HIGH/LOW-CONTEXT COMMUNICATION: CONCEPTUALIZATION AND SCALE DEVELOPMENT

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ABSTRACT

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The concept of high/low-context traditionally has been discussed as a part of the individualism/ collectivism dimension, rather than as a separate concept. This study argues that high/low-context is a distinctive construct that needs to be explicated in its own right, despite the trend in current intercultural communication theories to treat high/low-context as part of their conceptualization and not as a separate construct. The data were consistent with the construct and content validity of the proposed high/low-communication scale, as well as the claim that high/low-context communication is a separate construct from other related constructs in intercultural communication such as self-construal and horizontal/vertical-individualism/collectivism. Further discussion on high/low-context communication and directions for future research are also provided.

To T. M.

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PREFACE

A friend once challenged me for doing "cross-cultural comparison" by sweeping across individuals and making generalizations without considering individual differences. I tried to defend myself by saying that that's just how I have been trained to do research, and it is not the only way to study cultural differences.

Indeed, when I read or hear about the experiences of making transitions across different cultures, I am painfully aware that theories aren't of much help to those who are struggling on a day to day basis in the process of cultural adaptation. Sweeping theories can't help the individuals who are going through their everyday life in confusion, being perplexed, not knowing what is it that they are doing wrong, but still not being able to communicate with their friends, not being able to fit in, feel safe, feel assured of themselves.

Yet, I still believe that there is some utility to theories, even if it was just to make sense out of the experience after one has already gone through it all.

I sincerely hope that those who are struggling now will be able to get through it someday soon, and that those who have already gone through the struggle will be able to get something out of it, like I did.

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INTRODUCTION

The concept of high/low-context communication, introduced by Hall (1976), is familiar to all intercultural communication scholars. Despite its long history of being acknowledged as one of the key notions in intercultural communication, high/low-context communication has never been systematically conceptualized and measured. Instead, it exists as a general research concept, and various constructs in the field of intercultural communication have incorporated high/low-context communication as a part of their conceptualizations. The first part of this study discusses how other constructs have incorporated high/low-context communication, and then argues for the need for distinguishing high/low-context communication as a distinct concept. The second part of this study proposes a strategy for developing a measure of high/low-context communication. The third part of this study reports the results of the high/low-context communication scale validation, followed by a discussion of the issues behind high/low-context communication and suggestions for future research. Finally, results and discussion regarding other scales used in this study are reported.

CHAPTER 1

CONCEPTUALIZATION OF HIGH/LOW-CONTEXT COMMUNICATION

Definition of High/Low-Context Communication

Whether a given culture is a high-context communication culture or a low-context communication culture is determined by the extent to which a person living in that culture is expected to derive information that is not stated explicitly in interpersonal communication. Hall (1976) defines:

> A high-context (HC) communication or message is one in which most of the information is either in the physical context or internalized in the person, while very little is in the coded, explicit, transmitted part of the message. A low-context (LC) communication is just the opposite; i.e., the mass of the information is vested in the explicit code. ... Although no culture exists exclusively at one end of the scale, some are high while others are low. (p. 91)

As Hall (1976) described, high/low-context is not a dichotomous concept, but a continuous dimension where high-context is placed at one end and low-context at the other.

In a culture that is closer to the high-context end of the continuum, there is a social expectation that in order to comprehend a message it is necessary to realize the larger implicit suggestions that lie behind the often minimal words that have been spoken. A person functioning in such culture is expected to "read behind the words" to infer the

intent of the speaker that is not verbally stated, and the communicator legitimately expects the receiver to do so. At the same time, the communicator is allowed to communicate his or her real intentions by implication as opposed to explicit verbalization. As a message sender, one must understand that the receiver will try to read more into your words than what you verbally stated, and as a message receiver, one must be cognizant of the fact that the sender may mean more than what he or she actually said, and you are expected to understand it.

In a culture that is closer to the low-context end of the continuum, it is a social norm to place less emphasis on hidden, suggested meanings that may lie behind the words, and to place greater emphasis on words that have been explicitly communicated[1]. A communicator functioning in such a culture is expected to communicate his or her intentions explicitly. As a result, in a low-context culture, people are not expected to "read behind the words" as much as they would be required to do in a high-context culture. As a message sender, one must be careful to "say what you mean and mean what you say", and as a message receiver one must keep in mind that it is expected of the message receiver to ask for clarification and explanations if one is not sure what the speaker is trying to communicate.

For instance, I was once told by a good American friend of mine on a day before a test that "I'm sure you'll fail; the odds that you'll pass that exam are about 100 to 1." Her

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[1] Verbal communication is not the only means of communicating - much can be communicated nonverbally. Although the importance of nonverbal communication is recognized, the focus of this study will be placed on verbal communication. This study will not include nonverbals in its conceptualization of high/low-context communication; the relationship between high/low-context communication style and the use of nonverbals warrants investigation in a separate study.

communication style was very low-context, as she explicitly made it clear what she thought about the issue. At the same time, I did not have to read behind her words to understand the implicit message, and could assume that she had no hidden messages. On the other hand, my closest Japanese friend told me that "Well ... you'll just have to try your best, you know, and see what happens." His speech style was high-context, because he was not making it explicitly clear what he thought about the issue, and had left it up to me to figure out whether he actually thought I would fail or not. Therefore, I was obliged to read behind the words for the real message that he was trying to convey[2].

Indeed, Honna (1989) mentions that "[l]anguage plays a limited role in Japanese society" (p. 164) because "[p]eople are expected to understand meanings in view of the context of situation in which they are embedded" (p. 164). For instance, in Japanese, a compliment can sometimes be a disguised sarcastic complaint, and the receiver is expected to make an appropriate interpretation based on the context of the situation. Naotsuka (1980) gives an example; when a next door neighbor comes and tells you that your daughter practices her violin earnestly, you will have to discern whether that remark was made as an honest compliment or as a complaint that the noise of the instrument is too loud. According to her, this "unmistakable" complaint was misunderstood as a

[2] In this case, I would try to discern his meaning by deliberately telling him "Oh, I'm sure I'll fail!" If he denied it right away and strongly, such denial would be a good indication that it was not his real intention to tell me that he thought I would actually fail. If he gave me another vague response, such as "Well, you never know until you try", I would infer the response to mean that he was at least thinking of the possibility that I might fail the exam but was afraid to convey such a negative message to me, and I would appreciate his consideration for my feelings.

sincere compliment by more than half of the non-Japanese respondents[3]. Naotsuka (1980) explains that since non-Japanese respondents are not used to inferring the underlying intention that is not explicitly stated (i.e., because they are not accustomed to the social norm of a high-context culture), they were not likely to interpret this remark correctly as a complaint, but interpreted it literally as a compliment. On the other hand, a Japanese should be able to notice that this remark is meant as a complaint, because as a functional Japanese one is expected to infer the implicit intent of the speaker (i.e., a Japanese person should be able to function successfully in the high-context culture of Japan).

Needless to say, though, this interpretation is a matter of degree. Regardless of their cultural background, people make inferences, especially in face-threatening situations where concern for politeness or for the other person's feelings overrides concern for clarity of communication (Kim et al., 1996), as in the case of conveying negative information. In fact, Brown and Levinson (1987) claim that "the major motivation for being indirect at all is politeness" (p. 139). If the purpose of indirect speech is to be polite, indirect speech should be observed in all societies. There are instances of high-context communication occurring in low-context communication societies; and indeed, even in the U.S., various forms of indirect speech (euphemism, indirect request, etc.) are utilized (for an in-depth discussion of indirect speech, see Brown & Levinson, 1987). Yet, compared to low-context cultures, in high-context

[3] Naotsuka did not report how many Japanese were able to interpret this apparent compliment as a complaint; she only mentioned that to interpret this compliment literally as a compliment is "unthinkable" for Japanese.

cultures one is expected to a much stronger degree to make inferences about what is not explicitly mentioned. In Japan, "[t]acit understanding is more important than elaborate speech" (Honna, 1989, p. 164) and "[p]eople who cannot understand speech in its social context are frowned upon" (Honna, 1989, p. 164). Honna (1989) goes so far as to say that "[p]eople who resort to elaborate speech are felt as noise makers" (p. 164), which is an echo of an earlier mentioning by Naotsuka (1980) that "to say everything explicitly is equal to insulting the other person in Japan (p. 161; my translation). This is a sharp contrast to the "problem-oriented, direct, explicit, personal, and informal" American communication style (Stewart & Bennett, 1991, p. 155).

Not every person living in a society will conform to social norms, and there are exceptions to every rule. Specific situations may call for a communication style which deviates from the expected norm, such as the use of low-context communication between close friends in a high-context culture, or the use of high-context communication between a doctor and a terminally-ill patient in a low-context culture[4]. Brown and Levinson (1987) mention that cultural taboos and touchy areas are often avoided or communicated indirectly. These examples illustrate that there are exceptions within the general social norm. It is possible that certain topics (e.g., topics that are considered taboo in all cultures, if there are any) may never be discussed explicitly in any culture. While acknowledging the existence of situational boundaries, this study will conceptualize high/low-context communication at the societal level as the prevalent communication

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[4] This idea originated from an article entitled "'Passive euthanasia' is the norm in today's hospitals, doctors say" by Gina Kolata in New York Times (Saturday, June 28th, 1997, pp. 1, 10), and was developed following discussion with B. Finifter (personal communication, July 1997).

style of a given culture, and argue for establishing high/low-context communication as a distinct construct.

Related Constructs in the Area of Intercultural Communication

Individualism/collectivism. Individualism/collectivism is considered as "the major dimension of cultural variability isolated by theorists across disciplines" (Gudykunst & Ting-Toomey, 1988, p. 40). With the other cultural dimensions identified by Hofstede (1980, 1983a, 1983b)[5], it has been viewed as one of the fundamental cultural variables explaining differences among cultures[6] (e.g., Frymier, Klopf, & Ishii, 1990; Gudykunst & Nishida, 1984, 1986; Gudykunst & Ting-Toomey, 1988; Hui, 1988; Sueda & Wiseman, 1992; Thompson, Klopf, & Ishii, 1991; Ting-Toomey, 1988a, 1988b). Collectivistic cultures are described as emphasizing group-orientation, placing the group's goals over individual goals, and making a sharp distinction between the ingroup and the outgroup. Individualistic cultures are described as emphasizing self-orientation, placing personal goals over the group's goals, and not making a sharp distinction between the ingroup and outgroup. Individualistic communication style is characterized as direct

[5] Hofstede (1980) identified four dimensions of cultural variability (uncertainty avoidance, individualism/collectivism, power distance, and masculinity/femininity) through factor-analyzing work values in 40 countries. He expanded his data to 50 countries and 3 regions in 1983. Uncertainty avoidance is the degree to which members of a society feel anxious toward unfamiliar situations (Hofstede, 1980, 1983a: Gudykunst & Ting-Toomey, 1988). The other three dimensions will be discussed later in this paper.

