding of the use of L1 in a Japanese high school.

The present case study intends to examine the possible causes of students' different responses to the use of their L1 through the perspective of students in different class situations. The author conducted a questionnaire survey to investigate students' beliefs and perceptions about the use of L1 and L2 in a high school context, keeping students' different curricula and grades in mind. With each grade, the level of the textbooks also increases;

which may affect teachers' decision of language choice and students' level of understanding. Thus, this study addresses the two research questions below:

RQ 1: Do students' grades influence their attitudes toward both teachers' and students' L1 and L2 use?

RQ 2: Do students' curricula influence their attitudes toward both teachers' and students' L1 and L2 use?

3. Method

3.1 Participants

The school examined is a public senior high school with four different curricula: general, English, technology, and business. It was designated as Super English High School in 2002 and "all-English" classes have been greatly encouraged in all curricula. Indeed, the school has taken a progressive approach to English education, making a successful result, for instance, in the number of students who passed higher grades such as in the EIKEN Test in Practical English Proficiency. Of 960 first-to third-year, 684 students from these four curricula participated in the study. The background information about the number and percentage of the participants examined in each grade and curriculum is shown in Table 1, followed by description of each curriculum from 3.1.1. to 3.1.4.

Table 1. *Study Participants (n = 684)*

Grade		General	English	Technology	Business	Total
1st	n	80	77	39	34	230
	%	34.78%	33.48%	16.96%	14.78%	
2nd	n	77	69	38	36	220
	%	35.00%	31.36%	17.27%	16.36%	
3rd	n	79	77	39	39	234
	%	33.76%	32.91%	16.67%	16.67%	

3.1.1 The General Curriculum

The general curriculum focuses intensely on students' academic achievement encouraging their intellectual curiosity. Especially for second and third graders, various elective courses are provided to let them effectively prepare for their respective college entrance examinations. Since the majority of students wish to go to national and public universities, the classes are arranged to provide a good balance of various subjects to meet students' practical needs. Specifically, applicants need to prepare for "Nijishiken," i.e., another round of tests administered by their chosen university after preliminary National Center Test for University Admission (NCT). It contains questions of more complex content that call for a deeper understanding than those of NCT, although the level of difficulty varies from college to college. On English, for example, students need to acquire a certain level of grammatical knowledge, vocabulary, and academic reading skills of rather complex texts.

In such a context, reading, writing, and translation proficiency is emphasized with little focus on learners' speaking skills. In fact, for many students, English is a compulsory, yet significant subject in moving up to the higher educational level.

Considering English class content in different grades, English classes for the first graders are conducted in all English in English Expression I to start the development of their communicative ability at an early stage. An assistant language teacher (ALT) and a Japanese teacher tend to the class, often providing pair or group work activities, focusing greatly on students' speaking skills. Even in Communication English I or English Expression I, which a Japanese teacher teaches alone, many speaking and listening activities are employed. Often the same teachers are in charge of first-grade classes both in the general and English curricula, focusing on communicative activities, although this situation does not apply for the second and third graders.

As for the second grade, different Japanese teachers often teach Communication English II and English Expression II, using authorized textbooks of a higher level than those of the first grade. Unlike in first-grade classes, ALTs are no longer present, and only the Japanese teachers in charge choose language activities. Regarding third-grade classes, only Japanese teachers teach Communication English III and English Expression II as they do in second grade. Supplementary materials are granted to develop learners' reading and writing skills, targeting entrance examinations. Students spend much of the class period reading a text, formulating answers and comparing their own to those provided by teachers.

3.1.2 The English Curriculum

English curriculum classes are organized to develop students' practical language skills through various activities, in addition to regular English classes with authorized textbooks. For instance, the first graders learn about a wide variety of cultures in Cross-Cultural Understanding classes, where they begin to discuss global issues. The second graders learn to form opinions of their own and understand those of others through listening and reading activities and practice expressing ideas to improve their speaking and writing skills in English Expression and Presentation classes. In particular, all third graders work on a policy debate, where they conduct thorough research, examining facts and collecting supporting data in order to make a strong case to fight against opponent team. Thus, the school provides the students in the curriculum with communicative courses in which their learning accumulates as they move up in grade.

The classes specific to the English curriculum stated above are very much communication-oriented and an ALT and a Japanese English teacher conduct classes in English. In other English classes with authorized textbooks, e.g., Communication English II and Communication English III for the second and third graders, Japanese English teachers seem to employ L1 to varying degrees, depending on the course content. They usually take up the role of translator, providing right answers in L1. Thus, language activities such as debates or discussions focusing on practical L2 use are emphasized, but language skills such as interpreting a written text in L1 are equally also focused especially for the third graders.

Students in the English curriculum show a variety of future goals. The number of

students who wish to go to national universities is relatively low; many plan to go to a private university instead. For them, English is often a key subject, especially if they wish to move onto a college of liberal arts. Others plan to go abroad and seek opportunities for practical language use. For many of the students in this curriculum, English is not a mere subject but is recognized as a communicative tool. They show interest in other languages, such as Russian, Chinese, Korean, and French, and learning one of these is in fact required for all second graders in the curriculum.

3.1.3 The Technology Curriculum

The technology curriculum provides classes for the students who show interest in science, mathematics and IT skills. Students build up IT skills or related hardware knowledge in courses such as Practical and Applied Research as they advance through grade. They learn robotics and work with micro-technology, in addition to the ordinary coursework for a high school diploma. Many plan to move on to four-years in college to follow science and technology-centered courses.

As is the case in the general curriculum, only first graders have English classes with an ALT. They are encouraged to use English in classes such as Communication English I and Technical Communication in English, trying to familiarize them with an English-speaking environment at an early stage. As for the instructor for the first graders, at the time of data collection, a Japanese teacher was also teaching Communication English II for the English curriculum second graders, where he exclusively used English to develop students' communication skills. As for second and third grade classes, Communication English II and English Expression II, and Communication English III and English Expression II respectively are taught by different teachers using authorized textbooks. Considering students' comprehension, the textbooks used are easier than those in the general and English curricula. Third graders are provided with supplements to prepare for entrance examinations.

