Individual differences and development of speech act production

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Abstract
This study examined the effects of individual difference (ID) factors on changing pragmatic abilities among L2 learners of English. Participants were 48 Japanese EFL students in an English-medium university in Japan. They completed a pragmatic speaking test (k=12) that assessed their ability to produce two speech acts: requests and opinions, in high- and low-imposition situations. The measure was given three times during one academic year. Speech acts were evaluated for appropriateness and fluency. Three ID factors (proficiency, orientation towards English study, and lexical access skill) were measured, and their effects on changes in appropriateness and fluency of speech act production were assessed. Results revealed significant effects of individual factors on pragmatic change, but the effects appeared differently between appropriateness and fluency.

Keywords: Pragmatics, individual differences, longitudinal study

Introduction
The study of learner characteristics or individual differences (IDs) has a long-standing interest in the field of interlanguage pragmatics (ILP) as factors affecting pragmatic competence (e.g., Kasper & Schmidt, 1996; Kasper & Rose, 2002; Kuriscak, 2010). Among the ID factors examined, L2 proficiency has accumulated the most research. Many studies took a cross-sectional design and compared pragmatic competence across proficiency levels (e.g., Kuriscak, 2010; for a review, see Kasper & Rose, 2002; Kasper & Röver, 2005). However, the literature is rather limited when other ID factors are concerned. In Kasper and Rose (2002), only a small amount of ID research is cited. These studies examined such factors as age (Kim, 2000), gender (Rintel, 1984; Kerekes, 1992), motivation (LoCastro, 2001), and social identity (Iino, 1996; Siegal, 1996). A decade after Kasper and Rose's book, a few studies have updated the list, including: Shimura's (2003) studies on personality and pragmatic competence, Takahashi's (2005) study on motivation and pragmatic learning, Taguchi's (2008a, 2008b) studies on the effects of lexical access skill and working memory in pragmatic comprehension, Yates's (2005) study on the effect of gender, and Davis's (2007) study on the role of subjectivity in pragmatic choice. However, very few longitudinal studies have examined that examined the effects of ID factors on pragmatic development (e.g., Matsumura, 2003).

This study expanded the existing literature by investigating the impact of multiple ID factors on L2 learners' longitudinal change in pragmatic competence. Japanese learners of English completed a speaking test measuring their ability to produce speech acts (requests and opinions) three times during one academic year. The study

measured three ID variables (proficiency, motivation, and lexical access) and examined their effects on pragmatic change.

Background
Because large individual variations are typically found among L2 learners in their success in L2 acquisition, the study of individual differences (IDs) has been a paramount area of SLA research that explains observed individual variations in L2 learning (Dörnyei, 2005, 2009; Ellis, 2005). The field of ILP has followed this tradition and accumulated a body of research that examined the effect of individual difference on pragmatics ability. However, the factors examined to date are largely concentrated on L2 proficiency. Numerous cross-sectional studies compared L2 pragmatic performance across different proficiency levels determined by standardized exams, grade level, or length of formal study (e.g., Al-Gahtani & Roever, 2012; Dalmau & Gotor, 2007; Félix-Brasdefer, 2004, 2007; Garcia, 2004a; Geyer, 2007; Pinto, 2005; Röver, 2005; Taguchi, 2007a, 2011; Yamanaka, 2003; Xu, Case, & Wang, 2009). These studies have revealed that high proficiency generally leads to better pragmatic performance but it does not guarantee a native-like performance. For example, a recent study by Al-Gahtani and Roever (2012) used a role play task to examine sequential organization in the production of requests by Arabic learners of L2 English. Participants formed two proficiency groups based on their course levels and performance on proficiency measures. They completed three role play tasks with a native speaker interlocutor. Results revealed a positive effect of proficiency on learners' sequential organization of requests with regard to pre-expansions (e.g., greetings and summons prior to request) and insertion of

expansions (e.g., negation about timing and details of the request).