[6] Smith, Dugan, and Trompenaars (1996) attempted to replicate cultural variabilities identified in several previous studies, including Hofstede's (1980) four dimensions. They found dimensions resembling Hofstede's individualism-collectivism and power distance, but failed to replicate masculinity-femininity and uncertainty avoidance factors.

and assertive, while collectivistic communication style tends to be indirect and face-saving.

A scale for measuring individualism and collectivism was first developed by Hui for his doctoral dissertation in 1984 (Triandis, Leung, Villareal, & Clack, 1985), using U.S. American and Hong Kong participants. The scale was subsequently published in 1988. Since then, many measures for individualism/collectivism have been developed, both from etic and emic perspectives (see Triandis and Gelfand, 1998, for a summary of existing measures for individualism/collectivism).

In previous research, however, the concept of high/low-context communication has conventionally been regarded as a component of the concept of individualism/ collectivism (e.g., Gudykunst & Ting-Toomey, 1988; Triandis, 1994), both conceptually and methodologically. Gudykunst and Ting-Toomey (1988) claim that "the dimensions of low-high-context communication and individualism-collectivism are isomorphic" (p. 44), saying that "low- versus high-context communication and direct versus ambiguous communication are predominant forms of communication in individualistic and collectivistic cultures, respectively" (p. 45). Consequently, previous studies have not generally differentiated high/low-context communication from individualism/ collectivism, and the concept of high/low-context communication has never been explicated clearly.

Although Triandis (1993, 1996) advocated the idea of conceptualizing

individualism/collectivism as "cultural syndromes"[7], recent research on individualism/ collectivism has focused on individual differences within a culture in order to explain why a certain culture is individualistic or collectivistic. This line of research seems to indicate that whether a culture is individualistic or collectivistic is determined by the personality (in terms of ideocentric/allocentric or predominant self-construal; see next section) of the majority of people who are living within that culture.

Allocentrism/ideocentrism. Soon after Hofstede (1980, 1983a, 1983b) identified the individualism/collectivism dimension, Triandis and his colleagues embarked on a line of research on the "psychological dimension" of individualism/collectivism, which they named "ideocentrism" and "allocentrism" (e.g., Triandis et al., 1993; Triandis, Chan, Bhawuk, Iwao, & Sinha, 1995; Triandis, Leung, Villareal, & Clack, 1985). Triandis, Leung, Villareal, and Clack (1985) began their paper by declaring that "[t]he focus of this paper is on a psychological dimension to be named allocentric vs. ideocentric tendencies" (p. 395, emphasis in the original), whose cultural correspondence is "collectivism vs. individualism" (p. 395). Triandis (1995) explains that " [i]n every culture there are people who are allocentric, who believe, feel, and act very much like collectivists do around the world. There are also people who are ideocentric, who believe, feel, and act very much like individualists do around the world" (p. 5, emphasis in the original). The concept of allocentrism/ideocentrism has gone through several stages of development

[7] Triandis (1993) claims that "[a] cultural syndrome can be identified when shared attitudes, beliefs, norms, roles, values, and other such elements of subjective culture, identified among those who share a language, historic period, and geographical location, (a) are organized around a theme, (b) there is evidence that the within-culture variance of these constructs is small relative to the between-culture variance, and (c) there is a link between these patterns of subjective culture and geography" (p. 155).

under Triandis and his colleagues' research. Triandis, Bontempo, Villareal, Asai, and Lucca (1988) claimed that there are three factors within the structure of ideocentrism in the U.S. (self-reliance with competition, concern for ingroup as a reverse factor, and distance from ingroup). In Triandis, McCusker and Hui, (1990), only the distance from ingroup and self-reliance factors were considered when determining an individual's allocentrism/ideocentrism[8].

Throughout several studies (e.g., Triandis, Bontempo, Villareal, Asai, & Lucca, 1988; Triandis, Chan, Bhawuk, Iwao, & Sinha, 1995; Triandis, Leung, Villareal, & Clack, 1985; Triandis, McCusker, & Hui, 1990), Triandis and his colleagues have attempted to measure allocentrism/ideocentrism by using several versions of the measure they developed themselves and also with pre-existing measures, such as Hui's Individualism-Collectivism scale (1988) and the modified version of the Twenty-statement test (Kuhn & McPartland, 1954). It should be noted, however, that measure of individualism/ collectivism and measure of allocentrism/ideocentrism were not always conceptually distinguished. Hui's (1998) Individualism-Collectivism Scale was first developed as a scale for measuring individualism/collectivism, but was subsequently used to measure allocentrism/ideocentrism (e.g., Triandis, Leung, Villareal, & Clack, 1985). Yamaguchi, Kuhlman, and Sugimori (1995) added 4 "individualist items" to Yamaguchi's (1994) "Collectivism Scale" to measure allocentrism, thereby also not making a clear distinction between individualism/collectivism and allocentrism/

[8] Those who were in the top half of the distribution in distance from ingroups and self-reliance factors were categorized as ideocentric, and those who were in the bottom half of the distribution in the same two factors were categorized as allocentric.

ideocentrism[9]. It should also be noted that throughout the line of research on allocentrism/ideocentrism, communication style has not been subsumed as a part of the construct. Triandis, Chan, Bhawuk, Iwao, and Sinha (1995) recommend using the modified Twenty-statement test and two scales developed in the process of Triandis and his colleagues' research, none of which includes any item on communication style.

Self-construal. Another prevalent perspective in the field of intercultural communication for understanding the relationship between individuals and culture is that of independent/interdependent self-construal. In 1991, Markus and Kitayama identified the construct of independent/interdependent self-construal as a different way of viewing the self, raising a question about "what have been thought to be culture-free aspects of cognition, emotion, and motivation" (Markus & Kitayama, 1991, p. 224). They defined independent self-construal as "a conception of the self as an autonomous, independent person" (p. 226), and interdependent self-construal as "the significant feature of the self ... [that is] found in the interdependent and thus, in the more public components of the self" (p. 227). Singelis and Brown (1995) explain the construct of self-construal as "the theoretical nexus of cultural collectivism and a variety of individual-level communication behaviors" (p. 359). In the current literature, it is conceptualized that independent self-construal and interdependent self-construal co-exist within a single person (Singelis, 1994; Gudykunst et al., 1994 July), and either self-construal can be activated, depending

[9] However, his case may only be a naming issue; Yamaguchi (1994) describes his Collectivism Scale as "a scale to measure collectivism among individuals" (p. 180). Yamaguchim Kuhlman, and Sugimori (1995) consider "personal collectivism" as equal to "allocentrism' (p. 659). It is possible that the word "allocentrism" was not available to Yamaguchi when he constructed his Collectivism Scale in Japan.

on the situation. However, usually one or the other tends to predominate (Gudykunst et al., 1994 July) as the "default" self-construal; in individualistic cultures people's self-construals are predominantly independent, whereas in collectivistic cultures people's self-construals are predominantly interdependent (Gudykunst & Nishida, 1994)[10]. From such line of logic, it is plausible to assume that self-construal can be conceptualized either as a cognitive state (when studying situational activation of independent or interdependent self-construal) or a trait (when studying the "default" self-construal that is predominant in a given culture).

Recent research on self-construal by Gardner, Gabriel and Lee (1999) claim that self-construal can be "primed" (p. 321) in an individual, by having the participants read "an independent or interdependent story" (p. 322). The story "described a dilemma in which a general had to choose a warrior to send to the king. In the independent condition, the general chose the person who was the best individual for the job and considered benefits to himself. In the interdependent condition, the general chose a member of his own family and considered benefits to his family" (Gardner, Gabriel, & Lee, 1999, p. 322). The authors examined how the induced self-construal affected the participants' values, which was measured by presenting 56 values to the participants,

[10] However, this conceptualization may need some modification. A study by Park and Levine (1999) showed that participants scored higher on independence than on interdependence, regardless of whether they were living in the mainland U.S., Korea, or Hawaii (chosen to represent individualistic culture, collectivistic culture, and multicultural environments). The only difference between the three cultures was the degree of differentiation between independence and interdependence (participants in mainland U.S. made the most differentiation between independence and interdependence; Korean participants differentiated the least). The authors claim that "[t]aken together with previous findings, these findings suggest that it may be necessary to rethink the role of self-construals in intercultural research" (p. 199).

some of which were "individualist values" (Gardner, Gabriel, & Lee, 1999, p. 322) while others were "collectivist values" (Gardner, Gabriel, & Lee, 1999, p. 322). The participants were asked to indicate "the extent to which each value represented a guiding principle in their lives (Gardner, Gabriel, & Lee, 1999, p. 322). The authors demonstrated that priming the self-construal that is considered inconsistent with the predominant self-construal in a particular culture can shift the individual's value considerably toward the value endorsed by the primed self-construal type. In their study, U.S. American participants who were primed with interdependent self-construal endorsed collectivistic values significantly more than participants who were not primed, and Hong-Kong participants who were primed with independent self-construal endorsed individualistic values significantly more than non-primed participants.

In the research domain of self-construal, direct/indirect communication style has often been incorporated into the construct without receiving an independent status. For example, Singelis (1994) claims, in his summary of independent/interdependent self-construal, that "being direct in communication" is one of "the constellation of elements composing an independent self-construal" (p. 581). Similarly, he claims that one emphasis of interdependent self-construal is "being indirect in communication and 'reading other's minds' " (p. 581). In developing a scale concerning independent/ interdependent self-constuals, Singelis included the item " I'd rather say 'No' directly, than risk being misunderstood" as a measure of independent self-construal (p. 585). Gudykunst et al. (1994 July) argue that this item is actually measuring the concept of high/low-context communication and not interdependent self construal, cautioning

against incorporating low-context communication items in the self-construal measure[11]. Their argument is compelling, because there are culturally bound rules for how and when to say "no" (Ruben, 1976), suggesting that whether or not one will say "no" directly is at least partially dependent upon the cultural norm under which one is operating, not on a idiosyncratic inclination.

Association between allocentrism/ideocentrism and self-construal. Allocentrism/ ideocentrism was conceptualized by translating culture-level variables to the individual level, while the construct of self-construal views culture through individuals' concept of the self. Although the two constructs seem to be clearly related, no effort has been made to integrate the two, even though the two lines of research have co-existed for the past decade.

Based on the descriptions of the two constructs, it seems that Triandis' "allocentric" can be considered as someone whose self-construal is predominantly interdependent, and "ideocentric" as someone whose self-construal is predominantly independent. Therefore, for example, Japan is a collectivistic culture because the majority of Japanese are more allocentric than ideocentric. This also implies that the majority of Japanese's self-construal is predominantly interdependent rather than independent. Similarly, because the majority of the U.S. Americans are ideocentric, meaning that their self-construals are predominantly independent rather than interdependent, the U.S. is characterized as an individualistic culture (Gudykunst & Matsumoto, 1996; Gudykunst et al., 1996).

