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Investigating Syntactical and Lexical Complexity in Gendered and Same-Sex Interactions

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Abstract

For many sociolinguists, the issue of shyness and hesitation phenomenon has been problematic for Japanese L1 and L2 speakers, particularly in gendered interactions. Over the past decade, more Japanese are shunning conversations, relationships, and isolating themselves, which is accelerating the demographic crisis in Japan. Thus, this paper focuses on the variables concerning fluency, syntactical and lexical complexity to see if there are significant differences between gendered and same-sex interactions. It seeks to answer questions such as 'is hesitation phenomenon more marked in gendered discourse than in same-sex interactions,' and 'which gender exhibits the most fluency and dysfluency?' Results showed a significant difference in the speech between males and females in regard to speaking rates and number of words, but no significance was noted between gendered and same-sex interactions, or for the variables in lexical and syntactical complexity.

Keywords: syntactical complexity, lexical complexity, gendered interactions, same-sex interactions

1. Introduction

Perhaps the most important issue for Japanese sociolinguists is how to respond to the issue of shyness and how it is impacting Japanese society. Japanese youth have been isolating themselves more than ever before, and are often shunning relationships, particularly gendered ones. This reluctance to interact with others is causing a demographic time bomb with younger Japanese having little interest in marriage or having children, and seeing such relationships as troublesome and difficult.

In fact, 2018 will be the year that will signal the lowest university attendees on record. This trend will also have serious consequences for companies, universities, tax revenues and even for the pension system. Some media pundits have described the situation as a *gender war*, one driven by passivity, cultural norms, confidence issues and dysfluency. Thus, the issue of hesitation phenomenon is an important issue to consider, and due to the lack of actual gendered interactions in schools, it is also a problem that will not soon be solved.

If youth continue to avoid gendered interactions, this will result in even more linguistic imbalances, fueling more social inequalities between the genders. While many studies have shown that men overtalk women, or have a faster speaking rate (Long, 2016), there remains the issue of how same-sex discussions (female-to-female, FF) and (male-to-male, MM) differ, if at all, from gendered interactions, particularly in regard to syntactical and lexical complexity.

A second aim is to examine the issue of *how* genders use minimal responses and of their frequency between these two types of discourses. Specifically, the study will examine syntactical complexity to see which gender uses the most minimal responses, as well as lexical complexity, in particular comparing lexical sophistication, lexical variation, TTR, verb diversity, and lexical word diversity. In short, do males interact differently with other males, and are females submissive when talking to males?

Throughout most of the world, there are many sociolinguistic norms that can impact how males talk with each other, (and females with other females), and there are even more for gendered interactions. Many of these norms reinforce linguistic inequalities, but by comparing same-sex and gendered L2 discourse between Japanese youth, the aim is to see if these norms actually impact lexical and syntactical complexity. In short, this study seeks to answer questions such as 'is hesitation phenomenon more marked in gendered discourse than in same-sex interactions,' and 'which gender exhibits the most fluency and dysfluency? By understanding the general patterns and characteristics of gendered interactions and how they might differ from same-sex exchanges,

educators can better prepare and arrange tasks and gendered discourse interactions for their students.

2. Review of Literature

2.1 Gender Differences in Discourse

While most research concerning gender in the social sciences does not uncritically accept biological determinism as the fundamental pillar for behavior, a great deal of analysis continues to support the framework of sex-linked behavior and traits, (see Hochschild, 1973; Tresemer, 1975; Thorne, 1980; Henley, 1985). Describing and differentiating the speech of women and men goes back almost a hundred years with Jesperson (1949) first describing how women leave sentences unfinished or dangling more often than men. However, both Jersperson and later on Lakoff (1973, 1975) offer unsubstantiated assertions of the superiority of men as speakers.

A few years later, Maltz and Borker (1982) drew up lists of women features and men's features, but unlike Lakoff they do not claim that these features reflect a power imbalance between the sexes. The features, instead, reflected a different set of discourse norms; research continued with Sadker and Sadker (1985) noticing that boys spoke on average three times as much as girls, and that boys were eight times more likely than girls to call out answers in the classroom. Regarding speech acts, it was concluded that men's speech reputedly serves to lecture, argue, debate, assert, and command while women's speech was viewed as nonassertive, tentative, and supportive (Haas, 1979).

Researchers then began to look at more stylistic differences, taking into account politeness, hesitancy, the use of tag questions, empty adjectives, fillers, qualifiers, and nonassertion, but as more researchers, educators and the media became more interested in the topic of women and men's speech, there were more claims and counter-claims about the validity and reliability of the results. Many of these concerns related to the research setting, topic, procedures, and participants as well as host of social factors that would impact discourse. In short, investigators, as Crawford noted, had to "account for more and more complex patterns of sex differences with an increasingly fragile theoretical net to cast over them" (p. 30). A further criticism was that as most of the previous research was primarily based in North America (and less so in Europe), it had limited value as how genders interact in Asia, Africa, and in Central and South American. A second issue is whether or not same-sex interactions differ fundamentally from gendered ones. While it has been shown that males often talk faster and longer than women, it remains to be seen how the data from *gendered* interactions might differ (if at all) from same-sex interactions involving the same participants.