Aside from proficiency, other ID factors have been addressed only sparsely in L2 pragmatics research. Kasper and Rose's (2002) review cited only a handful of studies that treated IDs as their central investigative concern, emphasizing that the review should be "best read as a strong invitation to research on individual differences in learning L2 pragmatics" (p.278). These studies examined ID factors such as gender (Kerekes, 1992; Rintel, 1984), age (Kim, 2002), and social identity (Iino, 1996; Siegal, 1996). A decade after Kasper and Rose's book, the field of ILP has expanded the body of studies that situated ID as the central investigation. Below I will review recent studies on individual differences in ILP appeared after Kasper and Rose's book. Due to the space constraint, I will limit my review to quantitative studies, which are directly relevant to my study.

Takahashi (2005) examined the effect of motivation on L2 English learners' ability to notice target request-making expressions in written dialogues. Japanese students of English completed a motivation questionnaire and then completed a noticing-the-gap task on request forms. The degree of the learners' awareness of the target pragmalinguistic forms was assessed through a retrospective questionnaire. Results showed that more motivated learners noticed more target forms and were more metapragmatically aware than less motivated learners.

Although Takahashi's study is probably the only existing study that measured motivation in relation to pragmatics learning, motivation has been examined extensively with a broader construct of L2 ability (see Dörnyei, 2005, for a review).

For example, drawing on Gardner's (1985) concept of integrative motivation (i.e., desire to interact with members in L2 community), Yashima (2002) developed a survey that measures motivational orientation (long-range goals for learning a language) among Japanese learners of L2 English. Yashima (2000) and Yashima et al (2004) found that integrative and instrumental orientation to English study predicted motivational intensity, which in turn led to higher L2 proficiency. Hence, the orientation toward L2 study seems to be closely related to motivation, and seizes both integrative and instrumental orientations toward L2 learning.

On the other hand, very few studies have examined the effect of personality in pragmatic competence. Shimura (2003) examined the relationship between personality and pragmatic competence in the speech act of advise-giving. Japanese students of English completed the task of writing an advice letter in a formal situation. Linguistic strategies were analyzed according to three response categories: direct, hedged, and indirect advice. There was a significant effect of personality on the choice of strategies: introversion types used more direct expressions than extroversion types. Although Shimura's findings are promising, at the moment there is no theoretical model that describes how personality dimensions are related to various aspects of SLA (Dörnyei, 2005). Hence, the use of personality as a variable calls for a caution.

Other ID factors that recently entered the ILP research are cognitive factors. Taguchi (2008a, 2008b) assessed the extent to which accurate and speedy comprehension of conversational implicature is associated with lexical access skill and amount of language contact. Forty-four college students of English completed three measures over a four-month period: (1) the pragmatic listening test, (2) the lexical access test, and (3) the language contact survey measuring the amount of time spent in four language skills. Results showed that lexical access skill and the amount of time spent on speaking and reading significantly correlated with gains in comprehension speed, but not with gains in accuracy of pragmatic comprehension.

These findings revealed that the lexical access skill could the factor that directly affects pragmatic comprehension. Pragmatic comprehension involves the lower-level processing of attending to and assigning meaning to linguistic stimuli, as well as higher-level processing of supplementing linguistic information with non-linguistic information to derive meaning. Lexical access speed is considered to form one of the lower-level processes that contribute to pragmatic comprehension. However, the role of lexical access in production of pragmatic functions has not been attested. Yet, the significant relationship between lexical access and oral fluency found in previous research (Segalowitz & Freed, 2004) implies that the ability to access word meaning quickly could influence fluent production of pragmatic functions.

As described above, previous research showed that certain ID factors explain individual variations in L2 pragmatic competence and development. However, there are several gaps in the existing literature. First, previous studies were almost exclusively confined to a cross-sectional, single-moment design by examining the relationship between ID factors and pragmatic competence at given point of time, and very few studies have addressed the role of IDs from a developmental perspective. Although a large

volume of research has examined the relation between proficiency and pragmatics, very few studies have employed longitudinal research design to examine pragmatic development in relation to changing L2 proficiency. In order to gain a more complete understanding of the impact of learner characteristics in pragmatic development, more studies should employ a longitudinal design.