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[11] There are several attempts by different researchers to measure self-construals; not all of them incorporate communication style items in their measure (e.g., Cross, 1995).

Horizontal/vertical-individualism/collectivism. Triandis (1995) claims that besides the independent and interdependent self (as was advocated by Markus and Kitayama in 1991), there are two other dimensions of self, referred to as "same" and "different". He later rewords his own explanation by saying that the vertical/horizontal axis corresponds to "power and achievement" and "benevolence and universalism" (Triandis, 1996, p. 410). He explains that horizontal collectivism (HC) is adding benevolence to collectivistic values, horizontal individualism (HI) is adding universalism (which includes "equality") to individualistic values, vertical collectivism (VC) is adding power to collectivistic values, and vertical individualism (VI) is adding achievement to individualistic values. In Triandis and Gelfand (1998), the construct is further refined, and described as follows:

> [I]n HI, people want to be unique and distinct from groups, are likely to say "I want to do my own thing," and are highly self reliant, but they are not especially interested in becoming distinguished or in having high status. In VI, people often want to become distinguished and acquire status, and they do this in individual competition with others. They are likely to say "I want to be the best." In HC, people see themselves as being similar to others (e.g., one person, one vote) and emphasize common goals with others, interdependence, and sociability, but they do not submit easily to authority. In VC, people emphasize the integrity of the in-group, are willing to sacrifice their personal goals for the sake of in-group goals, and support competition of their in-group with out-groups. If in-group authorities want them to act in ways that benefit the in-group but are extremely distasteful to them, they submit to the will of these authorities. (p. 119)

Triandis (1995) claims that "vertical collectivism and horizontal individualism are the "typical" patterns around the world" (p. 46), while granting that "some individualist cultures ... are more horizontal than others" (p. 46). He conceptualizes horizontal/ vertical-individualism/collectivism as situationally dependent and individually unique at the same time. He claims that different cultures should have different profiles regarding the four dimensions, and that each person also has a unique profile of horizontal/vertical-individualism/collectivism, because people will act differently in different situations (Triandis, 1996, March).

In line with the concept of self-construal, the concept of horizontal/vertical-individualism/collectivism also recognizes individual differences within a culture, although the conceptualization of horizontal/vertical-individualism/collectivism stresses the situational factor much more strongly than the conceptualization of self-construal. In fact, Triandis, Chen, and Chan (1998) presented 29 situations to their respondents, and asked them to rank order the four choices representing horizontal individualism, vertical individualism, horizontal collectivism, or vertical collectivism. In addition, the concept of horizontal/vertical-individualism/collectivism acknowledges that people are not always rigidly individualistic or collectivistic, but instead will behave flexibly according to what is appropriate under various circumstances (Triandis, 1995).

Horizontal/vertical-individualism/collectivism is not exceptional in incorporating direct/indirect communication style as a part of its general concept. Triandis' (1995) scale for measuring horizontal individualism includes the item, "I prefer to be direct and forthright when I talk with people", alongside other items such as "One should live one's life independently from others" and "I am a unique individual" (p. 206, 207). By asking

one's preference for being "direct and forthright", this item measures communication style as a part of horizontal individualism. The claim made by Gudykunst et al. (1994 July) towards Singelis' (1994) operationalization of independent self-construal (i.e., that the item is measuring high/low-context communication and not horizontal individualism) can also apply here. This is another illustration of how direct/indirect communication style has been confounded with other constructs.

Elaborated/restricted code. In the sociology field, Bernstein (1964) developed the concept of elaborated code and restricted code by examining the linguistic variations within the U.K. [12]:

> If it is difficult to predict the syntactic options or alternatives a speaker uses to organize his meanings over a representative range of speech, this system of speech will be called an elaborate code. In the case of an elaborated code, the speaker will select from a wide range of syntactic alternatives and so it will not be easy to make an accurate assessment of the organizing elements he uses at any one time. However, with a restricted code, the range of alternatives, syntactic alternatives, is considerably reduced and so it is much more likely that prediction is possible. In the case of restricted code, the vocabulary will be drawn from a narrow range but because the vocabulary is drawn from a narrow range, this in itself is no

[12] Bernstein's primary interest seems to have been in how status difference is encoded in the speech pattern. The first characteristic of the restricted code is listed as "The status aspect of the social relation is salient" (p. 60). Bernstein explicitly mentions later that "[r]estricted codes can be considered status-oriented speech systems" (p. 63) .

indication that the code is a restricted one. (Bernstein, 1964, p. 57)[13]

According to Bernstein's (1964) conceptualization, the restricted code "symbolizes and reinforces the form of social relations by restricting the verbal signaling of differences [between the interactants]" (p. 60), because restricted code "presupposes a local cultural identity which reduces the need for the speakers to elaborate their intent verbally and to make it explicit" (p. 60). In other words, the verbal component of the speech is considered to be used primarily for the purpose of encoding what is assumed to be already shared, such as social status differences. Consequently, "[n]ew information is made available through extraverbal channels and these channels will become objects of special perceptual activity" (p. 60), and "[d]iscrete intent can only be transmitted through variations in the extraverbal signals" (p. 60). As a result, "the verbal component of the message is highly predictable" (p. 58). Bernstein (1964) argues that because of the amount of presumably shared information and the fact that the speaker does not need time to think deeply about the verbal message (because the verbal message is not the focus of the attention for obtaining new information), restricted codes can be observed as "fast, fluent, with reduced articulatory clues, the meaning might be discontinuous, dislocated, condensed and local, but the quantity of speech might not be affected" (p. 62), with "a low level of vocabulary and syntactic selection" (p. 62). In addition, because language is not considered as a tool for expressing individual thought and/or experiences, "[t]he unique meaning of the person would tend to be implicit" (Bernstein, 1964, p. 62; emphasis in the original).

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[13] It should be noted that Bernstein explicitly states that the elaborate/restricted code is "not defined in terms of vocabulary" (p. 57; emphasis in the original).

In contrast, the elaborated code assumes that "the discrete intent of the other person may not be taken for granted" (p. 63, emphasis in the original). Therefore, "the listener is dependent upon the verbal elaboration of meaning" (p. 63, emphasis in the original), and the verbal channel, not the extraverbal channels, "become[s] the objects of special perceptual activity (p. 63). "The orientation of the speaker is based upon the expectation of psychological differences - his own and that of others" (p. 64); therefore, it is "punctuated by relatively frequent pauses and longer hesitations" (p. 65), because it takes longer time to produce a verbal message due to the careful word choice and much self-editing. Bernstein (1964) also argues that as a result of explicitly verbalizing one's thoughts and experiences, an elaborate code user will "perceive language as a set of theoretical possibilities available for the transmission of unique experience" (p. 64).

Bernstien (1964) argues that because speech style is reinforced through family communication, the study's findings that students from lower working class families have lower verbal IQs than students from middle-upper class families may be the result of the differences in speech codes between lower working class families and middle-upper class families. Bernstein's argument is that students from lower working class families are only familiar with the restricted code, which is not used for the verbal expression of thoughts. As a result, they are not accustomed to the use of language in the education system, and are thus disadvantaged. Students from middle-upper class families, on the other hand, are familiar with both elaborated code and restricted code, therefore they are at an advantage in the education system merely because they are accustomed to using language as a tool for logical thought and its expression.

There are similarities between the construct of elaborated/restricted codes and

high/low-context communication styles. The parallel between explicit communication style in low-context communication style and the emphasis on verbal channel in the elaborate code is apparent. Elaborated code is seemingly related to verbal explicitness, and restricted code seems to be related to verbally implicit forms of communication; therefore, the two concepts may seem to have some convergence, in that the idea of predictability in the restricted code is also relevant to the implicitness of the messages in high-context communication. Furthermore, it is most interesting that Bernstien (1964) mentions that "the 'how' rather than the 'what' of the communication would be important" (p. 62) in the restricted code. This description sounds very close to the conceptualization of high-context communication style.

However, there are several differences between the concept of elaborated/ restricted code and that of high/low-context that must be noted. First, the most striking difference is the level of analysis; elaborated/restricted code is conceptualized in terms of the linguistic variation within a culture (intracultural variability), while high/low-context is conceptualized in terms of cross-cultural variability. Bernstein (1964) concludes by saying, "[e]laborated and restricted codes and their variants should be found in any social structure where their origination conditions exist" (p. 67), arguing that those who can communicate using the elaborated codes are also capable of communicating using the restricted code, depending on the social context the individual happens to be in. Therefore, it is conceivable that subcultures which operate in elaborated code and restricted code may co-exist at the same level in a given culture. It is also conceivable that the same person may use either an elaborate code or restricted code depending on the situation. However, high/low-context communication is a perceived social norm in a

given culture and each culture falls into different places on the continuum of high/low-context communication style. The norm of high/low-context communication is conceptualized to be shared at the cultural level; deviation within a culture at the subculture level is subsidiary to the cultural norm. If one is to communicate with someone outside of the micro culture, he or she must conform to the norm of the larger culture[14]. Moreover, there is a limit to the extent in which one can communicate in low-context within a high-context culture, because individuals living within a culture must conform to the cultural norm of communicating, and those who do not will be socially deviant.

Another difference between elaborated/restricted code and high/low-context communication style is their theoretical orientation. Elaborated/restricted code was conceptualized in terms of the lexical and structural predictability of the individual's speech, while high/low-context communication is conceptualized in terms of the perceived social norm regarding communication style. In the former example of compliment and criticism, the communication style would be described as very high-context style if the remark was meant as a criticism (and the fact that the listener must consider such possibility is the result of the shared social norm of high-context communication style). On the other hand, if the remark was in fact an honest compliment, it is not a high-context communication, because the word explicitly stated conveys the actual meaning. However, the remark cannot be said to have been made in a

[14] There is a limit to making these distinctions. The definition of a culture is still being debated by different scholars, and the distinction between a culture and a subculture is never clear-cut.

restricted code, regardless of whether it is interpreted as a compliment or criticism, because it does not bear any of the characteristics of the restricted code.

To summarize the above discussion, it can be said that both elaborated and restricted code may be used in any culture, regardless of whether the predominant social norm in a given culture is high-context communication or a low-context communication. The judgment of whether a speaker is using a high-context or low-context communication style depends on how to interpret the message; the judgment of whether a speaker is using an elaborate code or restricted code depends on the characteristics of the verbal message itself.