2.2 Lexical Complexity

In psycholinguistics *lexical ambiguity* is one of the most heavily investigated topics with multiple meanings for the term. Nonetheless, many educators have studied the issue of lexical complexity focusing on the student's ability to produce more lexical variation and different types of words. This is done by measuring the variable such as Mean Segmental Type Token Ratio (MSTTR) which equals "word types per square root of two times the words" (Larsen-Freeman, 2006, p. 597); Ellis (2005) stresses that MSTTR cancels out the effect of the text length while Type-Token ratio (the other prevalent measure used for lexical complexity) is sensitive to text length. Thus, Ellis preferred MSTTR as a result. Finally, it should be noted that O'Loughlin (1995) found lexical density (a measure of the relationship between grammatical items and high- and low-frequency lexical items of oral performance) to be influenced by test formats (live or tape-recorded) and task types (describing a familiar setting or a role play), as well as the interactions of the methods. Teachers were also interested in how pedagogical tasks might influence cognition, and affect output, thus one avenue of investigation into lexical complexity has been that of task complexity. Robinson (2005) states that "pedagogical tasks [should] be sequenced for learners on the basis of increasing in their cognitive complexity" (p. 1) and he strongly recommends cognitive complexity as the "theoretically motivated, empirically substantial, and pedagogically feasible sequencing criteria" (Robinson, 2001a, p. 27). In this way, learners can be supported in developing a balanced interlanguage regarding accuracy, fluency, and complexity. But sequencing cognitive and lexical complexity is complex and can produce mixed results as Ong and Zhang (2010) found when they explored the effects of task complexity on the fluency and lexical complexity of 108 EFL students' argumentative writing. They focused on manipulating task complexity with three factors, availability of planning time, provisions of ideas and macro-structure, and draft availability. Their results showed that by increasing task complexity, through the provision of ideas and macro-structure, students were able to produce significantly greater lexical complexity but there was no effect on the mean number of words produced per minute of transcription. It was further found that by increasing task complexity, through draft availability, there were no significant differences in fluency and lexical complexity. Likewise, Izadpanah and Shajeri (2016) explored the effects of task complexity on the lexical complexity of Iranian EFL students' argumentative writing. Their study also explored the manipulation of

cognitive task complexity but along +/-a single task dimension so as to measure Iranian EFL learners' production in term of lexical complexity. The participants, who were given an eight-frame picture, which had been arranged in the correct sequence before its administration (+single task), were required to order the frames in the right sequence first, before writing. Their output was encoded based on the measures of lexical complexity. Results indicated positive significant impact of +/-single dimension on lexical complexity indicating that they were able to have a deeper semantic processing in order to find the reasonable order. Other findings in oral language production research on task complexity (Crookes, 1989; Mehnert, 1998; Ortega, 1999; Foster & Skehan, 1996; Skehan & Foster, 1997, 1999; Wigglesworth, 1997, Yuan &Ellis, 2003) found that pre-task planning resulted in greater complexity in oral language production. The drawback to such studies relates to the nature of the task complexity, and also to the proficiency and previous exposure to English of the subjects. In examining the variable of gender on lexical complexity, Aperocho (2016) tried to identify the lexical and syntactic features of the male and female freshman college students using textual analysis method. His participants were to write an argumentative essay and respond to the prompt that "Boys are smarter than girls," and his results showed that males' argumentative essays are more complex than those of the girls because males used more words, morphemes, coordinators, and subordinators in their text, which consequently, increased the number of T-units. Males averaged a total of 134.32 total number of morphemes (TNM) to females 109.96. The study shows that females use fewer words to explain their ideas about the topic. One of the most perplexing issues is how complexity changes in oral communication between genders and, if these indices change in same-sex discourse. While Michel, M, Kuiken, F. & Vedder, I. (2007) found that increased task complexity and interactivity did not affect lexical complexity but did affect negatively fluency, more research is needed in regard to the speech of Japanese EFL speakers.

2.3 Syntactical Complexity

Syntactical complexity, as Ellis & Barkusizen notes (2005, p. 139) is the "extent to which learners produce elaborated language" and is often related to the syntactic and lexical aspects of narrative performance. Givon (1991), drawing a sizable body of pyscholinguistic studies, asserted complexity studies needs to incorporate the view that subordinate clause structures are more complex to process than conjoined main clause structures, and so by counting linguistic tokens that can be considered telltale signs of increased grammatical subordinateness and embeddedness, one can better determine the complexity of a particular narrative. Some examples of these linguistic tokens include: (i) subordinating conjunctions (for instance, *because, since, as, when, that, etc.*); (ii) WH-pronouns (*who, whose, whom, which*); (iii) verb forms, both finite and nonfinite and (iv) noun phrases. Of course, complexity has little meaning if the speaker's fluency is so poor that it interferes with meaning or the overall impact of the narrative. Ferreira and Bailey (2004) have pointed out the shift in attitudes in the study of disfluencies, and that many computational linguists have developed tools for predicting the locations of disfluencies.

Long (2013) found, in his investigation concerning possible differences in syntactical complexity scores for both monologues and dialogues among the ten participants, that there was an increase in dialogues with number of different words (NDW), word count (W), sentences (S), clauses (C), T-units (T), and complex T-unit (CT); however, the mean length of sentence in causal dialogues were a little shorter than those in other discourse formats. For verb phrases (VP) the frequence for self-introductions was 13.7 as compared to 19.2 in casual dialogue and 27.5 in structured interviews; likewise, for T-units, 9.5 were found in self-introductions, while 18.8 were identified in casual dialogues and 14.5 in structured interviews. Complex T-units (CT) the data showed 1.5 in introductions, and 4.2 in dialogues and 4.0 in structured inteviews. This data indicates that dialogues provide enough lexical input for participants to immediately use, which *then* helped to sustain more complex structures in their responses. As for syntactical complexity, it was also concluded that there was a statistically significant difference between monologues and dialogues for syntactical complexity.