Second, most previous studies operationalized pragmatic competence as accurate, appropriate comprehension and production of pragmatic functions, and fluency aspect of pragmatic performance (speedy processing of pragmatic functions) has been neglected in the analysis of ID effect. This is a serious neglect, considering that a growing number of recent studies have measured both knowledge (i.e. accuracy and appropriateness) and processing (i.e. fluency) in pragmatic performance. These studies revealed that knowledge and processing dimensions are distinct from one another: they do not correlate with each other; they exhibit different developmental rates; and they are affected differently by varying learning contexts, the amount of language contact, and certain cognitive variables (Taguchi, 2007b, 2008a, 2008b).

The present study aimed to fill these gaps in the literature and examined the effects of ID factors in changing pragmatic competence. Pragmatic change was traced in two aspects: appropriateness and fluency of speech act production. Changes in these aspects were analyzed in relation to three ID factors: proficiency, orientation toward learning (integrative and instrumental), and lexical access skill. These variables were selected to represent a range of individual (both cognitive and affective) and contextual factors that were found to affect pragmatic

competence in the previous literature. The study was guided by the research question: Do individual difference factors affect changes in appropriate and fluent speech act production?

Methods
Participants
Participants were 48 Japanese students of English as a foreign language (EFL) in an English-medium university in Japan.[1] In the school all courses are taught in English, 50-60% of the instructors are foreign nationals, and 10-15% of the student population are international students. All first-year students live in a dormitory with international students. The participants (hereafter EFL learners) were first semester Japanese students enrolled in the intensive English program. There were 16 males and 32 females, ranging in age from 18 to 21 with an average age of 18.33 (*SD*=.66).[2] Three students had experienced living in U.S.A. for one month. From class observations, interviews with instructors, and textbook analyses, it was concluded that the participants did not receive focused instruction on pragmatics.

Instrument
This study examined the development of pragmatic production – the ability to convey intentions appropriately and fluently in speech acts. A computerized oral discourse completion test (oral DCT) was developed to examine this ability. Participants read situational descriptions and produced two speech acts: requests and opinions. These two were selected after consulting Garcia's (2004b) analysis of naturalistic conversations in university settings. Garcia analyzed conversations across three registers: conversations between a professor and student, conversations among study group members, and service encounter conversations. She found that speech acts of

directives (request) and expressives (opinions) are common in the corpora. From the examples in the corpus data, request and four opinion situations were adapted for this study.

Oral rather than written DCT was selected because this study measured fluency as part of the construct of pragmatic competence. However, I acknowledge the weakness of the DCT instrument. While the DCT format was necessary to collect a large amount of data at once, DCT has been criticized because it lacks authenticity and participants have more time to plan their responses than in face-to-face interaction (Geluykens, 2007). These limitations should be kept in mind when interpreting the present findings.

Target speech acts of requests and opinions were divided into two different situational categories based on three contextual factors: interlocutors' power difference (P), social distance (D), and the size of imposition (R) (Brown & Levinson, 1987). In one situation type, the power relationship was equal, the distance between the interlocutors was small, and the degree of imposition was small (PDR-low). In the other situation type, the listener had greater power, the interlocutor distance was larger, and the degree of imposition was also large (PDR-high). See Table 1 for sample speech acts. Appendix A contains the copy of the instrument.

Table 1: Sample target speech acts

PDR-low
- Asking a friend for a pen
- Expressing a negative opinion about a friend's clothes

PDR-high
- Asking a professor for an extension of an assignment

- Expressing a negative opinion to a professor about his class

The length of situational descriptions was controlled across test items. The number of words used in each description ranged from 55 to 57 with a mean of 55.55 ($SD=.60$). The vocabulary used to write descriptions came from the top 3,000 words in the JACET (Japan Association of College English Teachers) basic word list (JACET, 2003). Two versions of the test were prepared and used alternatively to minimize the practice effect. The versions differed in proper nouns used, object names, dates and times, and conversation topics in the scenarios. The order of the items was randomized each time.