3.1.4 The Business Curriculum

The business curriculum provides various classes related to commercial services such as Accounting, Marketing, Information Processing, Computer Graphics, amongst others. English is acknowledged as important, since it is one of the most widely used languages in the world of trade and commerce to expand businesses' presence worldwide. The idea is reflected in second-grade classes called Business English. Students learn business-related vocabulary and practice oral presentation skills. As for their future goals, some students wish to take jobs instead of going to college.

From first to third grade, the business curriculum uses the same authorized textbooks for Communication English I, Communication English II, Communication English III, and English Expression II as the technology curriculum. These classes are taught by different Japanese teachers, and supplementary materials focusing on reading skills are provided to third graders. As for the first graders, an ALT joins the classes of Communication English I. What distinguishes this curriculum from others is that the second graders are given the chance to practice English with the help of an ALT in Business English classes. Students

learn how to make their oral presentations effective. They not only learn phrases useful for the presentation, but also how to formulate ideas, e.g., to introduce a product efficiently. An ALT leads by example and evaluates students' presentations.

3.2 Instrument

Data were collected using a questionnaire adapted from a prior related study (Nazary, 2008). The questionnaire contained a total of 18 items, two of which (Q4 Japanese is useful for learning English, Q18 The teacher and students can use L1 to reduce anxiety) were added and translated into Japanese by the author and written in both English and Japanese to avoid misunderstanding. Q10 relates to teachers' L1 use in explaining "complex concepts." This was re-formulated to clarify that L1 explanation of "L2 complex grammar" is meant to thus avoid confusion over the interpretation of "concept." The items used for the questionnaire are listed in the appendix. Although the original questionnaire by Nazary (2008) adopted two-point scales (either agree or disagree), a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree) was applied for all the items in the questionnaire. Students were encouraged to add comments about the use of L1 in English classes either in Japanese or in English that allowed them to provide a deeper level of response that went beyond mere item selection. In addition to the students, all eleven Japanese English teachers of the school filled in the same questionnaire, as teachers' beliefs or policy on language use might affect their classes, causing different situations. Only students' response was analyzed statistically, since one teacher was in charge of different classes within different curricula, I found it difficult to capture the influence of each teacher accurately. Aside from this, comments by students and teachers were translated into English by the author, and the ones considered relevant to data interpretation were brought up in the discussion. The response rate of the students' questionnaire was 71.25%, since absentees and missing values were excluded from the study. The data were collected from the end of October to early November 2013 with the permission of the principal at the time. A questionnaire survey was conducted outside of class hours and an explanation of its content was provided by the author. Responses were anonymous and all students and teachers were informed of the study's purposes. They gave their consent to answer the survey questions.

Based on the results of the students' questionnaires, exploratory factor analysis was used to extract factors out of 18 items. Then, in order to investigate whether students' attitudes toward L1 and L2 use differed across grades and curricula, a two-way analysis of variance (*ANOVA*) was employed. Curriculum and grade were independent variables, factor scores calculated by factor analysis were dependent variables. As stated, teachers' and students' comments on the use of L1 in English classrooms were used as part of the data in the discussion section below. For statistical analysis, IBM SPSS Statistics v. 22 Advanced Statistics and statistical analysis software HAD.15 developed by Shimizu (2016) were used.

4. Results

4.1 Three Factors in Students' Attitudes toward L1 and L2 Use

Based on the 18-item questionnaires, exploratory factor analysis, the least-squares method, and Promax-rotation were employed. Of a total of 18 items, six that do not contribute to any factor were excluded. The number of factors to be extracted was based on minimum eigenvalues of 1.0, and each factor contains individual items with a minimum loading of about .40. As a result of follow-up factor analysis, three factors above eigenvalue 1 were obtained, as shown in Table 2. Table 2 indicates items for each factor. Cronbach's alpha ranged from .72 to .82 indicating reasonably high internal consistency.

Factor 1 is labeled "Explanation of Linguistic Forms." It involves teachers' language use in explaining L2 basic grammar (Q6), differences in the use of L1 and L2 rules (Q8), L2 complex grammar (Q10), and new words (Q5). EFL learners often have difficulty learning L2 linguistic structures such as words, points of grammar, or usage, the rules or patterns that underlie L2 word or sentence structures. Factor 1 specifically refers to teachers' assistance for form-focused instruction by using the common L1.

Table 2. *Factor Matrix of Students' Attitudes towards L1 and L2 Use in English Classes*

Items		Factor		
		1	2	3
Q6	Teacher L1 use: explaining L2 basic grammar	.89	.00	-.01
Q8	Teacher L1 use: explaining differences in the use of L1 and L2 rules	.73	.06	.06
Q10	Teacher L1 use: explaining L2 complex grammar	.65	-.06	.26
Q5	Teacher L1 use: explaining new words	.52	.04	.30
Q16	Teacher & student L1 use: checking listening comprehension	-.23	.83	.25
Q15	Student L1 use: translating as a test	.27	.73	-.28
Q17	Teacher & student L1 use: checking reading comprehension	-.06	.73	.30
Q13	Student L1 use: translating L2 words into L1 to show comprehension	.31	.59	-.20
Q11	Student L1 use: talking in pairs and groups	.11	-.06	.70
Q9	Teacher L1: giving instructions	.00	-.07	.69
Q12	Student L1: asking teachers questions	.17	.14	.42
Q18	Teacher & student L1 use: reducing anxiety	.18	.24	.40
$\alpha =$		.82	.81	.72

Factor 2, named "Understanding of Content," involves both teachers' and students' language use for listening (Q16) and reading (Q17) comprehension. Listening and reading are known as receptive skills, yet they impose active involvement on the learners rather than passively absorbing content. For instance, making predictions about content by building connections between your prior knowledge and the text is called for to work with either written material or spoken word. (cf. Izumi, 2016). Factor 2 also relates students' use

of L1 for translation as a test (Q15) and L1 translation of L2 words (Q13). In preparation for descriptive-type examinations where a relatively long text is presented, teachers and students are expected to use Japanese translation to grasp the meaning accurately. Unlike Factor 1, which focuses on the teachers' use of L1 for their active involvement to provide an explicit explanation of the language forms, Factor 2 primarily relates to both teachers' and students' language use to extract meaning from written and aural information.