For many other scholars, *reducing* complexity to type-token ratios and to the number of clauses is not productive; Skehan, (1996, p. 22) notes that complexity "concerns the elaboration or ambition of the language that is produced" and that complexity should also take into consideration "learners preparedness to take risks." Thus, Skehan takes the position that by involving the concept of semantics, pragmatics, and meaning, we can better understand the issue of complexity in its entirety. Norris and Ortega (2003) indicate that complexity, as measured by means of subordination ratio, may not always increase linearly, but that syntactical complexity may grow in other ways, for example, by phrasal and clausal complexification. Yuan and Ellis (2003, p. 2) likewise took this position of equating complexity with phrasal and clausal complexification by stating, "Measures of complexity are generally based on the extent to which subordination is evident."

In regard to possible gender differences in syntactical complexity, numerous studies have reported on the female advantage in language skills. It appears that across many domains of language, female language skills are more highly developed and often more complex than the language skills of their male counterparts. For instance, in a vast study of over 13,000 children in ten different language communities, Eriksson et al. (2012) found girls to be more advanced than boys in language abilities in each language community. Specifically, results showed girls to be ahead of boys in early communicative gestures, in productive vocabulary, and in combining words. Although there existed great variation between the children's language abilities from community to community, the female advantage persisted throughout. In a similar study, Tse, Kwong, Chan, and Li (2002) set out to determine sex differences in language ability among Cantonese-speaking children. In particular, the researchers focused their efforts on the syntactic domain of language, analyzing utterances spoken by children ages 3 to 5 during spontaneous play. They found significant sex differences between girls and boys in syntactic development. Girls outperformed boys in mean length of utterance (MLU), some sentence types and structures, and syntactic complexity. Essentially, sex differences in language development appear to persist across various languages and cultures as well as across the different domains of language. What needs to be further explored, is how these gender differences might differ in same-sex and gendered interactions with Japanese EFL learners.

3. The Study

3.1 Rationale

As language is the key to power and success, there are many sociolinguistic norms that reinforce linguistic inequality. By comparing same-sex and gendered discourse between Japanese youth, the aim is to see if the variable of *gender* impacts lexical and syntactical complexity. Are there key differences in gendered discussions when compared to same-sex interactions? Do these differences, in any way, relate to linguistic inequalities? Another issue concerns the balance of each type of interaction: Who is doing most of the talking? While past research has shown that men do over-talk women, there is also the issue of syntactical and lexical complexity that has yet to be addressed.

3.2 Research Questions

1). Are there any significant differences in fluency and dsyfluency variables between gendered and same-sex interactions?

2). Are there any significant differences in syntactic complexity between gendered, and same-sex interactions, particularly in regard to *words*, *sentences*, *verb phrases*, *T-units*, and *clause-based data* as well as *lexical sophistication*, *lexical variation*, *TTR* (Type/Token Ration), *verb diversity*, and *lexical word diversity*?

3). What percentage of each discourse, do minimal responses make up and which gender uses the most minimal responses?

4). In same-sex interactions, is there a difference in the use of minimal response between M-M and F-F interactions?

3.3 Hypotheses

The hypotheses are as follows: (H1) there will no significant differences in syntactic there will be no significant differences in between gendered and same sex interactions, (H2) there will be no significant difference in the usage of minimal responses between the genders, (H3), there will be no significant differences in minimal responses between M-M and F-F interactions.

3.4 Terminology

The concept of acoustic dysfluency, for this study, is based on micropauses, mean length pauses (MLP), and the amount of silence. Pauses are defined as any silence lasting over two seconds, with micropauses being considered as any silence under two seconds. Next, lexical dysfluency takes into account the use of L1, word fragments, and mispronounced words, which are defined as any word that is barely comprehensive because of the speaker's accent, stress, elucidation, or unfamiliarity of the word. Words that had slight alterations in pronunciation due to the students' L1, i.e., words being pronounced with a vowel at the end (such as *and-o*), were not counted as mispronounced as this would skew the data. As for the variable of L1, Japanese words that have been widely used in English (*karate, sumo, ikebana, sushi*) are disregarded in this data classification.

Six variables make up the last factor of syntactic dysfluency. First, average mean length runs (MLR) refer to the number of syllables that are uttered until the speaker pauses or stops. Longer MLRs indicates more fluency whereas shorter MLRs reflect more dysfluency. Second, abandoned sentences are sentences that reflected incomplete utterances; retracing is best understood as any rephrasing of a clause or sentence. Fourth, repetition

includes any word(s) but this does not include word fragments or filled pauses. Meaningless syllables are those syllables that make up repeated words or word fragments, while the number of words focuses on actual words that are spoken.