The final version of the instrument had a total of 14 items: four PDR-low speech acts, four PDR-high speech acts, four filler items, and two practice items. The oral DCT was computerized using the Revolution software (Runtime Revolution Ltd., 1997). The situations were presented in written form on the screen. The instrument was piloted with 25 native English speakers and 12 ESL students prior to the main study.

Evaluation of speech acts: Appropriateness and fluency
Participants' speech acts were evaluated on appropriateness and fluency. Appropriateness was defined as the ability to perform speech acts at the proper level of politeness, directness, and formality. It was assessed using a five-point rating scale ranging from 1 (very poor) to 5 (excellent) (see Appendix B). Four native speakers of English evaluated the samples.[3] Interrater reliability was $r=.92$. About 2.2% of the samples that had two points off in rating were discussed in the follow-up meetings. For the cases with one point off, the average

score was assigned as the final score. In order to maintain consistency in rating, speech samples used in the norming session included samples taken from different data collection sessions. Fluency was operationalized as speech rate and was measured as the number of words spoken per minute. False starts and repetitions were excluded from word count.

Measures for individual differences (ID)
Three ID factors were measured: general proficiency, orientation toward English study, and lexical access skill. All factors were measured multiple times during the study period, conforming to the current process-oriented approach that individual differences factors are not fixed and change over time (Dörnyei, 2009).

Proficiency
Participants' proficiency was measured with the institutional TOEFL (ITP TOEFL), consisting of three sections: listening, grammar, and reading. The ITP TOEFL was given three times at about same timing with the oral DCT. Different versions of the test were used to avoid practice effect.

Orientation to English study [4]
This study used a portion of Yashima's (2002) survey to measure orientation toward English study because the measure was developed specifically for Japanese learners of English who were also the target population in this study. Yashima used 12 items to measure Japanese EFL learners' specific orientations toward studying English. Adapting Gardner and Lambert's (1972) motivation framework, half of the items measured the degree of integrative orientation toward learning English (i.e., learning English to develop friendship with English speakers), and the other half measured the degree of instrumental orientation (i.e., learning English for utility-

based purposes).[5] Students rated the degree to which each statement matched their reason to study English on a 7-point scale. See examples (The items are in Yashima, 2002, p.66):

As a reason to study English:

1. It will allow me to get to know various cultures and people.
2. It will be useful for a future career.

Lexical access test
Lexical access skill was operationalized as the ability to make speedy lexical judgments. It was measured by a computerized word recognition test called lexical access test (LAT) adapted from Segalowitz and Freed (2004). The LAT had 40 frequent English words (e.g., "tiger"), and participants made quick judgments on whether each word that appeared on a computer screen referred to a living or nonliving object. The words were considered familiar to the Japanese participants because they appear in the basic vocabulary list in school textbooks authorized by the Japanese Ministry of Education. In addition to English lexical access, Japanese lexical access was measured in order to control individual differences coming from L1 processing. The test was given three times at same timing with the oral DCT with a different version each time.

Data collection procedures
The oral DCT was given individually three times during one academic year: Time 1 (April), Time 2 (July), and Time 3 (December). Two versions of the oral DCT were used across three time points (see instrumentation section). Students put on headphones with a microphone attached and read directions in English with Japanese translations. They were told to read each

situational scenario and respond as if they were in a real situation and performing the role. They had two practice items. Each item started with a situational scenario on the computer screen. They were allowed to take as much time to read the scenario and prepare for the speech act. When they were ready, they clicked on the "continue" button. Planning time was measured between the moment when the situational scenario appeared on the computer screen until the moment when the participants clicked on the "continue" button. Once they clicked the button, the scenario disappeared and the message "start speaking" appeared on the screen. After they finished the item, they moved on to the next item. The computer recorded their speech.

The LAT was given to the participants using the same computers. The participants read instructions on the screen in Japanese. After practicing four items, they completed the test items. When a word appeared on the screen, they made a quick judgment on whether the word referred to a living or nonliving object by pressing the key '1' for 'living' and '2' for 'nonliving,' which were adjacent to each other on the keyboard. Response time was measured between the moment when the target word appeared on the screen and the moment when the participants made a judgment and pressed the number key. The computer recorded all responses and their latencies. After the participants finished the oral DCT and LAT, they completed a paper-and-pencil version of the survey measuring learners' orientation to English study. The survey was given twice, at Time 1 and 3. Participants took about 10 minutes to complete the survey. The ITP TOEFL was given on separate days, approximately one week after they completed the oral DCT.

