

L2 Intolerance of ambiguity revisited: Toward a comprehensive understanding

Harumi Kimura

Miyagi Gakuin Women's University, Sendai, Japan

kharumi@mgu.ac.jp

Abstract

This paper explores how L2 intolerance of ambiguity (L2 ITA) is related to other types of intolerance of ambiguity constructs: intolerance of uncertainty (ITC), intolerance of interpersonal ambiguity (interpersonal ITA), and intolerance of intercultural ambiguity (intercultural ITA). First, 207 Japanese university students participated in a study and took a survey, which consisted of four intolerance of ambiguity scales. The four constructs were found to correlate with each other, although to different degrees. The results of regression analyses demonstrated that only ITC significantly predicted L2 ITA, indicating that learners who were less tolerant of uncertainty could become less tolerant of ambiguity in L2 situations. Second, seven students attended a think aloud session followed by a short interview. The data revealed that interpersonal and intercultural ambiguities as well as linguistic ambiguity are inherent in L2 situations. Future studies on L2 ITA should take a comprehensive approach to fully understand these phenomena and their consequences.

Keywords: intolerance of ambiguity; intolerance of uncertainty; ethnocentrism; self-presentation; social turn

1. Introduction

The concept of intolerance of ambiguity (ITA) has attracted research in second language acquisition (SLA) and is considered one of the individual difference variables that can influence L2 learning and use. In traditional L2 strategy research,

for example, good language learners were considered to comfortably make guesses in facing ambiguity/uncertainty (Rubin, 1975). It is thus implied that more successful learners are more tolerant of ambiguous L2 situations. Ely (1989) created the *Second Language Tolerance of Ambiguity Scale* and found that the levels of L2 ITA are related to the use of different strategies, for better or worse. Learners with less tolerance for ambiguity tend to focus on bottom-up comprehension strategies while learners with more tolerance attempt to grasp meaning too quickly. Generally speaking, people who are intolerant of ambiguity tend “to perceive (i.e., interpret) ambiguous situations as sources of threat” (Budner, 1962, p.29) and show an aversive reaction toward them. However, to this day, “[t]here is still no clear operational definition of tolerance of ambiguity” (Furnham & Marks, 2013, p. 718). Moreover, it has been difficult to synthesize and interpret the results of the past studies in a meaningful way because a number of different scales to measure ITA have been created and used in different fields, such as personality, social, clinical, and organizational psychology (Furnham & Marks, 2013; Furnham & Ribchester, 1995). In addition, researchers do not agree whether intolerance of ambiguity is a personality trait or a cognitive style. Much work remains to be done in this area.

In this paper, I first investigate what the *Second Language Tolerance of Ambiguity Scale* (Ely, 1989) measures by linking L2 intolerance of ambiguity with other general types of ambiguity intolerance. Second, based on verbal protocol and interview data, I discuss how L2 learners can be influenced by linguistic, social, and cultural aspects of ambiguity in L2 learning and use. In the next section, I briefly discuss how the ITA psychological construct was developed in the field of psychology, move on to its research in SLA, and argue that the past studies of L2 ITA have had too narrow a focus on the linguistic aspect of ITA and therefore a broader perspective should be taken to better understand ITA in L2 settings.

2. Literature review

2.1. Development of the concept and the scales in psychology

The ITA concept was originally developed by Frenkel-Brunswik (1948) in relation to authoritarian personality to demonstrate the existence of ethnocentrism in children. The concept was later defined as “a general personality variable relevant to basic social orientation” (Frenkel-Brunswik, 1949, p. 268). Frenkel-Brunswik analyzed interview data and demonstrated that people who were less tolerant of ambiguity were inclined to dichotomize and cling to the familiar, regular, and clear. They also rejected the unusual and different and resorted to premature decision-making. This characterization led Eysenck (1954) to recognize ITA

as a near equivalent of rigidity. People who are intolerant of ambiguity, who are less flexible and inclined to take black-and-white views, are thought to seek certainty. Budner (1962) moved the field further by refining the notion of ambiguity as lacking enough clues to adequately structure or characterize situations. He characterized ambiguous situations as novel (no clue), complex (too many clues), or insoluble (inconsistent clues), and explored individuals' adaptive and coping patterns in these situations. When an individual reacts to ambiguous situations with depression, denial, anxiety, uneasiness, disruptive, or reconstructive behaviors, he or she is considered to be intolerant of ambiguity. Budner's (1962) work, the most frequently cited literature among the studies on ITA, is notable in taking into account (the lack of) situational information in the construct conceptualization.

Conceptual and definitional discussions continued in the years to come. Most of the early ITA studies were correlational. Researchers, including Budner (1962), developed their own instruments to measure ITA levels. They primarily sought to achieve concurrent, convergent, and discriminant validity of ITA. For example, ITA was demonstrated to correlate positively with dogmatism and rigidity (McDonald, 1970), and negatively with willingness to take risks and receptivity to change (McLain, 1993). More recent works included more sophisticated statistical procedures, such as the Rasch model (e.g., Lange & Houran, 1999) and confirmatory factor analysis (e.g., McLain, 2009). These studies proposed a unidimensional model of ITA although some other studies, such as Durrheim and Foster (1997), presented a multi-factor model. Those conflicting proposals led Herman, Stevens, Bird, Mendenhall, and Oddou (2010) to describe ITA as "unitary yet multifaceted" (p. 59).