Group/grid. The concept of group/grid in the anthropological literature was developed independently of the intercultural communication field. Getting some hints from Bernstein's elaborated/restricted code, Douglas (1970, 1978) conceptualized group/grid as a framework for systematic explanation of the belief systems held by different tribes in understudied corners of the world such as Africa and Micronesia. According to Gross and Raynor (1985), the group coordinate "represents the extent to which people are restricted in thought and action by their commitment to a social unit larger than the individual" (p. 5), whereas the grid coordinate "is the complementary bundle of constraints on social interaction, a composite index of the extent to which people's behavior is constrained by role differentiation, whether within or without membership of a group" (p. 6). Gross and Raynor (1985) explain that in "high group" situations, "individuals are expected to act on behalf of the collective whole, and the corporate body is expected to act in the normative interest of its members" (p. 5); in "low group" situations "people negotiate their way through life on their own behalf as

individuals, neither constrained by, nor reliant upon, a single group of others" (pp. 5-6). The explanation for grid given by Gross and Raynor (1985) is that "high grid" situations are such that "roles are distributed on the basis of explicit public social classification, such as sex, color, position in a hierarchy, holding a bureaucratic office" (p. 6), et cetera, whereas "low grid" situations are such that "access to roles depends upon personal abilities to compete or negotiate for them, or even of formal regulations for taking equal turns" (p. 6), in other words, "where access to roles is not dependent on any ascribed characteristics of rank or birth" (p. 6). Gross and Raynor (1985) develop their discussion further into how a society progresses from low-group-low-grid condition to low-group-high-grid, high-group-high-grid, high-group-low-grid, and back to low-group-low-grid.

The group coordinate sounds very similar to the prototypical individualism/ collectivism, "high group" being collectivistic and "low group" being individualistic. The grid coordinate sounds somewhat similar to a combination of Hofstede's (1980) power distance and masculinity/femininity dimensions. Power distance is the degree to which members of a society accept unequal distribution of power, whereas masculinity/ femininity is defined as the relative importance or unimportance placed on such things as sex role differentiation, material success, personal achievement (Hofstede, 1980, 1983a; Gudykunst & Ting-Toomey, 1988). High grid society corresponds to high power distance (where people accept the ascribed role difference) and masculine (strong sex-role differentiation is part of the definition for high masculinity) society. Low grid society corresponds to a society that is low in power distance (where people believe they stand on equal ground regardless of their role ascribed according to their sex or birth) but still high in masculinity (valuing personal achievement is still a part of definition for masculinity).

Despite the parallel between group/grid and some of the most popular constructs in intercultural communication, the group/grid concept has never gained attention in the intercultural communication field. Since no previous studies have examined the relationship between group/grid dimensions and high/low-context communication, power distance and high/low-context communication, or masculinity/ femininity and high/low-context communication, no further discussion on this concept can be presented in this study.

Differentiating High/Low-context Communication from Other Concepts

According to Triandis (1994), "in high-context cultures people value the unspoken, the implicit ... [C]ommunicators focus on the perceiver of the communication ... and train each other to understand the implicit" (p. 185). This claim suggests that there is social pressure in high-context cultures to understand implicit messages. Consequently, the characterization of a culture as high-context comes from the social norms of such a culture, not from whether the majority of the people have predominantly independent/interdependent self-construal, or whether they are ideocentric or allocentric. Although there are differences in the degree to which an individual is socialized to conform to the norms of a particular culture, high/low-context communication is a cultural characteristic which overrides individual preferences.

Think of an international student from the U.S. who is studying in Japan. An American is likely to be more ideocentric rather than allocentric, and her independent self-construal is likely to predominate over her interdependent self construal. It will not be surprising if she felt the need for autonomy, just as she did back home. However, in Japan, need for autonomy is not highly recognized, due to the collectivistic nature of

Japanese culture. What can the American student do to fulfill her needs? She cannot just say "Please leave me alone because I need some time of my own"; she must communicate her need for autonomy in a very indirect manner if she wants to function effectively in Japan. In other words, she should be able to fulfill her need for autonomy if she knows how to communicate in a high-context manner. However, according to the current conceptualization of high/low-context communication, utilizing a high-context communication style means that she is acting according to her interdependent self-construal. On the other hand, in this case, her need is based on her independent self-construal, not on her interdependent self-construal. Which self-construal is in fact predominant here?

Such an uncomfortable experience of a sojourner is the result of the discrepancy between inner self (i.e., predominant self-construal or allocentric/ideocentric personality) and the social norms to which one must conform in order to function effectively in a culture. Such issues can be studied fruitfully only when the construct of high/low-context communication is differentiated from other constructs, and is recognized as an independent construct. Concepts in the intercultural communication field under their current constructions cannot provide a satisfactory explanation for this example, precisely because high/low-context communication is confounded with other concepts.

Individualism/collectivism was originally conceptualized as cultural variability (Gudykunst & Ting-Toomey, 1988). However, as more studies accumulated, researchers found that some people within collectivistic cultures are rather individualistic, and there are also some collectivistic people in individualistic cultures (Triandis, 1995). In order to explain these "exceptions" within a culture, subsequent researchers began focusing on

individual differences within cultures. The emergence of the independent/interdependent self-construal construct gave a powerful tool for explaining such individual differences within culture. Despite Triandis' call (1993, 1996) to conceptualize individualism/ collectivism as cultural syndromes, the field of intercultural communication is developing in the direction of focusing on individual differences within culture. Even Triandis (1996) himself resorted back to the psychological level in his discussion of cultural syndromes. As a result, the current trend in the intercultural communication field is to conceptualize cultural individualism/collectivism as being derived from the personality traits of individuals (i.e., predominance of independent or interdependent self-construal of the individuals living in that culture).

When we consider the fact that many cross-cultural researchers are trained as psychologists, such direction in the field seems only natural, because psychologists are, in general, interested in intra-psychic dimensions. However, as described by Miller and Steinberg (1975) and suggested by Leung, (1989), it is also possible to study the cultural level apart from the personal level. Rather than trying to define separate categories, this study proposes an alternative approach by conceptualizing high/low-context communication as characterized by the perceived shared norm[15] in the culture regarding its predominant communication style, a norm which competent members of a given culture are aware that one could be reprimanded if he or she deviated from it.

In essence, I am suggesting that "culture" be put back into "intercultural" communication, based on the idea that cultural norms regarding a behavior (i.e., how to

[15] Morris (1956, p. 610) defines norms as "generally accepted, sanctioned prescriptions for, or prohibitions against, other's behavior, belief, or feeling".

talk, in this case) supersede individual preferences for that behavior. In this study, a high-context culture is conceptualized as a culture where high-context communication is practiced as the predominant, perceived social norm. Where a specific culture falls along the high/low context continuum depends on the social norms of each culture regarding whether and how one should speak in a given situation, and people learn these norms through various socialization processes[16].

Relationships Between High/Low-Context Communication, Individualism/Collectivism, and Self-Construal[17]

The reason that the concept of high/low-context communication has not gained an independent status in the field of intercultural communication lies in the widespread assumption that most individualistic cultures have low-context communication as their social norm, and that most cultures with a high-context communication norm are collectivistic. Thus, while the two are conceptually distinct, they may be highly correlated. Singelis and Brown (1995) argue that "culture affects the development of an individual's psychological makeup, which, in turn, affects communication behavior" (p. 355). Gudykunst et al. (1996) propose a more specific model which states that individualism/ collectivism "has both a direct effect on communication behavior and an

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[16] The intention here is to probe the perceived social norm itself, rather than the degree of conformity to the social norm in different cultures (Davidson, Jaccard, Triandis, Morales, & Diaz-Guerrero, 1976; Triandis & Gelfand, 1998). The notion of tight/loose culture (Chan, Gelfand, Triandis, & Tzeng, 1996; Triandis, 1994) includes the degree of conformity to social norm as a part of its conceptualization.

[17] Due to the lack of previous research in the intercultural communication discipline regarding elaborated/restricted code and group/grid, the relationship between these constructs and high/low-context communication, individualism/collectivism, and self-construal could not be discussed here. It is a very intriguing agenda for a future research.

indirect effect on communication behavior that is mediated through individual-level factors such as self construals and values" (p. 511)[18]. It is reasonable to think that individualism/collectivism will affect how an individual will communicate. For instance, if a person is socialized to be an individualist, that person will retain that individualistic orientation to a certain extent as a part of his or her own personality, even when that person is in a collectivistic culture[19]. A predominantly independent person in a high-context culture might feel frustrated in having always to attend to the possibility that interactants expect inferences of the implicit intent behind what is said. A person might in fact prefer to be direct, but knows that under the circumstance that is not the most appropriate behavior.

The construct of high/low-context communication points to major differences between cultures regarding predominant communication styles, and therefore needs to be conceptualized more clearly. Unclear explication of the concept of high/low-context communication has led to the premature neglect of the construct. The conceptualization of high/low-context communication as a social norm holds promise to advance future cross-cultural research, because it will permit examination of the impact of social norms about speech on communication behavior.

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[18] For a diagram of their claim, see Figure 1 (p. 512) in Gudykunst et al. (1996).

[19] The degree of acculturation will moderate the extent to which his/her original cultural trait is retained (Kim, 1995).

Rationale for Creating a High/Low-Context Communication Scale - A Critical Examination of Gudykunst et al. (1996)

There has been only one prior attempt to measure high/low-context communication independently of other constructs. Gudykunst et al. (1996) studied the relationship between individualism/collectivism, self-construals, individual values, and high/low-context communication, theorizing that cultural individualism/collectivism has both direct and indirect influences on communication behavior. The authors attempted to determine whether cultural-level variables (individualistic/collectivistic culture) or individual-level variables (self-construals and value orientation) were better predictors of high/low-context communication style. They developed a questionnaire to assess high/low-context communication style, independent/interdependent self-construals, and individualistic/collectivistic values, using "members of individualistic cultures" (represented by U.S. American and Australian college students) and "members of collectivistic cultures" (represented by Korean and Japanese college students) as respondents.

In order to measure high/low-context communication style, the authors generated 156 items (some were drawn from various scales used in past research, and others were specially generated for the purpose of their study), and subjected them to principal component factor analysis with equimax rotation. Eight factors composed of 80 items were derived from the solution, identified as (1) "respondents' perceptions of their ability to infer others' meanings", (2) "respondents' tendencies to use direct/ambiguous communication", (3) "respondents' interpersonal sensitivity", (4) "speakers' tendencies to use dramatic communication", (5) "the tendency of respondents to use feelings to guide

their behavior", (6) "openness in and initiation of communication with others", (7) "respondents' preciseness in communication", and (8) "respondents' positive perception of silence in communication" (Gudykunst et al., 1996, pp. 521-523).

Their study was a significant departure from previous studies on individualism/ collectivism and high/low-context communication in the sense that the two-concepts were finally being differentiated, instead of high/low-context communication being measured as a part of individualism/collectivism. However, Gudykunst et al. (1996) claim that factors (1), (4), (5), (6), and (7) are related to low-context communication, whereas factors (2), (3), and (8) are related to high-context communication[20]. This claim indicates that the authors are considering high-context communication and low-context communication as separate dimensions, rather than as opposing poles of a single continuous dimension. Consequently, their communication measure departs from Hall's (1976) conceptualization of high/low-context communication, in which high/low-context communication was thought of as a continuous single dimension, not as two independent dimensions.