Data analysis procedures
This study examined the effects of learner characteristics on the ability to produce two speech acts (requests and opinions) appropriately and fluently. Appropriateness was evaluated on an interval scale between 0 and 20 across two situation types: PDR-low (requests and opinions combined; k=4, scale of 0-20) and PDR-high speech acts (requests and opinions combined; k=4, scale of 0-20). Fluency was assessed as speech rate (words per minute).

The effects of ID factors on pragmatic change were examined by using hierarchical linear modeling (HLM), with "time" as an independent variable, pragmatic abilities (i.e., appropriateness and fluency) as dependent variables, and the ID and context measures as covariates. This was accomplished by using a mixed model approach that revealed whether the covariates have a significant main effect on pragmatic change or a significant interaction effect with "time" on pragmatic change. HLM was used for two reasons. First, it is appropriate for data collected from intact classes without random sampling (Raudenbush & Bryk, 2002). Second, it can be used for covariates that form repeated measures data (data taken from the same individuals over multiple times). Because the covariates were measured at multiple times in this study, HLM allowed us to examine the effect of covariates that may change over time. Normality of distributions of residuals was checked by inspecting Q-Q plots. Because planning time data and lexical access response times data were not normally distributed, following Tabachnick and Fidell (2001), a logarithmic transformation was performed before submitting the data to statistical analyses. The alpha-level was set at .05.[6]

Results

Descriptive statistics

Tables 2 and 3 display descriptive statistics of the two aspects of speech act production analyzed in this study: appropriateness scores and speech rate. There was a large discrepancy between low- and high-imposition speech acts in both measures at all time points, confirming the distinct differences between the two situation types. Low-imposition speech acts were easier and faster to produce than high-imposition speech acts. Paired-sample *t*-test results confirmed the situational differences for all variables, at all time points.

Table 2: Appropriateness scores, descriptive statistics

	Mean	*SD*	Min.	Max.
Low-imposition				
Time 1	3.88	1.02	1.25	5.00
Time 2	4.08	.46	2.38	4.75
Time 3	4.73	.31	3.50	5.00
High-imposition				
Time 1	2.63	.64	1.00	4.00
Time 2	2.71	.50	1.75	4.25
Time 3	3.13	.48	2.13	4.25

Notes. Low- and high-imposition situations include speech acts of requests and opinions combined. Appropriateness was assessed on a five-point scale ranging from 1 to 5.

Table 3: Speech rate, descriptive statistics

	Mean	*SD*	Min.	Max.
Low-imposition				
Time 1	84.03	23.36	44.89	139.96
Time 2	92.45	19.94	56.10	153.35
Time 3	90.23	22.37	48.65	157.64
High-imposition				
Time 1	72.86	18.66	36.62	117.34
Time 2	78.17	19.95	37.73	143.92
Time 3	83.40	17.99	52.41	140.85

Notes. Speech rate refers to the average number of words spoken per minute.

Tables 4 to 6 display descriptive statistics of individual differences (ID) factors. As shown in Table 4, the learners demonstrated an increasing proficiency over time. Paired-sample t-test results revealed significant differences for all time contrasts, *t*=-18.34 (*p*=.000) at Time 1-2, and *t*=-4.91 (*p*=.000) at Time 2-3.

Table 4: ITP TOEFL score, descriptive statistics

	Mean	*SD*	Min.	Max.
Time 1	459.35	17.76	413.00	497.00
Time 2	511.90	20.22	470.00	543.00
Time 3	524.32	24.02	467.00	563.00

Table 5 displays descriptive statistics for orientation toward English study. This variable showed no significant change between Time 1 and 3: *t*=-.42, *p*=.68 for the integrative orientation, and *t*=.69, *p*=.50 for the instrumental orientation. At both times, the learners' integrative orientation was higher than their instrumental orientation.