Furthermore, although the connection between the two concepts, ambiguity and uncertainty, has not been fully explored, intolerance of ambiguity (ITA) and intolerance of uncertainty (ITU) appear to be distinct constructs in psychology. ITU has been defined as "a dispositional characteristic that results from a set of negative beliefs about uncertainty and its implications and involves the tendency to react negatively on an emotional, cognitive, and behavioral level to uncertain situations and events" (Buhr & Dugas, 2002, p. 216). As such, it is "associated with worry and negative expectations of the future" (Furnham & Marks, 2013, p. 718) and has been most often used in clinical psychology as a diagnostic measure of general anxiety, clinical worry, and other emotional disorders (e.g., Boswell, Thompson-Hollands, Farchione, & Barlow, 2013; Buhr & Dugas, 2002, 2009). Although researchers in this area seem to be interested in what disorders ITU is linked with and what treatment is more effective for which group of patients, they are not much concerned with what uncertainty is about. On the other hand, as previously observed in this paper, ITA researchers have

mostly examined the construct in relation to personality traits such as authoritarianism and ethnocentrism (e.g., Frenkel-Brunswik (1948) or cognitive styles (e.g., Wolfradt, Oubaid, Straube, Bischoff, & Mischo, 1999), and the conceptualization of ITA appears to be more 'ambiguous' than that of ITU.

Furnham and his colleagues (Furnham, 1994; Furnham & Marks, 2013; Furnham & Ribchester, 1995) have reviewed literature on ITA and its related constructs. Their latest study, (Furnham & Marks, 2013), investigated 10 scales, reviewed 30 studies with the 10 scales, and concluded that the results of past studies in this area are difficult to interpret because researchers have conceptualized the construct differently, operationalized the construct in different ways, and used different measures and items. Thus, "[t]he papers in this area lack sophistication" (p. 725). One promising direction Furnham and Marks (2013) have suggested is developing and using contextualized measures for ITA. Durheim and Foster (1997) have suggested that ITA cannot be generalized across different domains. They demonstrated that personality measures did not accurately predict the levels of ITA in specific content domains, such as management (Westerberg, Singh, & Hackner, 1997) and nursing (Ironsides, Jefferies, & Martin, 2009), and claimed that the personality-based understanding of ITA has led nowhere, which is why the results of past studies have appeared disconnected, piecemeal, elusive, and inconsistent. Herman et al. (2010) have also advocated the use of contextualized measures. A body of literature in their field of international management has indicated that ITA influences cross-cultural competence, job performance, and global leadership effectiveness, but specific claims past researchers have made were weak because of a lack of adequate psychometric evidence. Herman and his colleagues created their own scale, the *Tolerance for Ambiguity Scale* (Herman et al., 2010), to measure the intercultural aspect of ambiguity tolerance. The scale was based on Budner (1962), but the researchers created originally generated items for the purpose of investigating the link between ITA and cross-cultural phenomena. Their study marked a trend in the development of contextualized ITA measures. I will discuss their measure in more detail later in the section devoted to methodology.

2.2. Studies of ITA in SLA

L2 ITA studies began as an aspect of research on good language learners. Researchers asked how good language learners have learned L2s because what they do would likely guide ordinary language learners toward a successful path of L2 acquisition (e.g., Griffiths, 2008; Rubin, 1975, 2008). The general understanding is that it is critical for L2 learners to operationalize relevant, appropriate strategies according to the task and situation at hand (e.g., Dörnyei, 2005; Gu,

2012). In relation to ambiguity that might exist in L2 situations, Rubin (2008) wrote that good language learners “recognize that change is an integral part of the learning process (...) they are more comfortable with uncertainty” (p. 11).

In addition to Rubin (2008), Ely (1989), who created the *L2 Tolerance of Ambiguity Scale*, used the term ‘uncertainty’ to describe the situations in which ambiguity exists in L2 learning (Ely, 1995). ‘Uncertainty’ seems to induce a mental state of “not particularly pleasant” (Ely, 1995, p.87). It can also induce “discomfort” (Ely, 1989, p. 88), or “a feeling that may inhibit students’ risk taking and interfere with their acquisition of new learning strategies” (Ely, 1995, p. 87). It is important to note that both ‘uncertainty’ and ‘ambiguity’ have been used interchangeably in L2 literature and a thorough discussion or investigation on the similarities and differences between the two concepts has not been conducted to the best of my knowledge. Moreover, L2 researchers have equated ambiguity with linguistic uncertainty. Cited examples of ambiguity in Ely (1995), for example, include grammatical, lexical, and phonological ambiguities. Thus, L2 researchers have contended that learners are likely to feel ambiguous when they recognize linguistic uncertainty in their language input and output. This conception of ITA in L2 acquisition studies is reflected on the 12 items in Ely’s (1989) scale. Although the items were originally created for learners of the Spanish language, they can be used for L2 learners of any language by substituting the word ‘Spanish’ with any language and thus the items are versatile. Furthermore, Ely’s scale is a domain-specific, or contextualized, measure of ITA for L2 learning situations and thus in line with the above-mentioned recent trends in ITA studies in psychology. The items are well-balanced among four different linguistic skill areas (i.e., reading, writing, listening, and speaking) and three linguistic domains (i.e., pronunciation, vocabulary, and grammar). The emotions evoked by linguistic uncertainty vary and include liking, wish, bother, worry, frustration, impatience, and enjoyment. One item on reading is as follows: “When I’m reading in Spanish, I get somewhat impatient when I don’t totally understand the meaning”. This item taps into the negative emotion of impatience when learners read in their L2 and causes uncertainty about the meaning. Thus, it has good construct validity if we define ambiguity in L2 situations narrowly as the cognition of linguistic ambiguity/uncertainty.

However, other types of ambiguity might be involved in L2 communication. First, language learning is at least partly social, so the interpersonal or social aspect of ambiguity should also be investigated in L2 learning situations. Past research in psychology has demonstrated that people are different in terms of how comfortable/uncomfortable they feel in dealing with ambiguous or awkward interpersonal situations (Tomono & Hashimoto, 2005; Wolfradt, et al., 1999, Wolfradt & Rademacher, 1999). For example, people demonstrate different

psychological reactions when they do not have a clue of what other people are asking of them. Some can take it in stride, but others feel stressed. L2 learners are more likely to face interpersonally ambiguous situations because they are not skillful in managing interaction in the L2. It is likely that some learners are better in dealing with such situations than others, but past research in SLA has not investigated this interpersonal aspect of ITA.