Factor 3 was labeled "Classroom Interaction," since it involves students' language use in pairs or groups (Q11), teachers' giving instructions (Q9), students' asking questions to teachers (Q12), and teachers' and students' use of L1 to reduce anxiety (Q18). These questions largely involve students' L1 use in participating in language activities, with more focus on speaking skills. Though L2 output from learners should be encouraged more, in the actual classrooms, learners often fail to participate in such activities and resort to L1 in interacting with their teachers and other learners, particularly for fear of not understanding each other. Factor 3 also involves teachers' L1 use clarifying meanings in explaining activities, showing task procedures for managing a class. In addition, creating a warm and non-threatening classroom by using a shared L1 might reduce the learners' anxiety levels (cf. Bruen and Kelly, 2014) and is an important factor to keep the class engaged.

Thus, based on three distinctive features - Factor 1, "explanation of linguistic forms," Factor 2, "understanding of content," and Factor 3, "classroom interaction" - students' responses regarding L1 and L2 use in a Japanese high school were examined.

4.2 Students' Responses for Factor 1: "Explanation of Linguistic Forms"

Table 3 shows the result of the two-way ANOVA with grade and curriculum as independent variables and factor scores of Factor 1 as dependent variables. This analysis revealed the main effects for grade, $F(2, 672)=9.65$, $p=.00$, $\eta^2=.03$, and for curriculum, $F(3, 672)=38.05$, $p=.00$, $\eta^2=.15$. The effect size for grade was small, while the effect size for curriculum was large. A statistically significant interaction of grade and curriculum was found, and the effect size was medium, $F(6, 672)=9.19$, $p=.00$, $\eta^2=.08$. Table 4 shows the descriptive statistics of grade and curriculum for Factor 1.

Table 3. Results of Two-Way ANOVA on Factor 1

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Grade	12.89	2	6.45	9.65	.00	.03
Curriculum	76.28	3	25.43	38.05	.00	.15
Grade $\times$ Curriculum	36.84	6	6.14	9.19	.00	.08
Error	449.11	672	0.67			

Table 4. Descriptive Statistics for Grade and Curriculum on Factor 1

Grade	<i>N</i>	<i>M</i>	<i>SD</i>
First	230	-0.07	0.91
Second	220	0.28	0.81
Third	234	0.18	0.99
General	236	-0.13	0.91
English	223	-0.31	0.77
Technology	116	0.48	1.00
Business	109	0.48	0.79

As a significant difference in the main effect of grade was seen, multiple comparison (Bonferroni correction) was conducted. A significant difference was found between the first and the second grade ($p=.00$) and between the first and the third grade ($p=.00$). No significant difference was found between the second and the third grade ($p=.21$).

Similarly, as a significant difference was found on the main effect of curriculum, multiple comparison (Bonferroni correction) was conducted. The mean score of the English curriculum was the lowest, and there was a significant difference between the English and business curricula ($p=.00$) and the English and technology curricula ($p=.00$). The mean level of the general curriculum was higher than that of the English curriculum, and a significant difference was also found between the English and the general curricula ($p=.04$). No significant difference was found between the technology and the business curricula ($p=.99$).

Next, to clarify the interactive effects of the grade and the curriculum on Factor 1, the results of grade $\times$ curriculum interaction were examined; the results are presented in Table 5. As for the effects of grade on different curricula, a significant interaction was observed only in the general curriculum, and the size of effect was medium, $F(2, 672)=39.97$, $p=.00$, $\eta^2=.11$. The results of multiple comparison (Bonferroni correction) confirmed that there was a significant difference between the first and second year ($p=.00$), and between the first and third year ($p=.00$), and the mean score for the first year was lowest in the general curriculum.

Table 5. Results of Grade $\times$ Curriculum Interaction on Factor 1

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P</i>	η^2
Grade $\times$ General	53.42	2	26.71	39.97	.00	.11
Grade $\times$ English	3.68	2	1.84	2.75	.06	.01
Grade $\times$ Technology	1.99	2	1.00	1.49	.23	.00
Grade $\times$ Business	1.20	2	0.60	0.90	.41	.00
Curriculum $\times$ First	57.23	3	19.08	28.55	.00	.11
Curriculum $\times$ Second	19.52	3	6.51	9.74	.00	.04
Curriculum $\times$ Third	35.42	3	11.81	17.67	.00	.07
Error	449.11	672	0.67			

On the main effects of curriculum on the different grades, there was a significant interaction with all three grades ($p=.00$), as seen in Table 5. A significant interaction was found in the first year with a medium effect size, $F(3, 672)=28.55$, $p=.00$, $\eta^2=.11$, and in the second year with a small effect size, $F(3, 672)=9.74$, $p=.00$, $\eta^2=.04$. In the third year there was a medium effect size, $F(3, 672)=17.67$, $p=.00$, $\eta^2=.07$.

A closer examination of the effects of curriculum on the first grade, the results of multiple comparison (Bonferroni correction) showed that the mean score of the general curriculum was the lowest, and that of the English curriculum was the next lowest. A statistically significant difference was found between the two ($p=.00$). There were no significant differences in the mean scores between the technology and the business ($p=.19$), and the business curriculum reported the highest levels of scores of all the curricula.

As for the effects of curriculum on the second grade, the mean score of the second grade in the English curriculum was the lowest, and that of the general curriculum was the next lowest. Statistical significance was not found between the general and the English curricula ($p=.20$). The technology curriculum showed the highest mean score followed by the business curriculum, and no significant difference was found between the two ($p=.75$).