Table 5: Orientation toward English study, descriptive statistics

	Mean	*SD*	Min.	Max.
Integrative orientation				
Time 1	5.77	0.98	3.17	7.00
Time 3	5.77	0.99	3.23	7.00
Instrumental orientation				
Time 1	4.74	0.76	3.00	6.33
Time 3	4.66	0.95	2.50	6.00

Notes. Six items of the seven-point Likert scale measured integrative and instrumental orientation. The mean refers to the average. A

larger number means a greater degree of orientation.

The learners showed improvement in their lexical access speed (Table 6). Paired-sample t-test showed significant difference in the response times at Time 1-2 (t=3.33, p=.002) and at Time 2-3 (t=4.06, p=.000).

Table 6: Lexical access response times, descriptive statistics

	Mean	*SD*	Min.	Max.
Time 1	1.09	0.21	0.72	1.64
Time 2	0.99	0.18	0.72	1.50
Time 3	0.92	0.14	0.70	1.37

Effects of individual differences and language contact on pragmatic change
Statistical analyses were performed to examine the effects of ID factors on learners' changing ability to produce speech acts. The first ID factor assessed was general proficiency. The mixed-model revealed no significant main effect of proficiency on changes of appropriateness or fluency, neither PDR-high- or low speech acts. Findings indicate that pragmatic abilities measured did not change over time corresponding to the changes in the ITP TOEFL score.

Regarding the orientation toward English study, the mixed-model revealed the significant main effect of integrative orientation on the appropriateness score of PDR-low speech acts, F=14.72, p=.000 (Cohen's d=.50 for Time 1-2; Cohen's d=.97 for Time 2-3). Results suggest that the students who reported studying English because of their interest in social interaction with English speakers showed a greater gain in their ability to produce PDR-low speech acts appropriately. Instrumental orientation, however, had no significant effect on any of

the pragmatic abilities measured in this study.

Finally, the mixed-model revealed significant main effect of lexical access skill on speech rate, F=9.62 (p=.003) for PDR-low speech acts (Cohen's d=1.32 for Time 1-2 and .79 for Time 2-3) and F=9.32 (p=.003) for PDR-high speech acts (Cohen's d=1.40 for Time 1-2 and .47 for Time 2-3). Results indicate that the faster the lexical access became, the faster the speech rate became, regardless of the situation type.[7]

Discussion
This study found that the change in different aspects of pragmatic competence (appropriateness and fluency) over different task situations (PDR-high and low) was affected differently by different ID factors. No effect of general proficiency on pragmatic change was somewhat surprising, considering that a large body of existing literature clearly suggests an influence of proficiency on pragmatic performance. Previous cross-sectional studies generally found that higher proficiency learners perform pragmatic functions more appropriately and fluently, and employ more target-like pragmalinguistic forms than lower proficiency learners (e.g., Dalmau & Gotor, 2007; Félix-Brasdefer, 2004, 2007; Garcia, 2004a; Geyer, 2007; Pinto, 2005; Röver, 2005; Taguchi, 2007a, 2011; Yamanaka, 2003; Xu et al., 2009). There are several interpretations for the contradicting findings from this study. First, proficiency could differentiate levels of pragmatic performance but may not be the factor that influences developmental changes. Previous research largely explored the proficiency-pragmatics relations in a cross-sectional, single-moment design by comparing learner groups of different proficiency levels. Hence, in a longitudinal design, proficiency may exhibit different degrees of influence

on pragmatic competence. The findings suggest that a threshold-level proficiency is necessary to perform pragmatic functions, but proficiency alone is not sufficient for learners to make further progress toward a full mastery of pragmatic abilities. In addition, the length of this study (eight months) might have affected the results. In earlier cross-sectional studies that compared pragmatic competence across different proficiency levels, the difference in learners' proficiency between lower and higher proficiency groups was much greater than the differences between the learners' proficiency across time spans in this study.