Second, L2 learners may experience ambiguity when they are not sure about culturally appropriate responses. In the international management literature, a high tolerance of ambiguity was linked to cross-cultural competence (Nishida, 1985) and global leadership (Arthur & Bennett, 1995). In a recent study on L2 ITA, Dewaele and Wei (2013) investigated whether monolinguals have less tolerance for ambiguity than bilinguals and multilinguals using the above-mentioned, domain-specific scale measuring intercultural ITA, the *Tolerance for Ambiguity Scale* (Herman et al., 2010). The answer turned out to be affirmative since the participants who knew more than one language were more tolerant of ambiguity ($F(5, 1980 = 8.7)$, $p < .0001$, $\eta^2 = .21$). The researchers also explored whether individuals' experience of staying or studying abroad influence their levels of ITA. The answer was again affirmative because participants who had stayed abroad were more tolerant of ambiguity than participants who had never stayed abroad ($F(2, 1980 = 11.0)$, $p < .0001$, $\eta^2 = .011$) To put the results together, using more than one language and experiencing stay/study abroad contributed to a higher tolerance of intercultural ambiguity and a larger capacity to accept what is culturally unknown. Along the same lines, university students who joined international volunteer programs demonstrated a significant decrease in ethnocentrism in Yashima's (2010) longitudinal study. The volunteers, who were grouped with students from different countries, worked in different areas such as human services, cultural events, and construction for two to three weeks. They developed intercultural awareness ($F(1, 385 = 14.00)$, $p = .000$, $\eta^2 = .04$), became more open to different cultures ($F(1, 386 = 42.95)$, $p = .000$, $\eta^2 = .10$), and manifested reduction in ethnocentric attitudes ($F(1, 388 = 25.34)$, $p = .000$, $\eta^2 = .06$).

It is worth mentioning that Dewaele and Wei (2013) used the *Tolerance for Ambiguity Scale* (Herman et al., 2010) to investigate the intercultural aspect of ITA while Yashima (2010) used five items to measure ethnocentric tendency. Dewaele and Wei (2013) and Yashima (2010) used distinct measures for similar constructs and demonstrated related gains: knowing more than one language was linked to more tolerance for ambiguity (Dewaele & Wei, 2013) and intercultural/interlanguage contact made a difference in terms of tolerant attitudes toward intercultural ambiguity (Dewaele & Wei, 2013) and openness toward different values (Yashima, 2010). In fact, Yashima's items were similar to items in the *Tolerance for Ambiguity Scale* (Herman et al., 2010). For example, one item

in Herman et al. (2010) reads: "I can enjoy being with people whose values are very different from mine". One item Yashima used to tap into ethnocentrism reads: "I enjoy collaborating with people who have different customs or values". These two studies suggested that intercultural ITA, or ethnocentrism, could be the important aspect of L2 ITA.

It is also important to point out that the same researcher has used two distinct measures to answer related, but distinct research questions. On the one hand, as reviewed earlier, Dewaele and Wei (2013) used the *Tolerance for Ambiguity Scale* (Herman et al., 2010) to investigate the relationship between the intercultural aspect of ITA and multilingualism. On the other hand, another recent study by Dewaele and Ip (2013) used Ely's scale to investigate the relationships between L2 ITA, foreign language classroom anxiety, and self-perceived English proficiency in Chinese foreign-language settings. In this latter study, the researchers found that individuals who were more tolerant of L2 ambiguity were less anxious in their classes and felt more skillful in their L2. However, no study has investigated how the intercultural aspect of ITA and L2 ITA are related. On the whole, past literature in SLA has linked L2 ITA to strategy use, L2 classroom anxiety, and self-perceived L2 proficiency, but it has not yet been linked either to intolerance of uncertainty or the interpersonal aspect of ITA. It has yet to be examined whether L2 ITA is related to the intercultural aspect of ITA.

3. The study

3.1. Aims and research questions

The objective of this study is to fill these gaps by: (a) relating intolerance of uncertainty, the interpersonal aspect of ITA, and the intercultural aspect of ITA with L2 ITA, and (b) further exploring when and how L2 learners become intolerant of ambiguity. The research questions of this study are the following:

1. How are L2 intolerance of ambiguity, intolerance of uncertainty, intolerance of interpersonal ambiguity, and intolerance of intercultural ambiguity related?
2. How much can intolerance of uncertainty, intolerance of interpersonal ambiguity, and intercultural ambiguity predict L2 intolerance of ambiguity?
3. In what ways do linguistic, interpersonal, and intercultural aspects of ambiguity influence L2 learners?

3.2. Methods

3.2.1. Participants

Two hundred and seven Japanese university students in two schools in northern Japan participated in the survey part of this study in June, 2014 (School A – 175 students and School B – 32 students; 119 female students, 87 male students, and 1 student unknown; mean age amounted to 18.4 years; age range: 18-21). Three teachers separately administered the survey in their classes. Their classes were all required courses. The students' majors were varied and included (in alphabetical order) early childhood education, environmental studies, information technology, music, nursing, policy studies, and rehabilitation medicine. Among the participants, seven students (six female students and one male student) also voluntarily contributed their verbal protocol and interview data to this study.

3.2.2. Instruments

Ely (1989) developed the *Second Language Intolerance of Ambiguity Scale*. The instrument measures the tendency of an individual to perceive ambiguous L2 information as uncomfortable and stressful. It consists of 12 items: two items for reading, two for writing, one for listening, and one for speaking, two for vocabulary, two for grammar, and two for pronunciation. Two are reversed items. The reliability (Cronbach alpha) was .82 ($N = 84$). The original items were for learners of Spanish, so the word 'Spanish' was changed to English. Buhr and Dugas (2002) developed the *Intolerance of Uncertainty Scale*, an instrument that measures the degree of difficulty in dealing with uncertainty-inducing situations. It consists of 27 items that express how individuals deal with and feel about uncertain situations and the reliability (Cronbach alpha) is .94 ($N = 276$). Wolfradt and Rademacher (1999) developed the *Scale of Interpersonal Ambiguity*. It consists of 10 items and captures different situations that might cause interpersonal difficulties, with the reliability (Cronbach alpha) standing at .80 ($N = 357$). Herman et al. (2010) developed the *Tolerance for Ambiguity Scale*. The instrument measures how tolerant/intolerant individuals turn out to be in intercultural situations. It consists of 12 items of cross-cultural relevance, related to how well individuals cope with unfamiliarity, conflicting values, extraneous perspectives, and change. The reliability (Cronbach alpha) of the scale was found to amount to .73 ($N = 2,351$). For all these measures, positively worded items were revised and phrased negatively to measure how intolerant individuals become in each situation (see Quilty, Oakman, & Risko, 2006 concerning problems associated with mixing positively and negatively worded items.)