3.5 Procedures

The 110 subjects were selected based on their standardized test scores based on TOEIC, *Eiken*, IELTS, TOEFL IBT, TOEFL ITP, TOEFL PBT, and TOEFL CBT, which provided a relatively similar level of proficiency, see Table 1. As Coates (1996) noted, discourse is more fluent between intimates, thus to eliminate the confounding variable of familiarity, participants had to state that they did not know any of the others in their group. Students then provided relevant background information and signed permission forms allowing for their discussions to be videotaped and transcribed. Interactions took place among the four participants, (two females and two males); two sets of gendered discussions took place in different rooms, one after the other with participants switching partners, which were followed by two same-sex (male-to-male, MM, and female-to-female FF) discussions, again in different rooms. In 2016, the first session met from May 24 through June 15th; the second session met from June 14th to July 6th, while the third met from July 5th to July, 27th. Discussion time ranged from 8 minutes to 15 and averaged 11 minutes, yet discussion time averaged 10 minutes and 46 seconds. Videotapes of each session were uploaded to Youtube,[2] and videos and corpora can also be viewed at genderfluency.com[3]. In total, nine different sessions provided 55 transcripts or 110 speakers from which the corpus was based. Participants did sign permission forms allowing for their discussions to be videotaped and transcribed. After transcription, videotapes were uploaded to Youtube.

Table 1. Scores for lower proficiency students

TOEIC	Eiken	IELTS	TOEFL IBT	TOEFL ITP	TOEFL PBT	TOEFLCBT
440-550	Level 2	3.0-4.0	42-55	272-450	463-480	143-157

3.6 Subjects

Two universities in the area provided the 110 subjects for this study; one university was a national public institute whereas the other was municipal. All of the participants were between the ages of 18 to 21 and had lived in Japan with limited study abroad experiences.

3.7 Discussion format

To prevent topics from becoming too familiar, thus impacting fluency, subjects were asked to use the topics in a list that was provided for them, see Appendix A. For each topic, students would first talk about shared interests to find areas of commonality and differences before gathering information related to these shared interests. Finally, to see how fluency might change in which participants had to think through their ideas, the final point of discussion challenged students to answer a loaded question or respond to a complicated scenario. If the participants finished these three issues before the time allotted, they could move on to the next topic on the list.

3.8 2016 Corpus / Transcripts

The corpus, known as the Japanese University Student Corpus (JUSC) comes from 61 transcripts, and with analysis, it contains 108,137 words, and without analysis 51,061 words. The transcripts were manually transcribed, from March through July 2016. The videos, which can be accessed through the website of Youtube, totaled over 9 hours and 8.3 minutes (590 minutes) with videos, ranging in length from 6:23 to 14:59 minutes. The videos and transcripts for this study came from nine sessions, which provided enough reliable data of students' fluency and dysfluency, see Appendix B, for transcription convention.

3.9 Data Analysis

The structure among dysfluency variables was analyzed by using Pearson correlation coefficient, whereas the gender effect on those variables was analyzed by using ANOVA. To analyze syntactical complexity, a web-based L2 Syntactic Complexity Analyzer[4] was used as it counts the frequency of nine grammatical structures in the text, and computes indices, along with a graphical representation of the results. Further, in order to avoid reliability issues related to manual coding, a web-based Lexical Complexity Analyzer[5] was utilized to analyze differences in lexical complexity, as it can compute 25 indices of lexical complexity of any text, describing five aspects of lexical density.

4. Results

In answering the first research question as to whether or not there was a significant difference between gendered and same-sex interactions, Table 2 shows the descriptive statistics for both groups. As a point of reference with this level of proficiency, native speakers had articulation rates averaged 3.34, speaking rates A 198.2, micropauses 14.8, MLP 1.5 seconds, a percentage of silence 2.4 seconds, and repetition 12.3 times. Most notably, MLRs were up to 134.4 along with the number of words 1264.2, with 17.9 meaningless syllables.

Table 2. Descriptive statistics for gendered, and same-sex fluency/dysfluency

Fluency		
Total time speaking	649.4	633.8
Speaking time	290.8	290.7
Articulation Rate	1.58	1.61
Speaking Rate A	97.1	99.6
Speaking Rate B	87.8	90.9
Acoustic Dysfluency		
Micropauses	6.82	6.91
Mean length of pauses	4.12	3.66
Percentage of silence	10.7	8.16
Total amount of silence	69.1	55.5
Cross-talk pausing	19.6	18.4
Lexical Dysfluency		
Mispronounced words	0.71	0.97
Word fragments	1.14	1.32
Use of L1	3.03	3.08
Syntactic Dysfluency		
Abandoned sentences	1.57	1.23
Retracing	2.88	3.08
Repetition	18.9	20.1
Mean length runs	9.21	10.6
Total syllables	471.5	486.1
Number of words	329.3	332.2
Meaningless syllables	49.4	41.5

Note: Speaking time, silence, and pausing times were based on seconds.

In order to identify associations between the fluency and dysfluency variables, a series of preliminary analyses were conducted. Some of these correlations were significant: as expected male speaking rate A and B were positively correlated with articulation rate. As for dsyfluency variables, articulation rate and speaking rate A were strongly positively correlated (see Tables 3 through 7).

Table 3. Correlation output for fluency variables

	Speaking Time	Articulation Rate	Speaking Rate A	Speaking Rate B
Speaking Time	1.0000	-0.1570	-0.1507	-0.1460
Art. Rate	-0.1570	1.0000	0.9972* *	0.9784**
S. Rate A	0.1507	0.9972 **	1.0000	0.9786
S. Rate B	0.1460	0.9784**	0.9786	1.0000

*p<0.5; **p<0.1.