If not proficiency, what factors affect pragmatic development? This study revealed different effects of IDs across different dimensions of pragmatic abilities. Appropriateness of PDR-low speech acts was affected by integrative orientation. According to Gardner (1985), an integrative orientation involves a wish to develop an understanding and possibly become part of the target language culture. In Yashima (2002), integrativeness (termed as "intercultural friendship orientation") predicted motivation, which in turn led to L2 proficiency. In the present study, this same orientation had a positive impact in the development of PDR-low speech acts, indicating that a positive affective disposition toward the L2 community and a desire to interact and identify with its members was a key mediating factor for the attainment of PDR-low speech acts. The PDR-low situations used in this study were informal situations involving talking to friends about routine matters. Making a small request to a friend or giving a personal assessment on a subtle matter were probably frequent in the bilingual campus environment and were part of daily communication among the learners studied here. Integrative orientation explained this

type of speech act's gains probably because one's needs and desire to become part of the target language culture led to greater access to the L2 community, which involved plenty of opportunities to practice the target PDR-low speech acts.

Appropriateness of PDR-high speech acts, on the other hand, was not affected by the integrative orientation probably because formal communication opportunities (e.g., talking to a professor on a serious matter) were not as frequent. As a result, learners' interest in social interaction with members in the L2 community did not matter as much for the development of PDR-high speech acts because the type of social interaction in the community did not provide as many opportunities to observe or practice formal language. This was somewhat supported by learners' responses in the language contact survey I administered as background survey. Average amount of time spent talking to teachers (presumably involving formal speech) was less than one hour per week, while that of talking to friends (presumably involving informal speech) was 2.35 hours per week. However, regrettably, this study was not able to examine the actual level of formality involved in interaction with teachers versus with friends. Because no variables in this study revealed significant impact on PDR-high speech act, it remains for future research to reveal precise factors that affect the development of this type of speech act.

Gains on the fluency of speech acts (i.e., speech rate) were significantly affected by lexical access skill. The learners with faster lexical access showed a faster speech rate regardless of the situation type. These findings are consistent with previous findings that revealed a significant relationship between lexical access skill and processing speed in pragmatics. Taguchi

(2007b) found that lexical access skill was associated with response times of pragmatic comprehension, but not with accuracy of comprehension. Similarly, in Taguchi (2008b), lexical access speed and language contact significantly correlated with gains in pragmatic comprehension speed, but not with gains in accuracy. These previous findings suggest that the lexical access skill – the ability to assign meaning quickly – serves as a component process that affects the comprehension speed of pragmatic meaning. The present study adds to the previous findings in that speedy lexical access could promote fluent production of speech acts. The present results are also consistent with Segalowitz and Freed (2004) who found significant correlation between oral fluency and lexical access speed, indicating that the ability to access word meaning quickly could enhance oral fluency in general.

In conclusion, responding to Kasper and Rose's (2002) claim that individual differences and L2 pragmatic development is the most under-researched area, this study investigated the effect of three ID factors on gains in pragmatic production. Results showed that there was no single ID factor that had a significant effect on all aspects of pragmatic competence. The findings suggest that the aspect of pragmatic competence and individual characteristics interact with one another. The interaction gleaned in this study is two-fold: gains in fluency of pragmatic competence (speech rate) was affected by the cognitive variable, namely lexical access, while gains in the appropriateness of pragmatic competence was affected by the affective variable, namely learners' orientation toward target language community (integrative orientation). These findings lend support to the recent claim that individual attributes are multi-componential (Dörnyei, 2009). There

is a combined operation of mixed individual factors on change in language abilities, and it was found to be true in pragmatic competence in this study.

Limitations of the study and directions for future research
This study has several limitations that need to be addressed in future research. First, because the ID factors examined in this study were no way exhaustive, future research should explore a greater number of affective and cognitive factors to expand the scope of ID research. With a larger sample size, future research could use a different statistical method, such as structural equation modeling and path analysis, to visualize the hierarchy and direction of interaction among the ID factors in their effect on pragmatic achievement. Similarly, this research is limited in that it examined the development of one type of pragmatic function, namely the production of speech acts, using a small-scaled instrument. With a larger test battery, future research should be able to expand the scope of the target pragmatic features and track down the change of different pragmatic sub-competencies in relation to learner-specific and contextual factors.