3.2.3. Procedure

Two teachers administered the survey with a total of 61 items of the four scales in their classes. It took the participants about 15 minutes to answer all of the items. One of the teachers collected verbal protocol (think-aloud) data (Ericsson & Simon, 1993) and conducted interviews in Japanese. The verbal protocol data were collected to better understand the thinking processes that underlie the decision the participants made when they interpreted each of the survey items and chose a degree of endorsement to the item. In the researcher's office, the seven volunteers individually read aloud the items one by one and articulated what appeared in their minds. After the session, the participants were asked questions in terms of some specific items in Japanese. On average, it took participants 22.5 minutes to go through the items and the interview. The interview data was transcribed to identify episodes, or small stories (Bamberg, 2006), and coded according to different themes. A small story is a teller's account of an event, or a narrated story of his or her everyday life, reflectively put together as an episode. Only the parts to be cited later in the discussion were translated into English. A colleague of the author read the transcripts for verification and assisted in coding through discussion with the author.

3.2.4. Results

A standard multiple regression analysis was conducted to evaluate how well the three separate intolerance of ambiguity measures predicted L2 intolerance of ambiguity. The predictors included the three indices of intolerance of ambiguity: the *Intolerance for Ambiguity Scale*, the *Scale of Interpersonal Ambiguity*, and the *Intolerance of Uncertainty Scale*. The criterion variable was the *L2 Intolerance of Ambiguity Scale*.

The assumptions of the statistical analyses were checked for regression (Field, 2005). First, standardized residuals were checked and one participant with a value above three was excluded as a univariate outlier (Field, 2005). Second, multivariate outliers who had unexpected combinations of scores on the measures were identified using Cook's distance and the Mahalanobis distance. No participant displayed a value above one on Cook's distance. Two participants displayed a value above 15 on the Mahalanobis distance and were excluded (Larson-Hall, 2015). Third, normality was examined by inspecting the probability plot of the standardized residuals. The data did not veer too far from the line and demonstrated normality. Normality was also examined by inspecting a plot of ZRESID against ZPRED. The graph looked "like a random array of dots evenly dispersed around zero" (Field, 2005, p. 202). For this reason, normality was assured.

Correlation coefficients of the three predictor variables and the dependent variable were computed for multicollinearity. Using the Bonferroni approach to control for Type 1 error across the four correlations, a p value of .0125 (.05/6) was required. All the six correlations were statistically significant and displayed different degrees of correlations (.37-.78) (Table 1) that were below .90 (Field, 2005), which demonstrated that there was no collinearity. Correlation coefficients demonstrated interrelationships among the four constructs. The L2 intolerance of ambiguity showed moderate correlations with the other three constructs, that is the intolerance of uncertainty (.57), the intolerance of interpersonal ambiguity (.49), and the intolerance of ambiguity in intercultural situations (.39). On the other hand, the intolerance of uncertainty established high correlations with the intolerance of ambiguity in intercultural situations (.78) and with the intolerance of interpersonal ambiguity (.70); the intolerance of ambiguity in intercultural situations and the intolerance of interpersonal ambiguity were also highly correlated (.72).

Table 1 Means, standard deviations, and intercorrelations for scores on four measures

	<i>M</i>	<i>SD</i>	1	2	3	4
L2ITA	41.75	9.14	–			
IUS	88.61	20.14	.57	–		
PITA	31.65	7.01	.49	.78	–	
ICTA	41.35	7.80	.39	.70	.72	–

Note. All coefficients are significant at $p < .01$. L2ITA = the Second Language Intolerance of Ambiguity Scale, IUS = the Intolerance of Uncertainty Scale, IPTA = the Scale of Interpersonal Ambiguity, ICTA = the Tolerance for Ambiguity Scale.

The linear combination of intolerance of ambiguity measures was significantly related to L2 intolerance of ambiguity ($F(3, 200) = 30.81, p < .01$). The correlation coefficient was .56, indicating that approximately 32% of the variance of L2 situation-specific intolerance of ambiguity can be accounted for by the linear combination of three intolerance of ambiguity measures. Adjusted R^2 was .31, suggesting only a small loss of predictive power in regression. Among the three predictor variables, only the *Intolerance of Uncertainty Scale* significantly predicted the L2 *Intolerance of Ambiguity* ($t(203) = 4.72, p < .01$) (Table 2).

Table 2 Regression analysis summary for intolerance of ambiguity variables predicting second language intolerance of ambiguity

	<i>B</i>	<i>SEB</i>	β	<i>t</i>	<i>p</i>
IUS	.45	.10	.46	4.72	.00
PITA	.18	.10	.19	1.85	.07
ICTA	-.07	.09	-.07	-.82	.41

Note. $p < .01$. IUS = the Intolerance of Uncertainty Scale, PITA = the Scale of Interpersonal Ambiguity, ICTA = the Tolerance for Ambiguity Scale.