I agree with Hall's (1976) conceptualization of high/low-context communication, because, as I mentioned earlier, indirect and/or implicit communication is utilized in every culture to a certain extent (Brown & Levinson, 1987). The difference between a

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[20] On face value, the first factor (respondents' perception of their ability to infer others' meanings) may seem to be related to high-context communication. However, the authors claim that it is related to low-context communication, because it "emphasizes the listener's abilities to infer speaker's meanings, not the extent to which they actually infer meanings" (Gudykunst et al., 1996, pp. 523, 525; emphasis in the original). The authors explain further that such ability will not become an issue in a high-context culture, because inferring meanings is taken for granted in high-context culture; therefore, this factor is related to low-context communication, instead of high-context communication.

high-context communication culture and a low-context communication culture is a matter of degree regarding how much indirect and/or implicit communication is used by people living in that culture.

In addition, Gudykunst et al. (1996) conclude that "individual level factors (i.e., self construals and values) are better predictors of low- and high-context communication styles across cultures than cultural individualism-collectivism" (p. 510). This claim goes against my conceptual definition of high/low-context communication style as a perceived social norm superceding individual-level characteristics[21]. Consequently, I argue that what Gudykunst et al. (1996) measured in their study is not the same construct as I am conceptualizing in this study.

Therefore, I believe it is worthwhile to create a new scale for measuring high/low-context communication style which more closely reflects Hall's (1976) conceptualization of high/low-context communication, as an alternative tool for studying high/low-context communication style across cultures.

[21] I would argue that this finding is the result of designating "cultural individualism/ collectivism" a priori by the participants' nationality, and how high/low-context communication style is conceptualized in their study. The authors do recognize that their sample may not have been representative of their cultural individualism/collectivism.

CHAPTER 2

METHOD

Construction of the High/Low-Context Communication Scale

High/low-context communication style is defined in this study as the normative belief for explicit/implicit forms of communication and whether a message can be taken literally, or whether there is some unstated implicit message behind the words (referred to as "literality" of the message). Direct/indirect aspects of a message were considered as an alternative indicator for explicit/implicit aspects of a message. The normative belief for explicit/implicit communication style was measured by the perceived social norm regarding how one's message should be conveyed - in a clear and direct manner or in ambiguous and indirect manner. It was also measured as the perceived social norm regarding the degree to which a speaker expects a listener to infer meaning from what he or she did not state explicitly by words. The "literality" of a message was measured as the perceived social norm about the degree to which a listener should try to read behind the words actually being stated explicitly, or the degree to which a listener can believe that the words he or she hears represent what the speaker means (no hidden meanings). Consistent with the conceptualization of high/low-context communication as a social

norm, the construct was not measured by asking the respondents for their individual traits and behaviors[22].

A total of 93 items was generated according to an earlier conceptualization of the construct discussed above. Most of the items were constructed based on the conceptual description of high/low-context communication in previous research (e.g., Gudykunst & Ting-Toomey, 1988; Hall, 1976; Triandis, 1994, etc.)[23]. Some additional items were generated by consulting other students in my department who study intercultural communication. The items were then evaluated for face validity (whether an item looked like it was measuring what it purports to measure) by three judges[24], including myself. Items with most agreement between the judges were subjected to a small scale pre-pilot study, whose participants were U.S. American undergraduate students and Japanese undergraduate students who came to the U.S. for a short-term English learning program. After revising and rewording the items from the pre-pilot test, a total of 20 items for the scale were included in the final questionnaire. All items were Likert-type items on a 7-point scale, from "strongly disagree" to "strongly agree".

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[22] Although such format was not used in this study, the distinction between personal preferences and social norm can be highlighted by asking the participants' own personal response and what they perceive the others' response to be (e.g., Kluckhohn & Strodtbeck, 1961).

[23] Gudykunst et al. (1996) was not consulted when generating the items, because the original 93 items were generated before the article's publication.

[24] Ph.D. students in the Department of Communication at Michigan State University who were studying intercultural communication served as judges for choosing the appropriate items. They were asked to read my conceptualization of high/low-context communication, and assess each item on its content (that is, they read the items and judged whether an item looked like it was consistent with the conceptualization of high/low-context communication).

Confirmatory Factor Analyses - A Test of Content Validity

Confirmatory factor analysis was conducted in order to establish the content validity of the high/low-context communication scale, and also to test the unidimensionality of the scale (Hunter & Gerbing, 1982). Confirmatory factor analysis specifies the measurement model by theoretical reasoning, instead of analyzing the items blindly without any underlying theory about which item is measuring what construct (as in exploratory factor analysis). A priori theoretical specification of the measurement model enables confirmatory factor analysis to test the content validity and unidimensionality of a scale.

Hunter and Gerbing (1982) claim that "[t]he construct validation of a variable operationalized with multiple indicators is accomplished by the analysis of the measurement model" (p. 269). A measurement model is the specification of "the causal relations between the theoretically defined variables of interest and the responses to the observed variables, which are presumed to be determined by the theoretical variables" (Hunter & Gerbing, 1982, p. 270). In essence, it is a theoretical designation of which item is supposed to measure which construct. In the present study, I am constructing a measurement model for my scale by claiming that all the items for my high/low-context communication scale are measuring the construct of high/low-context communication.

There are two separate tests that are conducted to establish the content validity of a scale. The test of internal consistency examines whether the items are in fact related to each other. "If all the items in a cluster measure the same factor, then, the correlations between the items will satisfy a 'product rule for internal consistency'. ... That is, the correlation between two items in the same cluster should be the product of their

correlations with the underlying trait" (Hunter & Gerbing, 1982, p. 277). The test of parallelism examines how the items that are supposed to be measuring the same construct relate to an outside variable. "The general statement of parallelism is that the items in a unidimensional cluster have similar patterns of correlations with (1) items in other clusters or (2) other traits" (Hunter & Gerbing, 1982, p. 279). The tests of internal consistency and parallelism examine the deviation of the actual data from this theoretical model.

In practical terms, the test of internal consistency and test of parallelism examine the difference (i.e. error) between the predicted correlation and actual correlation obtained from the data. In the test for internal consistency, the correlation between any two items belonging to the same factor is theoretically predicted to be the product of the factor loadings of the two items. In the test for parallelism, the correlation of any two items belonging to different factors is theoretically predicted to be the product of each item's factor loading and the correlation between the two factors. The errors are calculated by subtracting the predicted correlation from the obtained correlation. The smaller the error, the better fit the data are to the theoretically specified model.

Inappropriate items which are inconsistent with the factor structure specified in the test of internal consistency and/or parallelism were deleted from the final scale. When the data from a given factor are consistent with the unidimensional structure specified in the test of internal consistency, it can be claimed that all items are in fact measuring the same construct. When the data from all scales are consistent with the factor structure specified in the test of parallelism, it can be claimed that different scales are measuring different constructs. Once the data are consistent with the factor structure specified in the

test for internal consistency and the test for parallelism, it can finally be claimed that the content validity of all scales is confirmed.

Construct Validity of the High/Low-Context Communication Scale

A valid high/low-context communication scale should be able to distinguish the difference between a high-context culture from a low-context culture. In order to test whether the new high/low-context communication scale developed in the current study is able to serve this purpose, Japan was chosen as an example of a high-context culture, and U.S. was chosen as an example of a low-context culture. These two countries were chosen because their different communication styles are widely documented (e.g., Gudykunst & Ting-Toomey, 1988; Hall, 1976, 1983; Okabe, 1983), suggesting that Japan is a high-context culture and U.S. is a low-context culture. If the scale can measure Japan to be a more high-context communication culture than the U.S., the construct validity of the scale can be demonstrated.

High/Low-Context Communication as a Distinct Construct

In order to establish high/low-context communication as a distinct construct, it must be shown that high/low-context communication is different from cognate constructs. Therefore, it must be demonstrated that the high/low-context communication scale and the self-construal scales do not correlate so highly as to indicate that the two scales are measuring the same construct. Similarly, it must also be demonstrated that the high/low-context communication scale and the scales measuring horizontal/vertical individualism/ collectivism do not correlate so highly as to indicate that the two scales are measuring the same construct.

Of several scales that purport to measure self-construal, (Cross, 1995; Gudykunst et al., 1994 July; Kim & Leung, 1997; Singelis, 1994), Kim and Leung's (1997) self-construal scale was used to examine the relationship between high/low-context communication and self-construal. Their scale was chosen over the other scales, because when creating their scale Kim and Leung (1997) took the good items from Gudykunst et al. (1994 July) and Singelis (1994); therefore, their scale is considered to be an improvement over the other two scales.

The scale created by Singelis, Triandis, Bhawuk, and Gelfand (1995) was used to examine the relationship between high/low-context communication and horizontal/vertical-individualism/collectivism. This scale is almost identical to the measure in Triandis (1995), and there are no other validated scales measuring horizontal/vertical-individualism/ collectivism. Using the horizontal/vertical-individualism/collectivism scale was deemed more appropriate for the purpose of this study than using an individualism/collectivism scale (e.g., Hui, 1988), because horizontal/vertical-individualism/collectivism is a further refinement of individualism/collectivism (Singelis, Triandis, Bhawuk, & Gelfand, 1995).

Additional evidence of discriminant validity can be provided by a scale which correlates differently with my high/low-context communication scale and the other two scales (F. Boster, personal communication, March, 1999). That is, if the same scale correlates highly with the high/low-context communication scale and not with the self-construal and the horizontal/vertical-individualism/collectivism scale (or vice versa), it is an additional proof that the high/low-context communication scale and the other two scales are measuring different constructs. The "detecting meaning" factor from the

conversational sensitivity scale (Daly, Vangelisti, & Daughton, 1987) was chosen with the expectation that it would serve this purpose. Conversational sensitivity is defined as "the propensity of people to attend to and interpret what occurs during conversation" (Daly, Vangelisti, & Daughton, 1987, p. 168). The authors propose a 36-item scale with 8 factors, the first of which is the "perceptiveness in finding deeper and often multiple meanings in what others say" (Daly, Vangelisti, & Daughton, 1987, p. 171). This description of the factor fits comfortably within my definition of high-context communication. On the other hand, this description of the factor does not seem related to the construct of self-construal or horizontal/vertical-individualism/collectivism. Therefore, I expect that the items that load on this factor will correlate rather highly with my high/low-context communication scale, while they will correlate only moderately with the other scales.

Procedure

A questionnaire containing the proposed high/low-context communication scale (20 items), independent self-construal scale (15 items), interdependent self-construal scale (14 items), vertical individualism scale (8 items), vertical collectivism scale (8 items), horizontal individualism scale (8 items), horizontal collectivism scale (8 items), and items in the detection of meaning factor from the conversational sensitivity scale (8 items) was prepared. The items for self-construal scale, horizontal/vertical-individualism/collectivism, and items in the detection of meaning factor from the conversational sensitivity scale were intermingled in order to avoid the carryover effect from one scale to another. The questionnaire was translated into Japanese and back translated into English for conceptual equivalence (Brislin, 1986). After being piloted,

the English version of the questionnaire was distributed to undergraduate students in Michigan State University, and the Japanese version of the questionnaire was distributed to undergraduate students at Rikkyo University. The data were collected between May and October of 1999, including the pilot test.