Finally, this study pursued a quantitative, group-based analysis of IDs focusing on the central tendency of certain characteristics. In future research, a qualitative, individual-level analysis focusing on idiosyncratic deviations from the group average would be useful in investigating pragmatic development from a perspective of a socially situated individual process. When combined, the group and individual-level findings will mutually inform each other with the synergy between them illuminating the complex intersect between individuals, context, and changes in pragmatic abilities.

Notes

1. In addition to the L2 learners, 24 native speakers of English completed the oral DCT and provided base-line data. Due to the space limit, the data is not reported here.

2. The sample was skewed toward women because the male-female ratio in the institution is three-to-seven. I acknowledge the possibility that findings from this study were gender-biased.

3. Four raters of mixed cultural background: an Australian white male and female, an African-American male, and a female Japanese-American, evaluated the samples. They had little background in Applied Linguistics or related field, and had limited experience in teaching English. They were not instructors of the participants.

4. Gardner (1985) distinguishes between motivation and orientation. Orientation refers to the long-range goals for learning a language, while motivation refers to the effort learners are prepared to make to learn L2. This study measured orientation following Yashima (2002).

5. The reliability for the orientation survey was .78 in Yashima (2002). In my study it was .73.

6. Although I consulted with a statistics expert to ensure the appropriateness of the use of HLM with the current sample size of 48, results should be interpreted with caution due to the small sample size. Separate mixed-model analyses were performed for individual covariates the covariates did not correlate significantly. When there was no interaction effect but main effect, the model was adjusted by re-running HLM without interaction effects. The main effect of covariate was confirmed in all cases. Effect size (Cohen's d) was calculated by dividing parameter estimate by the standard deviation of dependent variable. Model fit was checked by inspecting the residuals-covariate scatter plot.

7. As a post hoc analysis, the participants' lexical access in their L1 (Japanese) was measured and assessed in relation to their L2 lexical access (English). There was also a significant interaction effect between English lexical access and Japanese lexical access on speech rate: $F=9.52$ ($p=.003$) for PDR-low and $F=9.29$ ($p=.003$) for PDR-high speech acts. Hence, the effect of English lexical access on speech rate depended on the Japanese lexical access speed.

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Appendix A
Oral DCT sample situational scenarios

Notes. In order to avoid practice effect, two parallel versions of the test were prepared by making slight changes in the descriptions. The items were given in a random order each time.

1. Requests
Low-imposition situations
You are in your English class. You have a free writing task in class today, but you forgot to bring a pen. You need a pen to write the essay. You want to borrow a pen from your friend, Ken, in the class. He is sitting next to you. What do you say to Ken?

High-imposition situations
You are taking Professor Smith's intercultural communication class this semester. You have a small test in her class next Monday, but you just realized that you have to go out of town that day because of your cousin's wedding. You want to take the test at some other time. What do you say to Professor Smith?

2. Opinions
Low-imposition situations

You are working on a paper for Japanese Culture class with your classmate, Cindy. You and Cindy are very close friends. Cindy asked you to check the first draft of her paper on the Japanese education system. The paper is well-written, but you think the introduction is too long. What do you say to Cindy?

High-imposition situations
You're taking Professor Williams' business class. He gave you a mid-semester grade of C, but you don't think it's fair. You missed three classes and didn't speak up in class much, but you always turned in homework on time and got 80% on the test. You go to Professor William's office to explain. What do you say?

Appendix B
Appropriateness rating scale used for the evaluation of speech acts

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5 Excellent
Almost perfectly appropriate and effective in the level of directness, politeness and formality.

4 Good
Not perfect but adequately appropriate in the level of directness, politeness, and formality. Expressions are a little off from target-like, but pretty good.

3 Fair
Somewhat appropriate in the level of directness, politeness, and formality. Expressions are more direct or indirect than the situation requires. (e.g., What did you speak?)

2 Poor
Clearly inappropriate. Expressions sound
almost rude or too demanding. (e.g., You
say that?)

1 Very poor
Not sure if the target speech act is
performed.