Next, a hierarchical multiple regression analysis was conducted to evaluate how much each of the three predictors contributed to the prediction equation individually using the *Intolerance of Uncertainty Scale* first, the *Scale of Interpersonal Ambiguity* second, and the *Intolerance for (Intercultural) Ambiguity Scale* third. The *Intolerance of Uncertainty Scale* measure accounted for a significant portion of the *L2 Intolerance of Ambiguity* variance ($F(1, 202) = 88.37, p < .01$). The correlation coefficient was .55, indicating that approximately 30% of the variance of L2 situation-specific intolerance of ambiguity can be accounted for solely by the intolerance of uncertainty measure. On the other hand, adding the *Scale of Interpersonal Ambiguity* only improved the predictive power by 2% and adding the *Intolerance for (Intercultural) Ambiguity Scale* did not make any contribution to the prediction. The results of the regression demonstrated that the intolerance of uncertainty statistically significantly contributed to the prediction of the L2 tolerance of ambiguity, while the intolerance of interpersonal ambiguity or the intolerance of ambiguity in intercultural situations did not.

The verbal protocol and interview data was inspected for episodes, or small stories (Bamberg, 2006) in relation to learners' perception of ambiguity inherent in L2 situations. The identified small stories were coded for linguistic, interpersonal, and intercultural ITA. Moreover, some of the small stories were coded for more than one ITA, possibly indicating that the interpersonal ITA and intercultural ITA are likely to be inherent in, or intertwined with linguistic ITA. The relevant parts of the small stories are presented in the next discussion section. The participants' names used in the discussion are pseudonyms.

4. Discussion

4.1. Predictions and correlations

The results demonstrated that the levels of ITU predicted the levels of L2 ITA, but the levels of interpersonal ITA and intercultural ITA did not. The former part of the findings can be interpreted in two ways. First, ambiguity and uncertainty seemed to be considered equal in the past L2 research on ITA as previously discussed (Ely, 1995; Rubin, 1975) and the present study supports the linkage. Second, the items of the *L2 Intolerance of Ambiguity Scale* concern cognition of linguistic ambiguity or uncertainty that may materialize in different L2 skill domains such as speaking, listening, writing, and reading, and different knowledge domains such as pronunciation, vocabulary, and grammar. They reflect the then-prominent, cognitive/linguistic model, or the input-interaction-output model of SLA (Block, 2003), in which learning experience is seen in the development of learners' linguistic competence in a narrow sense.

Uncertainty is a consequence of a lack of available knowledge. Some people regard it as exciting, enjoyable, and challenging, while others perceive it as stressful, unfavorable, threatening, or risky. The former group of individuals will accept, or even welcome, a situation in which they are not sure what may occur while the latter group will find it unacceptable that something unfamiliar or unknown may occur in the future. For them, uncertainty involves the cognition that uncertain events may have negative consequences. The same reasoning applies to L2 ITA. A certain amount of uncertainty is inevitable, or even inherent, in L2 communication. Some L2 learners accept the fact that L2 communication has room for ambiguity and consider it enjoyable and challenging in a positive sense, while other learners, who consider L2 communication to be cognitively demanding and unfavorable because of this uncertainty, are less tolerant of L2 linguistic ambiguity. Thus, results that ITU predicted L2 ITA make sense.

In fact, ITU demonstrated high correlations with interpersonal ITA and intercultural ITA, and manifested a moderate correlation with L2 ITA. The L2 ITA scale was devised to measure ITA as a contextualized ITA construct in L2 learning research and it might be as simple as saying that L2 ITA is situation-specific, similar to that of L2 anxiety (e.g., Horwitz, 2010; Horwitz, Horwitz, & Cope, 1986). However, the data from verbal protocol sessions and interviews suggest that L2 communication involves interpersonal ambiguity and L2 situations involve intercultural ambiguity. In the next two subsections, I discuss how L2 learners are concerned about interpersonal ITA and intercultural ITA, and suggest future directions of L2 ITA research.

4.2. Interpersonal ambiguity

In the standard multiple regression, interpersonal ITA did not predict L2 ITA. In the hierarchical multiple regression, adding the levels of interpersonal ITA only improved the predictive power by 2%. However, some participants reported that they experienced interpersonal ambiguity in using English and that it bothered them. For example, Reiko shared the following experience in the interview:

Reiko: When my interlocutor looked puzzled and didn't seem to know how to respond to what I had said, I thought that I hadn't made myself understood and felt awkward.

Interviewer: Do you mean you could not say it right?

Reiko: Well, I might not have been able to pronounce words correctly. Yes, maybe pronunciation. Maybe how I said it.

Interviewer: You mean how you composed the sentence?

Reiko: Yeah, maybe. Could be. I didn't even know what's wrong and I couldn't continue conversation.

Interviewer: How did you feel about it?

Reiko: I felt myself somewhat helpless.

If the problem lay in her pronunciation, her foreign accent, Item 5 (“I don’t like the feeling that my English pronunciation may not be quite right”) is likely to explain her point at least to some extent. In fact, Reiko chose 5 (*true of me*) on the Likert scale. Although her problem could be tied to constructing grammatical sentences (Item 4 and Item 7 are on grammar) or expressing herself in the L2 (Item 9 is about speaking), it was not just Reiko’s problem; that is, her interlocutor also did not seem to understand what she had said. Thus, the problem was shared between the two and should be understood as a problem in interaction (Firth & Wagner, 1997). From a linguistic/cognitive perspective, Reiko had difficulty in managing conversational repair, but from a social perspective, Reiko and her interlocutor had difficulty in managing and maintaining communication, and the problem could be solved by their joint efforts. For example, if the interlocutor had become aware of Reiko’s puzzled look, he or she could have checked her understanding, repeated the utterance or rephrased it. Reiko could have asked for repetition or clarification. Reiko’s concern for ambiguity was interpersonal as well as linguistic. L2 ITA does not cover this interpersonal aspect.

Another participant, Nami, considered the difference in speaking and writing in English. Nami said, “I’m more concerned about ambiguity in writing. In speaking, my interlocutor is in front of me. I can tell from her facial expression whether I was able to get my meaning across or not. Or I think my interlocutor would ask me further questions if she did not understand. I can rely on her to continue interaction. But in writing, I don’t know whether I’m making my point clearly, whether I’m saying appropriate things, or whether readers understand what I have meant”. Nami knew that both the speaker and listener jointly structure communication. Furthermore, she had a goal (Firth & Wagner, 2007) and it was a social goal, that is expressing herself in the L2 and function in the L2-speaking community.