Where the effects of curriculum on the third grade were concerned, the mean score was the lowest in English curriculum, as was also observed in the second grade. However, the general curriculum showed a different trend: The mean level of the third graders in the general curriculum was relatively higher than that of the first and second graders. There were no significant differences between the general and the technology curricula ($p=.59$), the general and the business ($p=.89$) curricula, or the business curriculum and the technology curriculum ($p=.64$).

4.3 Students' Responses for Factor 2: "Understanding of Content"

Table 6 shows the result of two-way ANOVA with grade and curriculum on Factor 2. This test's primary effects were for grade, $F(2, 672)=12.21$, $p=.00$, $\eta^2=.04$, and for curriculum, $F(3, 672)=43.06$, $p=.00$, $\eta^2=.16$. The effect size for grade was small, while the size for curriculum was large. A statistically significant interaction between grade and curriculum was found, and the effect size was small, $F(6, 672)=6.17$, $p=.00$, $\eta^2=.05$. Table 7 shows the descriptive statistics of grade and curriculum for Factor 2.

Table 6. *Results of Two-Way ANOVA on Factor 2*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Grade	16.07	2	8.04	12.21	.00	.04
Curriculum	85.01	3	28.34	43.06	.00	.16
Grade $\times$ Curriculum	24.35	6	4.06	6.17	.00	.05
Error	442.21	672	0.66			

Table 7. *Descriptive Statistics of Grade and Curriculum on Factor 2*

Grade	<i>N</i>	<i>M</i>	<i>SD</i>
First	230	-0.11	0.93
Second	220	0.23	0.85
Third	234	0.25	0.91
General	236	-0.11	0.89
English	223	-0.37	0.76
Technology	116	0.47	0.99
Business	109	0.50	0.81

As a significant difference was found on the main effect of grade, multiple comparison (Bonferroni correction) was conducted. A statistically significant difference was seen in all combinations ($p=.00$) except the second and third ($p=.88$). The mean score of the first grade was the lowest of all the grades.

The result of multiple comparison (Bonferroni correction) on the effects of curriculum on Factor 2 showed a trend similar to that seen in the case of Factor 1. The mean score was lowest in English, and the second lowest was in general. A significant difference was found between the two ($p=.00$). A significant difference was found between the general and the technology ($p=.00$) and the general and the business curricula ($p=.00$). The business curriculum reported the highest mean score, and no significant difference was found between the business and the technology curricula ($p=.85$).

The results of grade $\times$ curriculum interaction on Factor 2 are given in Table 8. On the main effects of grade on curricula, a significant interaction was observed in the general curriculum, and the effect size was medium, $F(2, 672)=34.66$, $p=.00$, $\eta^2=.09$. The results of a subsequent multiple comparison (Bonferroni correction) showed the trend similar to that seen in Factor 1. There was a significant difference between the first and the second year ($p=.00$), and between the first and the third year ($p=.00$). The mean score of the first year in the English curriculum was again the lowest, indicating a negative attitude toward L1 use. Interestingly, a nearly significant interaction was observed in the technology curriculum, and the effect size was small, $F(2, 672)=3.35$, $p=.04$, $\eta^2=.01$. The results of a multiple comparison revealed a statistically significant difference only between the first and the second graders ($p=.01$) of the technology curriculum.

Table 8. *Results of Grade × Curriculum Interaction on Factor 2*

Source		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Grade	× General	45.62	2	22.81	34.66	.00	.09
Grade	× English	1.85	2	0.93	1.41	.25	.00
Grade	× Technology	4.41	2	2.20	3.35	.04	.01
Grade	× Business	0.83	2	0.42	0.63	.53	.00
Curriculum	× First	53.00	3	17.67	26.85	.00	.11
Curriculum	× Second	29.01	3	9.67	14.70	.00	.06
Curriculum	× Third	25.89	3	8.63	13.12	.00	.06
Error		442.21	672	0.66			

Next, on the main effects of curriculum on grade, there was a significant interaction in all three grades ($p=.00$), and the effect size was medium for all grades, as illustrated in Table 8. A significant interaction was found between curriculum and the first year, $F(3, 672)=26.85$, $p=.00$, $\eta^2=.11$; and the second year, $F(3, 672)=14.70$, $p=.00$, $\eta^2=.06$; and the third year, $F(3, 672)=13.12$, $p=.00$, $\eta^2=.06$.

A close examination of the effects of curriculum on the first grade, the results of multiple comparison (Bonferroni correction) showed that the mean score of the general curriculum was the lowest, and the English curriculum was the next lowest; no significant difference was found between the two ($p=.10$). There was also no significant difference between the technology and the business curricula ($p=.10$), and the mean score of the business curriculum was again the highest, indicating a greater preference of L1 use. Thus, the first graders showed a similar trend to that in Factor 1.

Looking at the effects of curriculum on the second grade, we see that unlike in the first year, the mean score of the English curriculum was the lowest, and the second lowest was the general curriculum. A significant difference was found between the two ($p=.00$). The mean level of the technology curriculum was the highest. No significant difference was found between the general and the business curricula ($p=.45$), or the technology and the business curricula ($p=.26$).

On the effects of curriculum on the third grade, the mean score of the English curriculum was the lowest. A statistically significant difference was found between the general and the English ($p=.00$), the English and technology ($p=.00$), and the English and business ($p=.00$), and the general and technology ($p=.04$), and the general and business ($p=.04$) curricula. No significant difference was found between the business and technology curricula ($p=.90$).

4.4 Students' Responses for Factor 3: "Classroom Interaction"

Table 9 shows the result of the two-way ANOVA with grade and curriculum as independent variables and factor scores of Factor 3 as dependent variables. This test revealed its main effects for grade, $F(2, 672)=6.37$, $p=.00$, $\eta^2=.02$, and for curriculum, $F(3, 672)=66.18$, $p=.00$, $\eta^2=.23$. The effect size for grade was small, while the effect size for

curriculum was large. A statistically significant interaction of grade and curriculum was found, and the effect size was small, $F(6, 672)=2.72$, $p=.01$, $\eta^2=.02$. Table 10 illustrates the descriptive statistics of grade and curriculum for Factor 3.