The questionnaire was collected from 230 participants in the U.S. (146 females - 63.5%, 84 males - 36.5%) and 223 participants in Japan (98 females - 43.9%, 120 males - 53.8%, 5 unclassified) from various majors. The mean age for U.S. participants was 19.26 (SD = 1.38), while the mean age for the Japanese participants was 18.92 (SD = 1.43). The mean year in college was 2.04 for the U.S. participants (SD = 1.08), whereas the mean year in college for the Japanese participants was 1.08 (SD = 0.45). Among the U.S. participants, 77.8% identified themselves as Caucasian American, and 13.5% identified themselves as African American. The other 6.5% identified themselves as either Asian American, Native American, or Other (most in this category were Mixed Races). Four participants (1.7%) identified themselves as international students, while one participant (0.4%) did not indicate their ethnicity. Among the Japanese participants, 95.5% identified themselves as Japanese, and 0.9% identified themselves as Korean Japanese. One participant (0.4%) identified self as an international student, while 3.1% did not indicate their ethnicity. Those who did not indicate their ethnicity and those who identified themselves as international students were eliminated from all subsequent analyses.

The test of internal consistency and the test of parallelism were performed on all 8 scales. To test internal consistency, the predicted correlation for all pairs of items within a scale was calculated. Then, each predicted correlation was subtracted from the

corresponding obtained correlation to calculate the error between the theoretically predicted model and the actual data. Items with large errors were deleted from the scale, and the same procedure was repeated[25] until an acceptable solution was reached. When all errors were reasonably small and the occurrence of a large error was within the number predicted by chance[26], the scale was considered internally consistent. The test for internal consistency was performed separately on all scales that were used in this study.

Once all scales were deemed internally consistent, parallelism between the scales was tested. Again, the predicted correlation for every pair of items was calculated, and was subtracted from every corresponding obtained correlation to calculate the error. Items which produced large errors with other items in other scales were deleted, and the process was repeated until an acceptable solution was reached. The solution was considered acceptable when all errors were reasonably small and within the number expected by chance. The final solution was again tested for internal consistency to reconfirm the unidimensional structure of each scale.

A preliminary solution for internal consistency of each scale was obtained by using the data from all participants (referred to as "combined data"). Then, the preliminary solution was checked separately against the data obtained from U.S. participants and Japanese participants. Items which did not pass the test for internal consistency in either the U.S. data or the Japanese data were deleted, and only items

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[25] Factor loading of an item changes every time a variable is added to or deleted from the factor.

[26] At the conventional 95% probability level, one in twenty correlations can have large error by chance alone.

which passed the test of internal consistency in all three data sets (combined data, data obtained from the U.S. participants, and data obtained from the Japanese participants) were subjected to the test for parallelism. Once again, the preliminary solution for the test of parallelism was obtained by conducting the test on the combined data, and then checked separately against the U.S. and Japanese data respectively. Items which failed the parallelism test in any of the three data sets were eliminated from the final solution. The internal consistency of each scale in the final solution was reconfirmed in all three data sets after all scales passed the test of parallelism.

The score for each scale was computed for each participant by summing the items in each scale determined through the procedure described above. These scale scores were used in the analyses.

CHAPTER 3

VALIDATION OF THE HIGH/LOW-CONTEXT COMMUNICATION SCALE

Confirmatory Factor Analyses[27]

Seven items from the high/low-context communication scale were consistent with the factor structure specified in the test of internal consistency and parallelism for the three data sets (combined, U.S. only, and Japanese only). Although there were several reverse items in the questionnaire, all of these items were eliminated during the confirmatory factor analysis process. The reliability of the seven items was .70 in the combined data, .64 in the U.S. data, and .71 in the Japanese data. The mean for U.S. American participants was 30.08 (N = 224) with a standard deviation of 5.49, while the mean for Japanese participants was 34.21 (N = 211) with a standard deviation of 4.90 (the minimum possible score = 7, the maximum possible score = 49).

Five items from the independent self-construal scale (Kim & Leung, 1997) were consistent with the factor structure specified in the test of internal consistency and parallelism for the three data sets. The reliability of the five items was .70 in the combined data, .61 in the U.S. data, and .67 in the Japanese data. The mean for U.S. American participants was 24.42 (N = 223) with a standard deviation of 3.74, while the

[27] Items and the factor loading of each item is presented in Table 1.

mean for Japanese participants was 24.82 (N = 211) with a standard deviation of 4.10 (the minimum possible score = 5, the maximum possible score = 35).

Three items from the Interdependent self-construal scale (Kim & Leung, 1997) were consistent with the factor structure specified in the test of internal consistency and parallelism for the three data sets[28]. The reliability of the three items was .56 in the combined data, .53 in the U.S. data, and .62 in the Japanese data. The mean for U.S. American participants was 13.15 (N = 225) with a standard deviation of 3.23, while the mean for Japanese participants was 12.54 (N = 213) with a standard deviation of 3.12 (the minimum possible score = 3, the maximum possible score = 21).

Four items from the Vertical Individualism scale (Singelis et al., 1995) were consistent with the factor structure specified in the test of internal consistency and parallelism for the three data sets. The reliability of the four items was .74 in the combined data, .73 in the U.S. data, and .76 in the Japanese data. The mean for U.S. American participants was 16.86 (N = 224) with a standard deviation of 5.01, while the mean for Japanese participants was 16.64 (N = 211) with a standard deviation of 4.41 (the minimum possible score = 4, the maximum possible score = 28).

Four items from the Vertical Collectivism Scale (Singelis et al., 1995) were consistent with the factor structure specified in the test of internal consistency and parallelism for the three data sets. The reliability of the four items was .57 for the combined data, .52 for the U.S. data, and .67 for the Japanese data. The mean for U.S. American participants was 17.26 (N = 225) with a standard deviation of 4.28, while the

[28] The scale was internally consistent by definition because there were only three items left in the scale after eliminating the bad items.

mean for Japanese participants was 16.04 (N = 210) with a standard deviation of 4.09 (the minimum possible score = 4, the maximum possible score = 28).

Six items from the Horizontal Individualism Scale (Singelis et al., 1995) were consistent with the factor structure specified in the test of internal consistency and parallelism for the three data sets. The reliability of the six items was .62 in the combined data, .63 in the U.S. data, and .57 in the Japanese data. The mean for U.S. American participants was 34.13 (N = 224) with a standard deviation of 4.17, while the mean for Japanese participants was 30.67 (N = 209) with a standard deviation of 4.31 (the minimum possible score = 6, the maximum possible score = 42).

Four items from the Horizontal Collectivism Scale (Singelis et al., 1995) were consistent with the factor structure specified in the test of internal consistency and parallelism for the three data sets. The reliability of the five items was .72 in the combined data, .59 in the U.S. data, and .70 in the Japanese data. The mean for U.S. American participants was 22.92 (N = 225) with a standard deviation of 2.74, while the mean for Japanese participants was 19.70 (N = 210) with a standard deviation of 3.66 (the minimum possible score = 4, the maximum possible score = 28).

Seven items from the Detecting Meaning items of the Conversational Sensitivity Scale (Daly, Vangelisti, & Daughton, 1987) were consistent with the factor structure specified in the test of internal consistency and parallelism for the three data sets. The reliability of the seven items was .86 in the combined data, .79 in the U.S. data, and .87 in the Japanese data. The mean for U.S. American participants was 36.60 (N = 224) with a standard deviation of 5.38, while the mean for Japanese participants was 31.55 (N = 207)

with a standard deviation of 6.81 (the minimum possible score = 7, the maximum possible score = 49).

Establishing the Construct Validity of the High/Low-Context Communication Scale

According to the current literature in the field, Japan should score higher than U.S. on a high/low-context communication scale. A t-test between U.S. and Japanese participants on the high/low-context communication scale shows that Japanese participants scored significantly higher than U.S. participants on the high/low-context communication scale (Table 2). The mean score for the U.S. participants was 30.08 (SD = 5.49, N = 224), while the mean score for the Japanese participants was 34.21 (SD = 4.90, N = 211). The treatment correlation was r = .37.

There were no significant differences (t = 0.821, df = 207, p = .412) between Caucasian Americans (mean = 30.19, SD = 5.56, N = 178) and African Americans (mean = 29.32, SD = 4.62, N = 31). No difference was found (t = 0.616, df = 222, p = .538) when all non-Caucasians were grouped together (mean = 29.63, SD = 5.26, N = 46) and compared against Caucasians. Because there was only a small number of participants in other ethnic categories, no further comparison between the ethnic groups in the U.S. was performed.

Due to the difference in the male-female ratio between U.S. participants and Japanese participants, the same analysis was conducted separately for males and females to rule out the possibility that sex differences were a potential confound for the differences between U.S. and Japanese participants. The mean score for U.S. females was 29.98 (SD = 5.20, N = 143), while the mean score for Japanese females was 34.60 (SD = 5.42, N = 95). A t-test between the two female groups showed that Japanese females

scored significantly higher than U.S. females, with the treatment correlation of r = .39 (Table 3). The mean score for U.S. males was 30.25 (SD = 6.00, N = 81), while the mean score for Japanese males was 33.89 (SD = 4.42, N = 116). A t-test between the two male groups showed that Japanese males scored significantly higher than U.S. males, with a treatment correlation of r = .33 (Table 3). Since the result of the overall analysis was replicated in both females and males, the possibility that the male-female difference was driving the difference between U.S. and Japan can be ruled out. In addition, no sex difference on the high/low-context communication scale was found within the U.S. data as well as within the Japanese data (Table 4).

In order to control for the differences in age and year in college between U.S. and Japanese participants, multiple regression analysis was conducted to see whether age and year in college would have any impact on the high/low-context communication scale score. Table 5 shows that the beta weight of age and year in college is nearly zero. Therefore, the differences between U.S. and Japanese participants on the high/low-context communication scale was not driven by the differences in age and year in college between the U.S. and Japanese participants.

The present data are consistent with the literature in the field that Japan is more high-context than the U.S. Therefore, these results suggest that the high/low-context communication scale has construct validity.

Table 6 shows the result of the multiple regression of all other scales onto the high/low-context communication scale. The results show that the detecting meaning scale was a significant predictor of high/low-context communication style in all three data sets. Vertical collectivism was a significant predictor of high/low-context

communication style in the combined data and the U.S. data, and horizontal collectivism was also a significant predictor in the combined data. However, the detecting meaning scale was the only consistent predictor of high/low-context communication style across the three data sets. These results give additional support to the construct validity of the high/low-context communication scale.

Establishing High/Low-Context Communication as a Distinct Construct

If the construct of high/low-context communication were to be independent of individualism/collectivism and independence/interdependence, the correlations between the high/low-context communication scale and other scales, after being corrected for measurement error, should not correlate so highly as to suggest that they are measuring the same construct. Table 7 shows the uncorrected and corrected correlations between the high/low-context communication scale and the other scales. It should be noted that none of the correlations are close to 1.00, which indicates that high/low-context communication is indeed a distinct construct from individualism/collectivism and independent/interdependent self-construal.