Both Nami and Reiko’s concerns are self-presentational (e.g., Leary, 1995; Leary & Kowalski, 1995). In the excerpt, Reiko shared her small story where she is troubled about ambiguity she unwittingly caused in her speech. She realized that something was wrong with what she had said because of her interlocutor’s reaction. Nami feels apprehensive about ambiguity she may produce in her writing. She feels uneasy about the prospect of failing to get her point across. Human beings are social creatures and as such, they are trying to control and monitor the impressions they make on other people. This motive is fundamental in individuals’ well-being because their evaluation about themselves is influenced, or even constructed, by what they believe others think of them; thus, this self-evaluation affects their social lives. From this self-presentational perspective, they are not tolerant of ambiguity in their L2 production when they are worried that they are not managing successfully the impressions they present to others.

The L2 ITA scale does not have items that tap into such concerns, but the interpersonal ITA scale does. Item 8 of interpersonal ITC, for example, reads: "I'm unsecure [sic] if I don't know whether other people really like me". Neither Reiko nor Nami mentioned liking or being liked in their interviews, but they shared a desire to make an impression that they are able to function in their L2 in order to build and maintain good relationships with others. L2 ITA research should take into account this interpersonal aspect of ITA as well. The abovementioned self-presentational account of L2 ITA will provide some theoretical ground for L2 ITA studies.

Some SLA researchers have been calling for "socially oriented reconceptualization of second/additional language (L2) learning" (Ortega, 2011, p. 165) and challenging the mainstream linguistic/cognitive approach that Block (2003) called the input, interaction, and output model. Researchers have proposed a variety of alternative perspectives. Some have put forward the idea that language is inherently social and that language use establishes and reinforces social relationships (Atkinson, 2011). The alternative approaches are theoretically diverse, but not mutually exclusive, and each approach provides unique insights. It is generally agreed that language plays an integral part not just in cognition but also in communication and in identity construction, and that the mainstream approach falls short of capturing the social aspect of L2 learning although input, interaction and output are three essential elements in L2 acquisition. This gap motivates the call for alternatives, which have been named "the social turn" in SLA (Block, 2003). The same kind of turn is also needed in the studies of L2 ITA where the social, or interpersonal aspect of ITA should be explored without undermining the linguistic/cognitive aspect of L2 ITA.

4.3. Intercultural ITA

In the standard regression, intercultural ITA did not predict L2 ITA. In the stepwise regression, adding the levels of intercultural ITA did not improve the predictive power. However, some L2 learners reported that they had experienced intercultural ambiguity in using English and it made some of them feel uneasy. For example, Risa shared an experience while she was in England for a study abroad program:

Risa: When I ordered something at fast-food places, I was greeted with "How are you doing?" It seemed strange. I was wondering why they asked me about my well-being.

Interviewer: Where did you say it happened?

Risa: Everywhere. When I did shopping, when I went to eating places ... everywhere.

Interviewer: How did you reply?

Risa: At the beginning, I said "Fine, thank you", but gradually I stopped saying it. I didn't know how to respond. I just smiled back. I felt uneasy. Isn't it strange for someone I don't know to ask me that kind of question?

"How are you doing?" is an expression that is part of a situational script in English-speaking cultures in which a shop clerk greets a customer and, thus, it is simply ritualistic. In other words, although the expression has a social meaning, it does not have much literal meaning. Risa knew the expression as part of a regular greeting and tried to transfer her knowledge to the new situation, which she had not encountered in her classroom L2 learning experiences. She became confused and uneasy because she was sure she knew the expression but she did not expect shop clerks to say that same expression to their customers. She did not know another function of the same expression and could not define herself in the new culture with confidence. Linguistically speaking, she experienced difficulty in structuring conversational turns because she did not possess the pragmatic knowledge. However, the ambiguity she found was, at least to some extent, intercultural. L2 ITA alone cannot cover this aspect.

L2 ITA research should integrate this intercultural aspect of ITA. Item 1 of intercultural ITA reads: "I avoid settings where people don't share my values". Item 4 is a reversed item that reads: "I like to surround myself with things that are familiar to me". Learners who have difficulty in dealing with different value systems and different cultural norms are likely to be less tolerant of ambiguity. L2 ITA studies should expand their scope to cover this intercultural aspect as well as the above-mentioned interpersonal aspect to explore the multi-layered nature of L2 ITA. Thus, a holistic approach should be taken to better explore how and how much tolerance of ambiguity matters in L2 learning and its application in an increasingly multicultural world.

4.4. Interpersonal and intercultural perspectives in L2 ITA research: Ideas for further studies

Inquiry into interpersonal ITA and intercultural ITA has not been entirely obviated. Some pioneers exist, but future studies should go one step further. For example, Ely (1986), who created L2 ITA scale, stated that more consideration should be "given to the interaction of person and situation" (p. 1) and examined classroom L2 learning in relation to discomfort (rough equivalent of L2 classroom anxiety), sociability, risk-taking, and L2 learning motivation. In this model, sociability was defined as "a desire to interact with others in the second language class by means of the L2" (p. 3) and the construct is similar to one of the situated antecedents of willingness to communicate (WTC); that is, the desire to communicate with a specific person (MacIntyre, Baker, Clément, & Conrod, 2001). Risk-taking was conceptualized as "an individual tendency to assume risks in using the L2 in the second language class" (p. 3). It seems reasonable to assume that learners who score high on interpersonal ITA are less sociable in L2 classrooms and low on WTC. They may

be less likely to take risks in using the L2, but since no study has investigated these hypotheses, empirical research is necessary.