Table 9. *Results of Two-Way ANOVA on Factor 3*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Grade	7.52	2	3.76	6.37	.00	.02
Curriculum	117.32	3	39.11	66.18	.00	.23
Grade $\times$ Curriculum	9.64	6	1.61	2.72	.01	.02
Error	397.08	672	0.59			

Table 10. *Descriptive Statistics of Grade and Curriculum on Factor 3*

Grade	<i>N</i>	<i>M</i>	<i>SD</i>
First	230	-0.01	0.89
Second	220	0.21	0.81
Third	234	0.25	0.92
General	236	-0.08	0.82
English	223	-0.44	0.73
Technology	116	0.68	0.89
Business	109	0.43	0.70

As the main effect of grade revealed a significant difference, multiple comparison (Bonferroni correction) was conducted and it revealed a trend to that seen with Factor 1 and Factor 2. A significant difference was found between the first and the second grade ($p=.00$) and between the first and the third grade ($p=.01$). The mean score of the first year was the lowest of three grades. No significant difference was found between the second and third grades ($p=.61$).

The result of multiple comparison (Bonferroni correction) on the effects of curriculum for Factor 3 showed a trend similar to that seen in Factor 1 and Factor 2, except that there was a statistically significant difference between the technology and business curricula ($p=.01$). The mean level of the technology curriculum was the highest, indicating a greater preference for L1, while that of the English curriculum was the lowest, indicating a negative attitude toward L1 use.

Table 11 shows the results of grade and curriculum interaction on Factor 3. On the effects of grade on different curricula, a significant interaction was observed in the general curriculum, and the effect size was small, $F(2, 672)=13.80$, $p=.00$, $\eta^2=.04$. The results of multiple comparison (Bonferroni correction) confirmed a trend similar to that reported for Factor 1 and Factor 2. The mean score of the first graders was the lowest, and there was a significant difference between the first and second grades ($p=.00$) and between the first and

the third ($p=.00$). No significant difference was found between the second and third grades in the general curriculum ($p=.76$). A statistically significant interaction was also observed in the technology curriculum with a small effect, $F(2, 672)=3.16$, $p=.04$, $\eta^2=.01$. The result of multiple comparison (Bonferroni correction) indicated that there was a significant difference between the first and the third year ($p=.04$); the mean level of the third year was the highest. No significant difference was found between the first and second years ($p=.26$) or between the second and the third ($p=.34$).

Table 11. *Results of Grade $\times$ Curriculum Interaction on Factor 3*

	Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Grade	$\times$ General	16.31	2	8.16	13.80	.00	.04
Grade	$\times$ English	0.81	2	0.41	0.69	.50	.00
Grade	$\times$ Technology	3.73	2	1.87	3.16	.04	.01
Grade	$\times$ Business	0.35	2	0.18	0.30	.74	.00
Curriculum	$\times$ First	43.95	3	14.65	24.79	.00	.10
Curriculum	$\times$ Second	31.04	3	10.35	17.51	.00	.07
Curriculum	$\times$ Third	51.66	3	17.22	29.14	.00	.12
Error		397.08	672	0.59			

On the main effects of curriculum on the different grades, a statistically significant interaction was found for all three ($p=.00$), as seen in Table 11. A significant interaction was found between curriculum and the first year, $F(3, 672)=24.79$, $p=.00$, $\eta^2=.10$. A significant interaction was also found between curriculum and the second year, $F(3, 672)=17.51$, $p=.00$, $\eta^2=.07$, and curriculum and the third year, $F(3, 672)=29.14$, $p=.00$, $\eta^2=.12$.

On a closer examination of the effects of curriculum on the first grade, the results of multiple comparison (Bonferroni correction) showed that the mean score of the English was the lowest and the general was the next lowest, and no significant difference was found between the two curricula ($p=1.00$). There was no significant difference between the technology and business curricula ($p=1.00$), and the first graders in the business curriculum showed the highest mean score, as reported on Factor 1 and Factor 2.

As for the effects of curriculum on the second grade, the results of multiple comparison (Bonferroni correction) showed that the mean score of the English curriculum was the lowest, indicating that that curriculum was the most negative about L1 use. The mean score of the general curriculum was higher than that of the English curriculum, and a significant difference was observed between the two ($p=.00$). There was no significant difference between the general and business curricula ($p=.15$) or between the technology and business curricula ($p=.08$).

On the effects of curriculum on the third grade, the results of multiple comparison (Bonferroni correction) found a significant difference in all combinations of the curriculum; between the English and technology ($p=.00$), the English and business ($p=.00$), the general

and technology ($p=.00$), the general and English ($p=.00$), the general and business ($p=.03$) and the technology and business curricula ($p=.03$). The English curriculum indicated the most negative attitude to L1 use, followed by the general, business, and technology curricula in order of lowest to highest mean score.

5. Discussion

5.1 Grade and Curriculum Effects in a Context of “Explanation of Linguistic Forms”

With respect to teachers' use of L1 in explaining linguistic forms (e.g., word usage, grammatical rules, etc.), the effect of the grade was seen only in the general curriculum, though the effect of the curriculum was seen in all grades. The first graders in the general curriculum showed the most negative attitude toward teachers' L1 use, while both second and third graders in that curriculum responded to it positively. Students in the English curriculum were negative about teachers' explanatory use of L1 from the first to the third year. Similarly, grade seemed to have little effect within the technology and business curricula; students were favorable toward teachers' L1 use in all three grades.

One explanation for general curriculum students' differing attitudes is the possible influence of teachers' different teaching styles, affected by their beliefs or policy about language use. For instance, the teacher in charge of the first grade general curriculum classes was a strong advocate of an L2-only approach, which became clear from his response to the questionnaire, on which he appointed the lowest scale (strongly disagree) to all 18 items. With great fluency and proficiency, the teacher conducts his classes in English only, which might have affected the first graders' negative attitude toward teachers' L1 use. In contrast, the teacher for the general curriculum's second graders showed a more flexible response to the teacher's use of L1. He thinks it effective to use L1, especially in teaching grammar. He commented: “It's better to use Japanese to simply explain the language structure. Students understand better taught in Japanese.” As such, a difference in teachers' perceptions of L1 use could be considered a cause for the difference in attitude between the general curriculum's first and second graders.