These results are consistent with the claim that high/low-context communication is a distinct construct from other related constructs. However, the correlations between the high/low-context communication scale and other scales were much lower than was predicted, especially in the Japanese data, although moderate correlations were expected between all scales. For example, the correlation between the high/low-context communication scale and interdependence self-construal scale is nearly zero in the combined data and the Japanese data (Table 7). In the Japanese data, the high/low-context communication scale does not correlate with vertical collectivism scale, nor with

horizontal collectivism scale. Considering the discussion in the existing literature, these minimal correlations were not expected.

It was predicted that detecting meaning items from the conversational sensitivity scale would provide further evidence for discriminant validity of the high/low-context communication scale by correlating positively with the high/low-context communication scale and correlating to a lesser degree with other scales. The data were not consistent with this prediction. As shown in Tables 8, the detecting meaning scale correlated more strongly with the independent self-construal scale and the horizontal individualism scale than other scales in all three data sets. The detecting meaning scale did not correlate with the high/low-context communication scale in the combined data, but did correlate weakly to moderately in the U.S. data and the Japanese data. In the combined data and the U.S. data, detecting meaning items correlated moderately with the horizontal collectivism scale and weakly with the interdependent self-construal, vertical individualism, and vertical collectivism scales, but the corresponding correlations were minimal in the Japanese data. These results indicate that detecting meaning items from the conversational sensitivity scale did not provide additional support for the discriminant validity of the high/low-context communication scale at zero-order correlation level.

The reason why the detecting meaning scale did not correlate strongly with the high/low-context communication scale cannot be determined from the present study. One plausible explanation is that the detecting meaning scale was also tapping into the individual dimension, which is at a different level from the social norm itself that the high/low-context communication scale was intended to measure. Therefore, even though the content of the detecting meaning items looked similar to that of high/low-context

communication scale, it seems plausible that the similarity in face validity was not supported by the data when scrutinized from their construct validity. The same argument can be made for explaining the unexpectedly low correlation between the high/low-context communication scale and other scales. Because all other scales were measuring individual level attitudes, they may not have correlated with the high/low-context communication scale, which was measuring the social norm, which is not necessarily congruent with the individual psychological makeup.

It is interesting that the item "I prefer to be direct and forthright when discussing with people" passed the test of internal consistency and parallelism as a horizontal-individualism measure; the factor loading of this item to the horizontal-individualism scale was .44 in the combined data, .48 in the U.S. data, and .51 in the Japanese data, whereas the factor loading of this item to the high/low-context communication scale was .12 in the combined data, .17 in the U.S. data, and .12 in the Japanese data. Although this item is asking about one's communication style, it is asking for an individual dimension, just as the other items in horizontal individualism scale were. Because the operationalization of high/low-context communication was strictly restricted to the social norm itself, it is understandable that this item did not correlate with the high/low-context communication scale to the extent that it did with the horizontal individualism scale.

These results suggest further support for my claim that the social norm should be investigated independent of the individual level analyses. In hindsight, a scale which measures another social norm may have provided better evidence of discriminant validity, rather than a scale measuring an individual dimension.

CHAPTER 4

DISCUSSION ON HIGH/LOW-CONTEXT COMMUNICATION

The current scale was designed to measure the general social norms regarding any society's communication style in terms of direct - explicitness or indirect - implicitness. The results confirm that the Japanese participants in this study are a more high-context communication culture than the U.S. American participants. The following section will focus on some possible reasons for these results.

High/Low-Context Communication and Confucianism/Rhetoric

Culture is not created overnight - it is important to recognize that what we are observing as "culture" today is affected by some factor from the past, be it history, customs, or traditions. I suggest that there must be some historical or traditional factors that have influenced why Japan became a high-context culture, and why the U.S. became a low-context culture.

Although many explanations are possible, numerous scholars have described the role of Confucianism in shaping Japanese culture (Barnlund, 1989; Yum, 1994). Therefore, it would be informative to examine how Confucian ideals and value preferences are reflected in speaking. As for a Western counterpart to what Confucius is to Japan, I chose Aristotle, based on the notion that "[t]he dominant American communication function is persuasion" (Stewart & Bennett, 1991, emphasis in the

original), and Aristotle's indisputable influence on persuasive communication. The two philosophers share several common features. Both Confucius and Aristotle were real people (as opposed to some imaginary figure); Confucius was born in 552 B.C. (Huang, 1997), and Aristotle was born on 384 B.C. (Kennedy, 1991). They were both considered as the leading scholar of their time, and many people came to seek their teaching. Neither of them was a religious leader - although Confucianism is sometimes considered a religion (e.g., Confucianism is one of the entries in The Illustrated Encyclopedia of World Religions, edited by C. Richards), it is more of a philosophy than a religion. Yum (1994) clearly states that "Confucianism is a philosophy of human nature that considers proper human relationships as the basis of society" (p. 77):

> Confucius mentions very specifically about the conduct of speech in the Analects:
>
> The Master said: "Sweet words and pleasing countenance have indeed little humanity[29] in them!" (1.3, 17.16).
>
> The Master said: "The reason that the ancients[30] would not rashly utter words is that they deemed it shameful not to live up to them" (4.22).
>
> The Master said: "The gentleman[31] deems it shameful if his speech exceeds his action" (14.27; a very similar thought is expressed in 2.13 and 4.24).
>
> Master Kong said: "Three types of friends are beneficial; three types of friends are

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[29] The word "humanity" is used to mean "the supreme virtue and the sum of all virtues" (Huang, 1997, p.16)

[30] "The ancients" refers to the ideal kings of the ancient times.

[31] "The gentleman" refers to an ideal man with talent and virtue; "man of humanity" (Huang, 1997, p. 34).

harmful. To befriend the upright, befriend the truthful, and befriend the erudite is beneficial; to befriend the excessively respectful, befriend the obsequious, and befriend the glib-tongued is harmful" (16.4).

It is obvious throughout the Analects that Confucius did not regard speech very highly. He mentions that action is preferred to words, and suggests refraining from speech when the action cannot be delivered. In Confucius' mind, a virtuous person should not deliver empty words. Considering that Japan was strongly influenced by this philosophy, it is not surprising that speech has not been regarded highly since the ancient times. Such attitude toward speech would naturally shape a high-context culture.

Aristotle, on the other hand, did not provide concrete guidelines about how a virtuous person should speak. In Aristotle's mind, speech was only a tool for persuading others, and what mattered was whether one is able to convince others of what one is advocating. Reflecting such orientation toward speech, Aristotle's Rhetoric is entirely about how to persuade people, or how to make a persuasive speech:

> Persuasion occurs through the arguments when we show the truth or the apparent truth from whatever is persuasive in each case (1.2.6).
>
> Let the matters just discussed be regarded as understood, and let the virtue of style be defined as "to be clear" (speech is a kind of sign, so if it does not make clear it will not perform its function) ... (3.2.1).
>
> ... speaking well is not a matter of rapidity or conciseness but moderation, and that means saying just as much as will make the thing clear or as much as will make [the audience] suppose that something has happened or ... (3.16.4).

There is a demand for clarity in Aristotle's discussion of style (Kennedy, 1991), and although he mentions moderation, his major concern is on making sure that the audience understands what is being advocated. This is a stark contrast to Confucius' thinking, in which he said, "[a]s long as speech conveys the idea, it suffices" (15.41). Although I recognize the different context in which Confucius and Aristotle made these comments (in Confucius' case, the comments were made as part of his teaching on everyday conduct; in Aristotle's case, the context was ostensibly persuasive rhetoric of epideictic, judicial, or deliberative speech), the underlying differences in their attitude toward speech is clear.

Both Confucius and Aristotle's philosophy continue to have currency in describing important, long-standing distinctive values about communication in the Eastern and Western culture today. Their philosophies have been very influential in reflecting the different development of cultures in East and West. Confucius' little importance placed on speech can easily be linked to the high-context communication style in East Asia, including Japan; Aristotle's emphasis on persuasion by clarity can be considered as the basis for the low-context communication style in the Western cultures, including the U.S. Such historical perspective is outside the area of investigation in the communication field, yet it brings an interesting insight into the issue of communication style differences.

High/Low-Context Communication and Politeness

Assuming, as Brown and Levinson (1987) claim, that people utilize indirect communication to be polite, if Japan is a high-context culture where indirect communication style is valued, does that mean that Japanese society is more polite?

Maynard (1997) disagrees - "Japanese people are usually characterized as polite. Although the Japanese language has a built-in system of politeness strategies that requires a choice of appropriate politeness levels, this does not mean that the Japanese are always polite" (p. 56), and goes on to discuss the situations in which they are allowed to be impolite. Maynard explains that the Japanese seem more polite to observers, because the observer is usually an outgroup member. Japanese regard an outgroup member to be someone to whom they must maintain their social and psychological distance, and this distance requires maintaining an appropriate level of politeness. However, the "observer paradox" does not explain why the Japanese participants were more high-context than the U.S. American participants in this study, because the participants' responses in this study were self-report answers about the respondents' own culture. In other words, the observers, in this case, were ingroup members. The results of this study suggest that Japanese are "polite" to ingroup members also.

An alternative explanation can be made based on the conceptualization of high/low-context communication in this study; namely, that high/low-context communication style is a perceived social norm in each culture. If being high-context is the social norm in Japan, one would see more instances of high-context communication, because the instances where one is allowed to deviate from the social norm are more limited than the instances where one must follow the social norm. On the other hand, if the social norm of the U.S. is to be low-context, we would naturally see more of low-context communication.

Another explanation can be made, based on the premise that "[d]istribution of politeness (who has to be polite to whom) is socially controlled" (Brown & Levinson,

1987). If there are more situations in Japan than in the U.S. in which one is expected to maintain social distance, then we might expect to see more polite speech in Japan than in the U.S. For example, in situations where social distance between people is closer in the U.S. than in Japan, we might see a low-context communication style in the U.S., whereas we would expect to see a high-context communication style in Japan. If there are fewer instances in the U.S. to be "socially distant" where indirect communication is required, it may seem like the U.S. is a more low-context society than Japan, if only because of the sheer frequency of observing such interaction. The conclusion, then, would be that Japan is a more high-context culture than the U.S., because people maintain more social distance in Japan than in the U.S., hence having to be more polite more often.