Table 4. Correlation output for acoustic dysfluency variables

	Micropauses	MLP	TAS	Percent of Silence	Cross-Talk Pausing
Male Micropauses	1.0000	0.0047	0.1544	-0.1641	-0.2057
MLP	0.0047	1.0000	0.46525*	0.4529 *	0.2950
TAS	-0.1544	0.4652	1.0000	0.9753 **	0.8382 **
Percent of Silence	-0.1641	0.4529	0.9753	1.0000	0.7941
Cross Talk Pausing	-0.2057	0.2950	0.8382	0.7941	1.0000

Note: TAS = total amount of silence.

*p<0.5; **p<0.1.

Table 5. Correlation output for lexical dysfluency variables

	Male Mispronounced Words	Male Word Fragments	Male Use of L1
Mispronounced Words	1.0000	0.1195	0.0176
Male Word Fragments	0.1195	1.0000	0.1217
Male Use of L1	0.0176	0.1217	1.0000

*p<0.5; **p<0.1.

Table 6. Correlation output for syntactical fluency variables

	Abandoned Sentences	Retracing	Repetition	MLRs
Abandoned Sentences	1.0000	0.1648	0.2466	-0.0501
Retracing	0.1648	1.0000	0.2975	0.1562
Repetition	0.2466	0.2975	1.0000	0.1889
MLR	-0.0501	0.1562	0.1889	1.0000
Total Syllables	0.1897	0.2867	0.3215	0.571
Number of Words	0.2391	0.321	0.3246	0.5238
Meaningless Syllables	0.1558	0.2346	0.3858	0.1323

*p<0.5; **p<0.1.

Table 7. Correlation output for syntactical fluency variables

	Total Syllables	Number of Words	Meaningless Syllables
Abandoned Sentences	0.1897	0.2391	0.1558
Retracing	0.2867	0.3210*	0.23463
Repetition	0.3215*	0.3246*	0.38585*
Total Syllables	1.0000	0.927	0.3191
MLRs	0.5710*	0.5238**	0.13232
Number of Words	0.927	1.0000	0.3011
Meaningless Syllables	0.3191	0.3011	1.0000

*p<0.5; **p<0.1.

To answer the question concerning significant differences among discourse-pair type: same-sex, and gendered speech, a one-way ANOVA was conducted to compare fluency variables of speaking time, articulation rate, and speaking rates A and B. There were no significant effects found. Likewise, for acoustic dysfluency variables and

lexical fluency variables, no significance was found; however, for syntactical dysfluency, no significant differences were found for abandoned sentences, retracing, repetition, total syllables, number of words and meaningless syllables. A strong significant difference was found for mean length runs, [F(1) = 3.022, p = 0.0849], see Tables 8 through 10.

Table 8. Anova output for speaking times, articulation rate, and speaking rate

	Sum of Squares	Df	Mean Square	F	Sig.
Speaking Time	1	1	0.5	0.4	0.993
Articulation Rate	0.0632	1	0.063	0.373	0.542
Speaking Rate A	144	1	144.19	0.235	0.628
Speaking Rate B	216	1	215.7	0.386	0.535

Table 9. Anova output for micropauses, MLRs, amount and percentages of silence

	Sum of Squares	Df	Mean Square	F	Sig.
Micropauses	0.16	1	0.1611	0.008	0.928
Mean Length Pauses	4.91	1	4.9136	1.15	0.285
Total Amount of Silence	4370	1	4369.6	1.396	0.24
Percentage of Silence	153.8	1	153.82	2.327	0.13

Table 10. Anova output for mispronounced words, word fragments, use of L1

	Sum of Squares	Df	Mean Square	F	Sig.
Mispronounced Words	1.59	1	1.5887	0.385	0.5358
Word Fragments	0.751	1	0.7509	0.434	0.5114
Use of L1	0.06	1	0.0559	0.004	0.9489

Table 11. Anova output for abandoned sentences, retracing, repetition, MLRs, total syllables, number of words, and meaningless syllables

	Sum of Squares	Df	Mean Square	F	Sig.
Abandoned Sentences	2.774	1	2.7742	0.996	0.3204
Retracing	1	1	1.0032	0.101	0.7506
Repetition	33.8	1	33.809	0.126	0.7228
Mean Length Runs	48.21	1	48.21	3.022	0.0849**
Total Syllables	4965	1	4965.4	0.162	0.0687
Number of Words	1126	1	1126.2	0.066	0.7965
Meaningless Syllables	1447	1	1447.2	0.673	0.4138

Note: Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1.

In regards to the questions concerning syntactical complexity between gendered and same-sex discourse, see Table 11, no significance was found for all of the variables, with p-values ranging from 0.928 (MLS) to 0.236 (CP). While in previous research, for the number of words, there was a significant difference with males speaking more than females. However, while FF interactions had an overall 590 fewer words than MM interactions (Table 12), when comparing these same-sex interactions with gendered, there was no significant difference: for gendered interactions M=639, SD=182.6, for SS, M=845.0, SD=373.9; t(14) = 2.145, p < 0.257. Males in MM conversations used more verb phrases (29.8) than females in FF discourse (19).