The second-grade students in the English curriculum did not reject L1 use, but favored it to the same degree as the second-grade students in the general curriculum. This implies the need of the teachers' L1 explanations of new words or L2 grammar for the English curriculum students, since solid grammatical knowledge and vocabulary helps learners prepare well for language activities such as presentations or speeches.

As for the third graders, the difference between the general and English curricula was large. Unlike the students in the English curriculum, those in the general favored the teachers' L1 use to the same degree as those in the technology and business curricula. This can be accounted for the difference in how learners consider the subject of English. As stated in the participants section, a majority of the students in the general curriculum is aiming for national universities. Clear and accurate understanding of word usage, grammatical rules or constructions, and idiomatic expressions is necessary for a high score on the test. Therefore, general curriculum students probably appreciated teachers'

explanatory use of L1, for they believe that L1 is more effective than L2 for teaching grammar and vocabulary (cf., Liu et al., 2004).

By way of contrast, the English curriculum students were unfavorably disposed to the teachers' use of L1 and showed a high tolerance for ambiguity. Despite increases in difficulty in the higher grades, the third graders did not favor L1 use by the teachers. The students' increased proficiency acquired from various language activities aimed to develop their L2 skills can be responsible for this response. Their L2 proficiency was probably high enough not to need teachers' L1 support, and this can also account for why the second graders in the English curriculum, who were not proficient enough, wanted the teachers to use L1 to the same degree as the second graders in the general curriculum. However, it cannot be determined from this study whether students' proficiency reflected different attitudes towards the use of English, or whether this result merely occurred by chance. Yet, it seemed that students in the English curriculum prefer to acquire the language by using it themselves, instead of just having it explained to them, as one student writes, "Teacher's use of unfamiliar words in English will help increase our vocabulary."

Students in both the technology and business curricula consistently responded far more positively toward teachers' use of L1 in explaining L2 linguistic forms. For these students, teachers' explanatory use of L1 was necessary to follow the lessons. As stated in 3.1.3., the teacher who was responsible for the first graders in the technology curriculum was a strong supporter of an L2-only policy. However, the exclusive use of L2 in teaching grammar or vocabulary does not seem to help students' learning. Typical responses from such students were "I cannot understand difficult grammar if teachers do not use Japanese," or "English class can never be successful without Japanese when we learn grammar or a new word." Figure 1 illustrates the responses of students from all grades and curricula regarding Factor 1. The vertical line shows the mean scores of factor loadings.

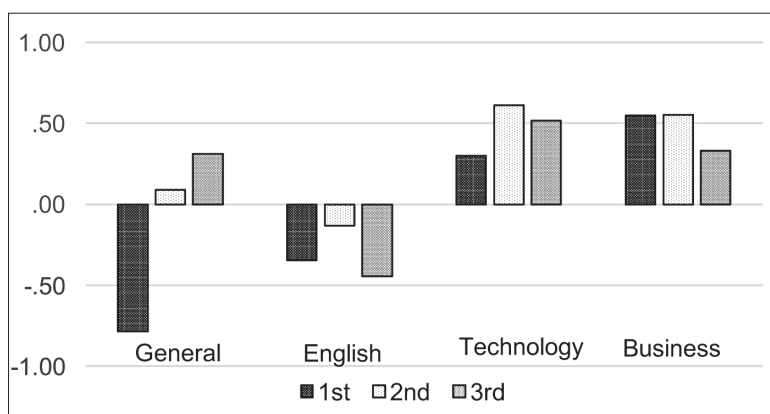


Figure 1. Mean scores of students' responses on Factor 1 by grade and curriculum

5.2 Grade and Curriculum Effects in a Context of “Understanding of Content”

In regard to teachers' and students' listening and reading comprehension and the use of L1 for translation, general curriculum first graders showed the most negative responses, and the effect of grade within a curriculum was most salient between the first and second graders. As stated in 5.1., negative attitudes in general curriculum first graders can be explained by the teacher's practice, grounded in his L2-only policy. A relatively large difference also surfaced between the first and the second graders within the technology curriculum, which can also be accounted for by the teacher's perception about language choice. The teacher teaching the first graders was also a strong supporter of L2 use, as read in his comments, e.g., “A large amount of L2 input and activities done in L2 can only accelerate the learners' L2 learning.”

Though the curriculum proved significant within all grades, it is noteworthy that the second graders in the general curriculum favored L1 use to a similar degree as the second graders in the technology and the business curricula. The third graders in the general curriculum did not show equal preference of L1 to third graders in the technology and the business curricula; however, they still responded positively to L1 use, unlike the English curriculum third graders.

With more complex second- and third-grade textbooks containing longer passages, students' preference for the use of L1 in the general, technology, and business curricula was probably to be expected. According to Izumi (2016), reading and listening activities require learners to develop a set of strategies depending on text type, topic, context, and purpose of each activity. Izumi (2016) states that a reader or listener actually employ both “top-down” and “bottom-up” approaches in a complementary manner, utilizing a so-called “interactive-compensatory model.” A lack of grammatical knowledge or word recognition in interpreting an L2 text could then be compensated by a reliance on L1 background knowledge. According to this view, learners can handle reading materials with a higher cognitive load if they have sufficient L1 background knowledge at their disposal. This might explain second and third graders' strong preference for L1 for reading and listening comprehension.

Comments from general curriculum students illustrate that they employ the translation strategy and utilize their L1 as an important language resource, saying: “Translation helps us to understand the text,” or “We understand the content better by referring to Japanese.” Liao (2006) reported that although Taiwanese college English learners generally recognized the role of translation, foreign language majors and more proficient learners expressed negative beliefs about translation and made limited use of it, compared to their non-foreign major and less proficient peers. Liao's (2006) study seems to support the findings of the present study in that students in the English curriculum were not affected by their grade and showed a continuously negative stance on the use of L1. As noted in 3.1.2., students of the curriculum show a variety of future goals and the success in the college entrance examinations are not necessarily their major concern. Furthermore, the focus on communication within their curriculum spans three years; this might have given these students a high tolerance for ambiguity in dealing with a new language. English curriculum

students tended to value English input from both teachers and classmates, as seen in such comments as “I feel my English improved because I listen and speak English a lot in class,” or “The English curriculum will become meaningless if Japanese is used in class.”