Yashima (2010) reported that international volunteering was helpful in reducing ethnocentrism and fostering openness towards different cultural norms. Thus, overseas programs have helped to develop intercultural competence, which was postulated as an amalgam of “universal or culture-general attributes that are useful for any intercultural encounter in any cultural context” (Yashima, 2010, p. 269). Her five items intended to measure ethnocentrism are quite similar to intercultural ITA items. One of the items reads: “I do not particularly enjoy being with people with different customs or values”. However, we do not know the participants’ tolerance level for uncertainty, as more general individual differences varied prior to their participation in the program. In this study, the levels of ITU were highly correlated with the levels of intercultural ITA, but we do not know whether those program participants who were more tolerant of uncertainty had more promising potential to develop intercultural competence during intercultural contact or whether the experience of participating in international volunteering would be beneficial to all regardless of the prior ITC. A longitudinal study investigating ITC and intercultural ITA together is needed.

Plausible interpersonal and intercultural aspects of ITA in L2 situations come as no surprise. Frenkel-Brunswik (1949) conceptualized (I)TA as “a general personality variable relevant to basic *social* orientation” (p. 268; emphasis added), and, as such, social concerns may be inherent in ITA. In reexamining the items in L2 ITA (Ely, 1989, 1995), however, this social connotation appears to be missing. In fact, Ely (1989; 1995) defined ITA as a cognitive style. He conceptualized the construct and created the measure when the linguistic/cognitive SLA, or the input-interaction-output model of SLA, was dominant. Item 12 reads: “I wish I could pronounce Spanish words the way they should be pronounced”. This concern for correct pronunciation is likely to make some learners more intolerant of ambiguity they may produce in their speech, especially in high-stakes interpersonal situations. Thus, the linguistic concern should be investigated with self-presentational concerns (e.g., Leary, 1995; Leary & Kowalski, 1995) in mind. Moreover, the idea of correct pronunciation would not be straightforward in most of the intercultural situations, where neither party is ‘native’. Future L2 ITA studies should go hand in hand with efforts to escape a bias toward nativeness (e.g., Ortega, 2011, 2014), cultivate awareness of ambiguity in cross-cultural interactions (e.g., Dewaele & Wei, 2013), and enhance intercultural competence (Yashima, 2012).

4.5. Limitations

Two limitations of this study merit mentioning. First, the participants were all Japanese learners of English who had studied English for at least six years in Japan, and the majority were relatively low-proficiency learners. Second, most the participants

of verbal protocol sessions and interviews were female students. The results should only cautiously be generalized to learners of English at the college level.

5. Conclusion

This study explored how intolerance of uncertainty, interpersonal intolerance of ambiguity, and intolerance of ambiguity in intercultural settings are linked to L2 situation-specific intolerance of ambiguity. The quantitative data indicated that intolerance of uncertainty predicted L2 situation-specific intolerance of ambiguity and provided support for the assumption that learners who are less tolerant of uncertainty are also less tolerant of L2 linguistic/cognitive ambiguity. The qualitative data supported the contention that L2 learners also face interpersonal and intercultural aspects of ambiguity. Future studies on intolerance of ambiguity in L2 situations should take into account the other social types of intolerance of ambiguity to offer a comprehensive picture of the construct.

Acknowledgements

This work was supported by Japan Society for the Promotion of Science (JSPS) Grant-in-Aid for Scientific Research (C) Number 25370695. I would like to thank Prof. Mirosław Pawlak, Editor of this journal, for his comments and support. I am also grateful to the participants of this study and the teachers who administered the survey.

References

- Arthur, W., & Bennett, W. (1995). The international assignee: The relative importance of factors perceived to contribute to success. *Personnel Psychology, 48*, 99-114. doi: 10.1111/j.1744-6570.1995.tb01748.x
- Bamberg, M. (2006). Stories: Big or small: Why d we care? *Narrative Inquiry, 16*, 139-147. doi: 10.1075/ni.16.1.18bam
- Block, D. (2003). *The social turn in second language acquisition*. Washington DC: Georgetown University Press.
- Boswell, J. F., Thompson-Hollands, J., Farchione, T. J., & Barlow, D. H. (2013). Intolerance of uncertainty: A common factor in the treatment of emotional disorders. *Journal of Clinical Psychology, 69*, 630-645. doi: 10.1002/jclp.21965.
- Budner, S. (1962). Intolerance of ambiguity as a personality variable. *Journal of Personality, 30*, 29-50. doi: 10.1111/j.1467-6494.1962.tb02303.x
- Buhr, K., & Dugas, M. J. (2002). The intolerance of uncertainty scale: Psychometric properties of the English version. *Behavioral Research and Therapy, 40*, 931-945. doi: 10.1016/S0005-7967(01)00092-4
- Buhr, K., & Dugas, M. J. (2009). The role of fear of anxiety and intolerance of uncertainty in worry: An experimental manipulation. *Behavioral Research and Therapy, 47*, 215-223. doi: 10.1016/j.brat.2008.12.004
- Dewaele, J. -M., & Ip, T. S. (2013). The link between foreign language classroom anxiety, second language tolerance of ambiguity and self-rated English proficiency among Chinese learners. *Studies in Second Language Learning and Teaching, 3*, 47-66.
- Dewaele, J.-M., & Wei, L. (2013). Is multilingualism linked to a higher tolerance of ambiguity? *Bilingualism: Language & Cognition, 16*, 231-240. doi: 10.1017/S1366728912000570
- Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Erlbaum.
- Durrheim, K., & Foster, D. (1997). Tolerance of ambiguity as a content specific construct. *Personality and Individual Differences, 22*, 741-750. doi: 10.1016/S0191-8869(96)00207-3
- Ely, C. M. (1986). An analysis of discomfort, risk-taking, sociability, and motivation in the L2 classroom. *Modern Language Journal, 36*, 1-25. doi: 10.1111/j.1467-1770.1986.tb00366.x
- Ely, C. M. (1989). Tolerance of ambiguity and use of second language strategies. *Foreign Language Annals, 22*, 437-445. doi: 10.1111/j.1944-9720.1989.tb02766.x
- Ely, C. M. (1995). Tolerance of ambiguity and the teaching of ESL. In J. Reid (Ed.), *Learning styles in the ESL/EFL classroom* (pp. 87-95). Boston, NY: Heine & Heine.
- Eysenck, M. W. (1954). *The psychology of politics*. London, UK: Routledge.

- Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). Thousand Oaks: Sage.
- Firth, A., & Wagner, J. (1997). On discourse, communication, and (some) fundamental concepts in SLA research. *Modern Language Journal, 81*, 285-300. doi: 10.1111/j.1540-4781.1997.tb05480.x
- Firth, A., & Wagner, J. (2007). Second/foreign language learning as a social accomplishment: Elaborations on a reconceptualized SLA. *Modern Language Journal, 91*(S1), 800-818. doi: 10.1111/j.1540-4781.2007.00670.x
- Frenkel-Brunswik, E. (1948). A study of prejudice in children. *Studies Towards the Integration of the Social Sciences, 1*, 295-306. doi: 10.1177/001872674800100301
- Furnham, A. (1994). A content, correlational and factor-analytic study of 4 tolerance of ambiguity questionnaires. *Personality and Individual Differences, 16*, 403-410. doi: 10.1016/0191-8869(94)90066-3
- Furnham, A., & Marks, J. (2013). Tolerance of ambiguity: A review of the recent literature. *Psychology, 4*, 717-728. doi: 10.4236/psych.2013.49102
- Furnham, A., & Ribchester, T. (1995). Tolerance of ambiguity: A review of the concept, its measurement and applications. *Current Psychology, 14*, 179-199. doi: 10.1007/BF02686907
- Griffiths, C. (2008). *Lessons from good language learners*. Cambridge, UK: Cambridge University Press.
- Gu, Y. (2012). Learning strategies: Prototypical core and dimensions of variation. *Studies in Self-Access Learning Journal, 3*, 330-356.
- Herman, J. L., Stevens, M. J., Bird, A., Mendenhall, M., & Oddou, G. (2010). The tolerance for ambiguity scale: Towards a more refined measure for international management research. *International Journal of Intercultural Relations, 34*, 58-65. doi: 10.1016/j.ijintrel.2009.09.004
- Horwitz, E. K. (2010). Foreign and second language anxiety. *Language Teaching, 43*, 154-167.
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *Modern Language Journal, 70*, 125-132. doi: 10.1111/j.1540-4781.1986.tb05256.x
- Ironside, P. M., Jeffries, P. R., & Martin, A. (2009). Fostering patient safety competencies using multiple-patient simulation experiences. *Nursing Outlook, 57*. doi: 10.1016/j.outlook.2009.07.010
- Lange, R., & Houran, J. (1999). The role of fear in delusions of the paranormal. *Journal of Nervous & Mental Disease, 187*, 156-166.
- Larson-Hall, J. (2015). *A guide to doing statistics in second language research using SPSS and R*. Oxford, UK: Routledge.
- Leary, M. R. (1995). *Self-presentation: Impression management and interpersonal behavior*. Boulder, CO: Westview Press.

- Leary, M. R., & Kowalski, R. M. (1995). *Social anxiety*. New York, NY: The Guilford Press.
- MacIntyre, P. D., Baker, S. C., Clément, R., & Conrod, S. (2001). Willingness to communicate, social support, and language learning orientations of immersion students. *Studies in Second Language Acquisition, 23*, 369-388.
- McLain, D. L. (2009). Evidence of the properties of an ambiguity tolerance measure: The multiple stimulus types ambiguity tolerance scale-II. *Psychological Reports, 105*, 975-988. doi: 10.2466/PRO.105.3.975-988
- Nishida, M. (1985). Japanese intercultural communication competence and cross-cultural adjustment. *International Journal of Intercultural Relations, 9*, 247-269.
- Ortega, L. (2011). SLA after the social turn. In D. Atkinson (Ed.), *Alternative approaches to second language acquisition* (pp. 167-180). New York, NY: Routledge.
- Ortega, L. (2014). Ways forward for bi/multilingual turn in SLA. In S. May (Ed.), *The multilingual turn: Implications for SLA, TESOL and bilingual education* (pp. 32-53). New York, NY: Routledge.
- Quilty, L. C., Oakman, J. M., & Risko, E. (2006). Correlates of the Rosenberg self-esteem scale method effects. *Structural Equation Modeling: A Multidisciplinary Journal, 13*, 99-117. doi: 10.1207/s15328007sem1301_5
- Rubin, J. (1975). What the 'good language learner' can teach us. *TESOLQ, 9*, 41-51. doi: 10.2307/3586011
- Rubin, J. (2008). Reflections. In C. Griffiths (Ed.), *Lessons from good language learners* (pp. 10-15). Cambridge, UK: Cambridge University Press.
- Tomono, T., & Hashimoto, T. (2005). Development of revised interpersonal intolerance of ambiguity scale. *The Japanese Journal of Personality, 13*, 220-230.
- Westerberg, M., Singh, J., & Hackner, E. (1997). Does the CEO matter? An empirical study of small Swedish firms operating in turbulent environments. *Scandinavian Journal of Management, 13*, 215-270. doi: 10.1016/S0956-5221(97)00011-0
- Wolfradt, U., Oubaid, V., Straube, E. R., Bischoff, N., & Mischo, J. (1999). Thinking styles, schizotypal traits and anomalous experiences. *Personality and Individual Differences, 27*, 821-830. doi: 10.1016/S0191-8869(99)00031-8
- Wolfradt, U., & Rademacher, J. (1999). Interpersonale Ambiguitätsintoleranz als klinisches Differentialkriterium: Skalenentwicklung und Validierung. *Zeitschrift für Differentielle und Diagnostische Psychologie, 20*, 72-79. doi: 10.1024//0170-1789.20.1.72
- Yashima, T. (2010). The effects of international volunteer work experiences on intercultural competence of Japanese youth. *International Journal of Intercultural Relations, 34*, 268-282. doi: 10.1016/j.ijintrel.2009.12.003.