Table 12. Descriptive data for syntactical complexity

		Gendered	M-M	F-F
Core units				
W	Words	3834	4041	3451
S	Sentences	118.3	130.6	138.4
VP	Verb phrase	124.6	158.6	132.2
C	Clause	115.6	140.8	122
Clauses				
DC	Dependent clause	21.3	29.8	19
C/S	Clause per sentence	1.02	1.08	0.87
CP	Coordinate phrase	7	10.8	10.4
MLC	Mean length of clause	5.61	5.89	5.62
T-Units				
T	T-unit	97.6	107.6	107.6
CT	Complex T-unit	14.5	20.8	11.8
MLS	Mean length of sentence	5.76	6.58	5.12
MLT	Mean length of T-unit	7	7.95	6.56
T/S	T-unit per sentence	0.8	0.82	0.77
CT/T	Complex T-unit Ratio	1.65	0.212	0.11
CP/T	Coordinate phrase per T-unit	0.2	0.09	0.1
CN/T	Complex nominal per T-unit	0.54	0.07	0.6

This data shows the complexity in fluency with one such variable, in this case, the number of words impacts the frequency of meaningless syllables; likewise, the amount of silence was much higher in male 1 (26.2) than male 2 (12.3). The mean length runs between the two males showed some slight difference with male 1 speaking 29.0 syllables before pausing compared to male 2 who had 20.6. Except for repetition, (male 1 had 31 incidents to male 2's 19), there was very little difference in lexical and syntactical dysfluency. In the first excerpt of transcript 56, session 9, male 1 to male 2), we can see the two males discussing classes to better establish their own identities. Some syntactical complexity is evident from line 5 to 9, and from 13 to 19.

1. M1: Yep. Hello.
2. M2: Hello.
3. M1: Uh: ↑ what↑ what class mmm do you think (.) most helpful uh (useful)
4. class in high school?
5. M2: Uh: I (2.7) I in my high school I like (2.5) I like ( ) I think math is most
6. important ( ) because↑ uh when the (3.4) when when I take the entrance exam
7. this university↑ I I use math (and) after entering this university I I I I used
8. math knowledge everyday so I I think math is the most useful.
9. M1: Oh. I think P.E↑ (.) is the most useful. (£) P PE make our health
10. M2: Yes
11. M1: so I I start started to live only me. Health is very important.
12. M2: Yes.
13. M1: So P.E. is very useful. Heh heh for me↑ for me↑ (.) Health health is very

14. (.) important I↑ I↑ (.) I have caught caught a cold cold (Japanese) uh: once (.)
15. after I I live here it is very mmm:↑ (3.7) uhm difficult to take take care me so
16. health is very important, so P.E. is very important. (9.9). Here↑ (your) (class)
17. here ( ) your high school. We:↑ we: take uhm some classes in this university
18. what what class better than your high school? Your high school class?
19. school ( )?

Table 13. Descriptive data for lexical complexity

		Gendered	Same Sex MM	Same Sex FF
LD	Lexical Density	0.55	0.55	0.554
LS1	Lexical Sophistication 1	0.36	0.266	0.334
VS1	Verb Sophistication 1	0.08	0.046	0.066
VV1	Verb Variation	0.37	0.328	0.292
LV	Lexical Verb Variation	0.35	0.25	0.322
NDW	Number of Different Word	176.4	203.4	150.4
TTR	Type/Token ratio	0.25	0.234	0.238
CTTR	Corrected TTR	4.71	4.81	4.14
NV	Noun Variation	0.38	0.32	0.386
ADJV	Adjective Variation	0.05	0.06	0.054
ADVV	Adverb Variation	0.04	0.03	0.052
MODV	Modifier Variation	0.1	0.09	0.11

Likewise, in comparing the lexical complexity of gendered and same-sex (Table 13), no significance was found for all of the variables, with p values ranging from 0.986 to 0.124. In comparing this to male-to-male speech, as in the data found in transcript 56 Session 9, male 1 produced had a higher number of words produced (448) compared to male 2 (307). Nevertheless, this production also means that male 1 had a double the number of meaningless syllables (54) compared to (26) for male 2. For fluency, the speaking rate for male 1 (80.3) was lower than male 2's, (104.2).

As for the third and fourth research questions concerning minimal responses, the descriptive data, in Table 14, shows that in gendered interactions, males used more minimal responses than females; a t-test based on gendered discussions showed no real significant difference between male and female reliance on minimal responses showed (for males, M=92.2, SD= 101.1; for females M=78.5, SD=76.1); $t(18) = 2.101$, $p < 0.736$ for session 1. In examining the same-sex interactions, very little difference was noted in the use of minimal responses between F-F and M-M discussions though for some expressions such as *mm/mhm/hmm, uh-huh/uh/uhm* and *ah/yah* males tended to use these twice as often than females. Males also tended to use the word *no* four times as much than females. In short, minimal responses comprised 2.7% of all words in the JUSC corpus.