The technology and business curricula presented a similar trend, as seen in Factor 1: their L1 preferences were greater than in other curricula and their attitudes were not greatly affected by grade, apart from technology curriculum first graders who showed less preference for L1. The second graders of the business curriculum favored L1 despite the fact that classes such as Business English intended to develop the learners’ practical command of English. Typical responses from these students were “I lose motivation if forced to speak English when I do not understand,” or “I don’t understand what teachers are saying. It is too fast to understand.” As Nazary (2008) states, it appears that L1 is most useful at beginning and low levels. Most negative comments came from technology students. A majority of them were students whose primary concern was making things rather than having contact with people from different cultures. Students’ differing views of L2 influenced their motivation and may have affected their view of classroom language use. Figure 2 illustrates the students’ responses from all grades and curricula regarding Factor 2.

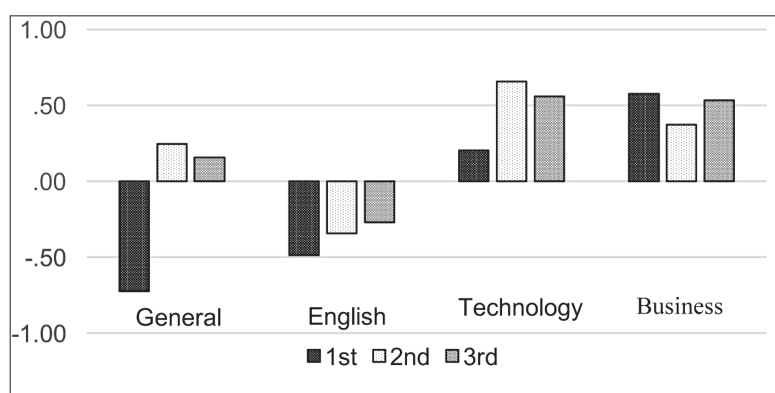


Figure 2. Mean scores of student responses on Factor 2 by grade and curriculum

5.3 Grade and Curriculum Effects in the Context of “Classroom Interaction”

With respect to teachers’ and students’ language use in classroom interaction, the first graders except for those in business curriculum were most negative overall about the use of L1. In general, language activities involving interaction among learners and between learners and teachers were often employed in communication-oriented classes. In such student-centered classes, teachers’ explanatory use of L1 is kept to a minimum and the students’ active involvement in pairs or groups is encouraged. In addition, classes with an ALT are offered to all first graders regardless of curriculum, which could also cause first graders not to support the use of L1.

The effect of grade within a curriculum was observed in the general and technology curricula. As stated earlier, the first graders in the general and technology curricula were taught by the teachers who strongly supported an L2-only policy, which could

account for the significant difference between grades within these two curricula. Above all, the third graders in the technology curriculum favored the use of L1 most among all participants. Understanding teachers' instructions and communicating in English in pairs or groups was a difficult and often frustrating process for many learners, particularly if they lacked confidence. Comments from these students echo these: "Teachers should consider students' level of proficiency," "Instructions should not be done in English, for it is very confusing." One student states that teachers should use Japanese to reduce anxiety if they know students do not understand English instructions, which demonstrates the effectiveness of L1 as an affective pattern.

In contrast, the English curriculum students consistently showed a negative attitude toward the use of L1. Due to subjects provided uniquely in this curriculum, students learn presentation or debate skills with the help of ALT throughout three years. Within this process, English serves as a vehicle for creating dialogue or discussion. In these activities, a Japanese English teacher often serves as a role model for a "non-native English speaker," which seems to stimulate learning. Therefore, in these cases, students even criticize teachers for not using enough English, as found in comments like "Teachers should use English more so that we can use English, too." Alternatively, referring to a teacher's incorrect English word choices or bad pronunciation, they commented: "It depends on teachers' English proficiency whether an all-English class becomes effective or not." Other students commented: "I felt anxious at first, but expressing opinions and asking in English helped increase my English skills." These examples show that students in the English curriculum have high expectations for truly communicative language lessons where they can actively get involved in interactive communication with either teachers or peers, without being afraid to make mistakes. These students seemed to appreciate maximum use of L2, perceiving advantages to learning English by using it.

The business curriculum students did not differ per grade and responded positively to L1 use, although they had opportunities to use English in business-related coursework provided especially for the second graders.

In contrast, general and technology curriculum students did not have the opportunity to learn presentation or debate skills in their second and third years. With fewer communicative activities provided, students are simply unable to practice speaking English, unless Japanese English teachers intend to do so. Their greatest concern seems instead to efficiently learn and absorb complicated content such as abstract concepts or complex grammatical features, either from teachers or from the textbook. Students appreciate teachers' use of L1 for clearer instructions and this deductive teaching approach can work to save a lot of guesswork where efficiency is a concern. Figure 3 illustrates the responses of students from all grades and curricula regarding Factor 3.