Table 14. Gendered and same-sex minimal responses

	Gendered Interactions				Same-Sex Interactions			
	Freq M	%	Freq F	%	Freq M-M	%	Freq F-F	%
Mm/Mhm/ hmm	54	0.11	43	0.08	43	0.03	21	0.04
Uh-huh/ Uh/uhm	276	0.56	88	0.17	109	0.22	75	0.15
Oh	68	0.13	141	2.95	13	0.02	78	0.15
Okay	4	0.008	1	0.002	0	0	0	0
No	60	0.12	44	0.08	51	0.1	13	0.02
Yes	98	0.19	200	0.4	20	0.04	90	0.18
Yeah	112	0.22	102	0.2	52	0.1	39	0.07
Ah / yah	264	0.53	183	0.37	141	0.28	72	0.14
Wow	15	0.03	9	0.01	6	0.01	20	0.04
So-so	1	0.002	1	0.002	0	0	1	0.002
Japanese	24	0.04	16	0.03	9	0.01	14	0.02
Total	922	0.17	785	0.39	444	0.07	423	0.07

In examining minimal responses in the corpus we can see with a same-sex discourse (transcript 39, session 6, female 1 to female 2) that the levels of lexical and syntactical dysfluency were fairly similar. Female 1 had much lower repetition (30 incidents) compared to female 2 (75); likewise, female 1 had far fewer cases of meaningless syllables (50) compared to female 2 (87). In the first excerpt of the transcript, the two women are establishing their identities from their hometown, music, and manga; the minimal responses (echoing) are in italics.

1. F1: Good morning.
2. F2: Good morning. What's your name?
3. F1: My name is A. M. (.) Heh heh (.) What is your name?
4. F2: My name is N. M. Heh heh Where are you from?
5. F1: I'm from Saga.
6. F2: *Saga*?
7. F1: Saga is very: beautiful:.
8. F2: *Beautiful*. ↓

9. F1: Where are you from?

10. F2: I'm from Miyazaki. Miyazaki is very beautiful. I think better than Saga.

11. F1: No↑. heh

In the third excerpt of this transcript, the two women discuss shopping and refer again back to the hometown. The conversation is more broken and marked by more minimal responses, most of which are echoes, see words in italics. The numbers in parentheses with the text indicates pauses in seconds.

1. F1: What do you buy?
2. F2: Oh I: I go to Tenjin.
3. F1: Oh↑.
4. F2: Um once uh↑?
5. F1: a month↓?
6. F2: Twice.
7. F1: *Twice*.
8. F2: *A month*. *Twice a month* with Honoka.
9. F1: Oh↑. Heh heh
10. F2: heh heh And we buy many clothes.
11. F1: Ah, Tenjin↓.
12. F2: *Tenjin*.
13. F1: There are many clothes. Heh heh
14. F2: heh heh *Clothes*. Do you Do you buy your clothes Kokura? Saga?
15. F1: Yes, *Kokura* heh heh
16. F2: *Kokura*. Heh heh
17. F1: Not Saga.
18. F2: *Not Saga*. Saga. I think Saga, few (.) few (3.1) clothes shop.

In another same-sex discussion (transcript, 39 session 6, female 1 to female 2), there is more balance in the number of words spoken between the two, with female 1 speaking 349 (MLRs 5.4) compared to female 2 who had 430, (MLRs 7.6). The speaking rates (A) were similar (female 1: 121.2; female 2: 114.6); nonetheless, the amount of silence did differ significantly with female 1 have 18.1 seconds of total silence compared to female 2 who had less than half, 9.2 seconds. The cross-talk pausing was fairly high at 14.1 seconds unlike the previous gendered discussion which had none. These results indicate that aside from some occasional discrepancies, fluency is not impacted negatively when the gender meet either in same-sex or in gendered discussions. To better understand how these numbers are reflected in actual *gendered* discourse, one can see, in the randomly selected transcript below (transcript 4, session 2, male 1 to female 1), the male participant is talking more than the female participant, who often uses a series of minimal responses, highlighted in italics.

1. M1: First of all, I'd like to tell about my classes and hobbies and (2.0)
2. preferences.
3. F1: Ok↓..
4. M1: My classes is very funny because I have friend who is very funny and
5. crazy boy. So I'm really enjoying everyday.
6. F1: *Uh-huh.*
7. M1: And my hobby is taking a walk and I love↑ stars. So I often (.) take a
8. walk in night and I'm looking for stars, new stars. Ok. I finished. So how
9. about you?
10. F1: *Ah class↑?*
11. M1: Yeah.

12. F1: Oh: ↑ um: I (.) I like chemistry and English. So: this university I can study
13. them. So↓, I'm enjoying every day.
14. M1: I see. (4.1) Do you have any hobby?
15. F1: Hobby↑? Ah: I like cooking.
16. M1: *Oh really↑?*
17. F1: *Yes.*
18. M1: Recently, what did you cook?
19. F1: Heh Why? Um: (.) Last week, maybe.
20. M1: Not when. What↑? What↑?
21. F1: *What↑. Curry rice.*
22. M1: Curry rice. I like curry rice. Especially I like green curry. Do you know g-
23. green curry?
24. F1: *Ah: I don't.*
25. M1: It is famous in Thailand. So when I went to Thailand, I often ate green
26. curry. It's really delicious, but it was really↑ spicy.
27. F1: *Mmm: ↑ I like chicken curry.*

Other data also showed that both genders relied upon minimal responses consistently despite changes in their mood or with various speakers. Also, it was found that minimal responses made up an average of 17% of the total number of words for this age group and proficiency.

5. Discussion

The results indicate that there was some difference between the genders when it comes to speaking rates and to the number of words. Males often did produce far more words than females, averaging 405 words for this corpus, compared to 270 for female participants. Likewise, the speaking time, for males, was an average 313.5 seconds compared to 263.8 for females. The explanation for this could be based on cultural norms and/or any timidity that females had when meeting and interacting with males for the first time. However, when analyzing gendered and same-sex discussions, no significant differences (other than speaking rates and times) were noted indicating that gendered relations and ideologies were not evident and did not impact the speech of the participants in this context, ethnicity, and age group.