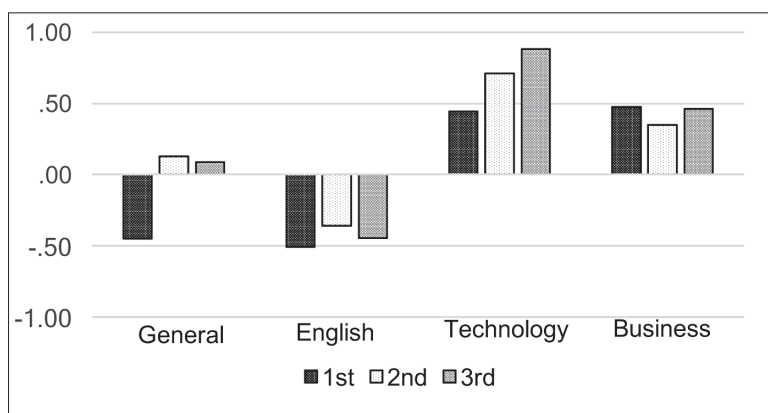


Figure 3. Mean scores of students' responses on Factor 3 by grade and curriculum

6. Conclusion

This case study has shown that different curricula and different grades influenced teachers' and students' use of L1 to varying degrees. The effects of students' grade were the most salient within the general curriculum; a large difference was observed between the first graders and the second or third graders. The latter two greatly supported the use of L1, specifically for teachers' explanations of linguistic forms and for translation during reading and listening comprehension. Building high literacy skills is necessary to develop the learners' language skills for more cognitively demanding content. The second and the third graders' strong preference for the teachers' L1 in comparison to that of the first graders illustrates their call for the teachers' assistance to give cognitive support in expressing an abstract concept in a concrete form.

Another interesting part of the findings is the possibility that a teacher's beliefs or policy on language use could lead to the students' different attitudes toward their language preferences. However, the result is not very straightforward. The first graders in the technology curriculum greatly preferred teachers' explanatory use of L1, unlike those in the English curriculum, even though their teachers are both strong supporters of L2-only policy.

Though the effect of L1 use on learners' language acquisition is still unclear, the current study confirms that learners in different learning contexts hold different views on the use of L1. The findings indicated that factors such as class content, teaching materials, students' and teachers' beliefs on the language choice, and students' perceptions of the subject are all interactively working with grade and curriculum and creating diverse learning environments. English classes should be communication-oriented with a focus on L2 production by learners; however, it is not reasonable to impose L2-only classrooms on learners against their wills.

The present study has limitations due to its reliance on the results of a single questionnaire survey as measurement of different students' attitudes on L1 use, based as it was on one particular educational institution. Because of this, the reported findings cannot

be generalized to represent all cases. As grades advance, how do the same learners actually change their attitudes? For what reason? This could be an issue for further study.

Further exploration into this topic should include empirical research on different learners in different learning environments. It could in this way be further analyzed whether, for instance, different L1-based techniques would have beneficial effects on the process of L2 acquisition.

References

- Benesse Educational Research and Development Institute (2015). *Chuko no egoshido no jittai to kyoin no ishiki - Chuko no eigoshido nikansuru jittaichosa 2015*. [Survey on English Instruction in Japanese Lower and Upper Secondary Schools 1995]. Retrieved from http://berd.benesse.jp/up_images/research/Eigo_Shido_all.pdf
- Bruen, J. & Kelly, N. (2014). Using a shared L1 to reduce cognitive overload and anxiety levels in the L2 classroom. *The Language Learning Journal*, 1-14. Retrieved from <http://www.tandfonline.com/doi/full/10.1080/09571736.2014.908405>
- Izumi, S. (2016). *Fokasu on fomu to Kuril no Eigojugyo* [Focus on Form and English classes using CLIL] Tokyo: ALC
- Liao, P. (2006). EFL learners' beliefs about and strategy use of translation in English learning. *RELC Journal*, 37(2), 191-215.
- Liu, D., Ahn, G., Baek, K., & Han, N. (2004). South Korean high school English teacher's code switching: Questions and challenges in the drive for maximal use of English in teaching. *TESOL Quarterly*, 38(4), 605-638. doi: 10.2307/3588282
- Ministry of Education, Culture, Sports, Science and Technology (MEXT). (2009). *Koutougakkou gakusyushidou youryou* [Courses of Study, Upper Secondary School]. Tokyo: Higashiyama Syobo.
- Nazary, M. (2008). The role of L1 in L2 acquisition: Attitudes of Iranian university students. *Novitas-ROYAL*, 2(2), 138-153.
- Shimizu, M. (2006). Monolingual or bilingual policy in the classroom: Pedagogical implications of L1 use in the Japanese EFL classroom. *Maebashi Kyoai Gakuen College Research Bulletin*, 6, 75-89.
- Shimizu, H. (2016). An introduction to the statistical free software HAD: Suggestions to improve teaching, learning and practice data analysis. *Journal of Media, Information and Communication*, 1, 59-73.
- Shimura, A. (2007). Teacher Use of L1: Different Class Situations. In K. Bradford-Watts (Ed.), *JALT 2006 Conference Proceedings*. Tokyo: JALT.

Acknowledgements

I would like to thank Akinobu Shimura for collaboration on the early stages of this work and assistance in statistical work treated in this paper. I would also thank the students and teachers for participating in my research.

The study was done by the permission of the principal at the time of data collection.

Appendix

The Questionnaire about teachers' and students' use of English and Japanese in English classes

1. The teacher should know the students' mother tongue.
2. The teacher should use the students' mother tongue.
3. Students should use their mother tongue.
4. Japanese is useful for learning English.
5. It is useful if the teachers use their L1 (Japanese) when explaining new words.
6. It is useful if the teachers use their L1 (Japanese) when explaining L2 basic grammar.
7. It is useful if the teachers use their L1 (Japanese) when explaining differences between L1 and L2 grammar.
8. It is useful if the teachers use their L1 (Japanese) when explaining difference in the use of L1 and L2 rules.
9. It is useful if the teachers use their L1 (Japanese) when giving instructions.
10. It is useful if the teachers use their L1 (Japanese) when explaining L2 complex grammar.
11. Students should be allowed to use L1 (Japanese) when talking in pairs and groups.
12. Students should be allowed to use L1 (Japanese) when asking questions to teachers.
13. Students should be allowed to use L1 (Japanese) when translating an L2 word into L1 to show they understand it.
14. Students should be allowed to use L1 (Japanese) when translating a text from L2 to L1 to show they understand it.
15. Students should be allowed to use L1 (Japanese) when translating as a test.
16. The teacher and students can use L1 to check listening comprehension.
17. The teacher and students can use L1 to check reading comprehension.
18. The teacher and students can use L1 to reduce anxiety.