Furthermore, it is apparent that no significant differences exist regarding syntactical and lexical complexity between same-sex and gendered discussions. Small differences were found with males producing more speech, but also having more meaningless syllables. FF interactions produced fewer words (3451) than MM (4041) or gendered interactions (3834), and so this directly affected other data, such as dependent clauses. FF interactions had 19 compared to MM discussions, which averaged 29.8 instances, or gendered, having 21.3 examples. While most of the variables for lexical complexity showed no significance, there was some differences in the number of different words between the MM (203.4) and FF (150.4) groups.

As for the third and fourth research questions, the findings that males use more minimal responses than females tend to indicate that males tend to be more reserved when speaking, and that negation was used four times more often than with females. Overall, this data does show that while gender is not such an important variable in L2 discourse between Japanese youth, it is apparent that fluency research needs to be expanded beyond the constructs of complexity, accuracy, and fluency (CAF) to take into account issues relating to production, depth, coherence, and interactivity, see Table 15, for specific measures of these variables.

Table 15. The six dimensions for dialogic fluency

1	Depth - measured by the number academic words (lexical complexity), syntactical complexity, content (ability to reference people, facts, and sources) and provide clear and logical argument.
2	Fluency - measured by MLRs and speaking rates, correct and incorrect pausing, intonation and stress.
3	Production - measured by the number of words, speaking time.

4	Accuracy - measured by the error rates in phrases, percentage of errors.
5	Coherence - measured by the number of abandoned sentences, word fragments, repetition, retracing, and the flow of idea units, how the speaker moves from one idea to another, incorporating pauses.
6	Interactivity - measured by the number of turns taken by each speaker, measured by the number of questions, the ratio of minimal responses vs. productive ones.

The data from the corpus shows that while genders do not necessarily differ so much in fluency, dysfluency and complexity, the issue of minimal responses, ones that extend for four to nine words, is the primary problem with these speakers. Likewise, an examination of these participants' grammatical accuracy revealed several localized errors that were repeated throughout the corpus, indicating that Japanese youth have difficulty in using and mastering particular forms. However, the most challenging area for educators relates to the passivity of the participants, in their lack interest in the topic or their conversation partner, and with the lack of questions, and their own personal views on the topic at hand. In short, the corpus shows that the participants were simply unable or unwilling to add some measure of *depth* to the discussion and to better interrelate with one another. For truly *fluent* speakers, the ability to provide some sequential signposting, and to show interest in the topic and in the participant is essential.

6. Conclusion

This study did show that the variable of gender is *not* a significant variable regarding fluency in gendered or same-sex discussions; nonetheless, gender is a powerful ideological tool that can produce opportunities, and legitimize choices, and outcomes. To address the issue of linguistic inequality, more research needs to take place in different settings, such as the business workplace, homes, and recreational centers.

Fluency does not just take into consideration speaking rates and grammatical accuracy, but also looks at the larger picture in which women (and all men) are equally allowed to frame discussions, to assert more controversial views, to elucidate on which has been said, and to conclude and make decisions. Context, cultural/institutional norms, and familiarity are important variables that need further study, as well issues relating to discrimination, aggression, dominating or myogistic behavior. It is time for educators and for all Japanese to recognize the importance of not just speaking *right* but also speaking *out*, being more interactive, productive so as to be truly heard. After all, language is the key to power and success.

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Appendix A. Discussion Topics (Abridged)

1st MM – FF Interactions

Note: A = Information gathering, B = shared interests, C = Cognitive loading

Set 1.	A. Share information about classes, hobbies, preferences	Information-gathering
	B. Discuss the question: how are you both different?	Shared interests
	C. Compare schedules. Who is busier?	Cognitive loading
Set 2.	A. Share as much information about family, friends, major	Information-gathering
	B. Discuss the question: what do you both have in common	Shared interests
	C. Compare parents. Whose parents are stricter?	Cognitive loading
Set 3.	A. Share information about your activities, books, movies	Information-gathering
	B. Discuss the question: What kind of food do you both dislike	Shared interests
	C. Compare personalities. Who is more social and outgoing?	Cognitive loading
Set 4.	A. Share information about your ideas about 3 dream jobs	Information-gathering
	B. Discuss the question: What kind of pets would you like?	Shared interests
	C. Compare dreams. How are your future dreams different?	Cognitive loading
Set 5.	A. Share your ideas about your 3 favorite teachers	Information-gathering
	B. Discuss the question: what are your four favorite class?	Shared interests

C. Compare spending habits. Who is a saver or a spender?	Cognitive loading
Set 6 A. Share information about trips, clubs, and food	Information-gathering
B. Discuss the question: What are your four favorite movies?	Shared interests
C. Compare histories. What was your favorite children's book?	Cognitive loading

Appendix B. CA Transcription Symbols

Manner/Quality

Smile quality	£
Exhale / inhale	hhh
vocalism	(sniffle)
click	.t
laugh pulse	heh
laughing word	wo(h)rd
laughter	heh heh
Low pitch	↓
High pitch	↑
pause, timed	(1.2)
pause, short	(.)
lag (prosodic length / elongated sound)	:
unintelligible	( )
uncertain	(word)
Emphatic tone	!
Interviewer comment	[[ ]]