Alternatively, the differences in "how" to be polite may be a factor. "Politeness is required in every society, and all languages provide for different styles and variations to accommodate it" (Maynard, 1997). In fact, Lakoff (1975, p. 65) proposes "formality (keep aloof), deference (give options), and camaraderie (show sympathy)" as three basic rules of politeness, and suggests that different societies have different preference orders among the rules[32]. She discusses that in first encounters Japanese emphasize deference over other rules while Americans emphasize camaraderie, and as the relationship progresses Japanese will slowly start incorporating camaraderie and end up being friendly

[32] Brown (1966) claims that "status norm" and "solidarity norm" exist in every society. He goes on to argue that in Western culture solidarity norm has become stronger than the status norm, drawing evidence from the shift in second person pronouns throughout the course of European history.

and deferential[33]. My point here is that to Americans being friendly is the utmost politeness, while to the Japanese being friendly is not being polite Instead, being deferent is considered to be the proper form of politeness, and that is how they will start the relationship. To them, being friendly is being less formal, hence less polite, and should only happen in a more advanced stage of the relationship. In essence, how "politeness" may be manifested is different from one society to another. In a situation where one is expected to be polite, one will fulfil the expectation by behaving in a friendly manner in one culture, by showing deference in another culture, and by being formal in a third culture.

If being friendly is the utmost form of politeness in the U.S., we would expect a "friendly" communication style to be the "polite" form. And because "being friendly" entails being frank and straightforward in the U.S., being polite would mean speaking straightforwardly; i.e., in a low-context manner. On the other hand, if being deferential is the utmost form of politeness in Japan, a respectful communication style would be the "polite form". As I mentioned earlier, being overly explicit is an insult to the other person in Japan (Honna, 1989; Naotsuka, 1980), because it implies that the other person is insensitive. Therefore, if one wishes to be polite to the other person, implicit communication style would be expected.

When low-context communication is utilized in Japan, it is clearly recognized as a violation of the social norm. Therefore, there is a significant meaning to applying low-

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[33] Unfortunately, Lakoff does not discuss how Americans would move as the relationship progresses. However, based on the analyses by Brown (1966), I predict that Americans will continue to reinforce comradeship.

context communication - it signifies disregard for formalities, which indicate intimacy, which is an "unusual" circumstance within Japanese society. That is why it is only allowed between family members or very close friends. In the U.S., on the other hand, there is "no higher ideal than that of equality, followed by insistence on independence and a distaste for formality. The first tends to reduce social barriers, the second to favor spontaneous relationships, the third to encourage frankness in communicating with others" (Barnlund, 1989, p. 60). Therefore, intimacy is a goal that the relationship should strive for, not an "unusual circumstance".

This difference in orientation toward friendliness and intimacy may possibly be an underlying factor driving the differences in high-context communication culture and low-context communication culture. In turn, then, where does the differences in this "friendliness - intimacy drive" come from? Barnlund (1989) points out, after describing an American ideal person as "[a]n independent, self-realizing person, faithful to his or her own inner truth" (p. 37), that "[i]mplicit in this focus on an independent human being is insistence upon equality of treatment" (p. 37). Maynard (1997) also mentions the American's "ethic of 'equality'". The "camaraderie" rule posited by Lakoff (1975) may be an intervening variable between individualism/collectivism and high/low-context communication style. A further examination of this idea seems warranted.

Future Research

In future research, the social norms of communication that pertain to more specific domains of every day life need to be examined. Scenarios were used in Triandis, Chen, and Chan (1998) and also in Triandis and Gelfand (1998) to measure horizontal/ vertical-individualism/collectivism. Such methods may be useful for this line of

investigation. As discussed in the previous section, situations that require being polite would be interesting to investigate. In situations where "being polite" matters, we might see differences, whereas in situations where being polite is not an issue, we may not see as much difference. How politeness is encoded in the communication style would also be worthy of investigation. In addition, Brown and Levinson (1987) mention that culturally taboo areas are often left implicit. This is another area that would be of interest to investigate[34].

For instance, the level of face threat involved in any situation is said to be a large determiner of the communication style, especially when making a request (Brown & Levinson, 1987). The larger the face threat, the more polite one is expected to be, and there are many strategies with varying degrees of politeness that one can choose from in order to make a request (Brown & Levinson, 1987; Lim, 1990). It would be useful to examine whether there are any differences between different societies in terms of high or low-context communication style when given the same situation. For instance, it is often talked about among the Japanese staying in the U.S. that U.S. Americans are more explicit and direct than Japanese when making the same request, such as asking to borrow class note from someone who is not your good friend. This could be because the same request is seen as more face threatening in Japan than in the U.S., and if it is more face threatening, it would be communicated more politely. Alternatively, it may be because of the differences in the "default" social norm between U.S. and Japan; regardless of the circumstance, one might be positively evaluated to be explicit in the U.S., and one might

[34] Leaving culturally taboo areas implicit may be a part of being polite; I believe that part of being polite is to be in accord with social norms.

be able to avoid being evaluated negatively by erring in the direction of being implicit in Japan.

Another factor in determining the level of politeness in the communication would be the social distance between the communicators (Brown & Levinson, 1987). It is intuitively natural that we speak differently to our closest friends compared to how we speak to strangers. One way to look at this phenomenon is to pay attention to the differences in the social distance between the speakers. The social distance between us and our closest friend is different from the social distance between us and a stranger. If social distance is a determining factor of the level of politeness that is expected to be conveyed in the interaction, then it is natural that we adopt a different communication style when we are talking to our best friend and when we are talking to a stranger, because of the differences in social distance between the two situations. But just how different, or different in what way, is a separate question involving the social norm regarding how to speak to a closest friend and how to speak to a stranger. The distance may be seen as smaller in the U.S. and larger in Japan, hence reflecting on their respective communication styles.

These are just speculations, and it would be interesting to test them, if there is a way. As we delve deeper into the issue, we are being forced to recognize the difficulty of intercultural studies, in that it is almost impossible to vary one and only one factor. It is a challenge to present a situation where social distance, psychological distance, and the perceived degree of face threat are the same in two cultures.

Another interesting issue that can be investigated in future research is how much of communication style differences are influenced, if at all, by the language itself[35]. For example, it would be interesting to see whether we can still detect the differences in communication styles between different societies where English is spoken as a native language, for example, between U.S., England, Ireland, Australia, and India. Among these countries, India is the only country which is listed as a "high context culture" in Gudykunst and Ting-Toomey (1988), and there is some anecdotal evidence suggesting that England is a little more high-context culture than the U.S. (Naotsuka, 1980). If we can detect the differences between these societies, we can have more confidence in the content validity of the scale, in that it is measuring the communication style used in that society and not some unidentified effect inherent in translating from one language to another. On the other hand, if we cannot detect differences between different societies using the same language, then we may have to accept that conversation style in a particular society is inseparable from the language spoken in that society.

Finally, a more qualitative approach, such as the analyses of the actual conversation or content analyses of media, would also make a great contribution to the study of communication style. A qualitative study would help shed light on the actual social norm itself, whereas the questionnaire survey method could only uncover the individuals' perception of the social norm, which would be essential for further explication of the construct of high/low-context communication.

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[35] It is often mentioned that it is easier to leave the speaker's intention implicit in Japanese because the predicate is placed at the end of the sentence, whereas the verb is placed right after the subject in English.

CHAPTER 5

RESULTS AND DISCUSSIONS ON THE SELF-CONSTRUAL SCALES AND THE HORIZONTAL/VERTICAL-INDIVIDUALISM/COLLECTIVISM SCALES

Relationships Between the Scales

The current literature in the field suggests that independent/interdependent self-construals are the personal variables driving cultural individualism/collectivism. Therefore, it seems reasonable to expect that the independence scale, vertical individualism scale, and horizontal individualism scale would correlate positively with each other. Similarly, it seems reasonable to expect that the interdependence scale, vertical collectivism scale, and horizontal collectivism scale would correlate positively with each other.

On the other hand, the results obtained by Singelis, Triandis, Bhawuk, and Gelfand (1995) contradict these expectations. Their results showed a moderate positive correlation between independent self-construal and horizontal individualism (.36 for U.S. American students, .43 for Hawaii students, .45 for the combined sample), but vertical individualism was not correlated with independent self-construal (.04 in the U.S American students, -.10 in the Hawaii students, -.01 in the combined sample). They found a moderate correlation between interdependent self-construal and horizontal collectivism (.45 in the U.S. American students, .41 in the Hawaii students, .43 in the combined sample), and also between vertical collectivism and interdependent self-

construal (.40 in the U.S. American students, .54 in the Hawaii students, .50 in the combined sample).

The results in the present study replicated the findings by Singelis, Triandis, Bhawuk, and Gelfand (1995) to a certain extent (Tables 9-11). In accordance with the results by Singelis, Triandis, Bhawuk, and Gelfand (1995), all three data sets in the present study showed that the independent self-construal scale correlated strongly with the horizontal individualism scale (r' = 1.00 in all data)[36], and that the correlation between the independent self-construal scale and vertical individualism scale was weak at best (r' = .17 for combined data, r' = .29 in the U.S. data, and r' = .07 in the Japanese data). In all three data sets in the present study, the interdependent self-construal scale correlated moderately or strongly with the horizontal collectivism scale (r' = .70 for combined data, r' = .55 in the U.S. data, and r' = .88 in the Japanese data), and the correlation between the interdependent self-construal scale and vertical collectivism was moderate in all three data sets (r' = .46 in the combined data, r' = .35 in the U.S. data, and r' = .51 in the Japanese data).

In the present study, vertical individualism and horizontal individualism correlated moderately in all three data sets (r' = .34 in the combined data, r' = .40 in the U.S. data, and r' = .32 in the Japanese data); vertical collectivism and horizontal collectivism also correlated moderately in all three data sets (r' = .41 in the combined data, r' = .32 in the U.S. data, r' = .39 in the Japanese data). This is in line with the results reported in Triandis and Gelfand (1998); they found a correlation of .30 between

[36] The r' is used to represent a corrected correlation.

horizontal and vertical individualism, and .50 between horizontal and vertical collectivism[37]. However, this is inconsistent with Singelis, Triandis, Bhawuk, and Gelfand (1995), in which they found the correlation between horizontal and vertical collectivism scale to be -.00 (-.03 for U.S. American students, .04 for Hawaii students), although they also found a .39 correlation between horizontal and vertical collectivism (.33 for U.S. American students, .45 for Hawaii students).

It is also expected from theoretical reasoning that vertical individualism and vertical collectivism should correlate moderately (because they share the "vertical" dimension), and that horizontal individualism and horizontal collectivism should also correlate moderately (because they share the "horizontal" dimension). In Singelis, Triandis, Bhawukl and Gelfand (1995), "the two horizontal dimensions and the two vertical dimensions were slightly, but significantly, positively related" (p. 258). Their data showed that the correlation between horizontal individualism and collectivism was .20 (.08 for U.S. American students, .22 for Hawaii students), and the correlation between vertical individualism and collectivism was .14 (.19 for U.S. American students, .18 for Hawaii students).

In the present study, the two horizontal dimensions correlated moderately in the combined data (r' = .38) and U.S. data (r' = .47), but did not correlate in the Japanese data (r' = -.07). For the two vertical dimensions, the correlations in the present study was lower than that of Singelis, Triandis, Bhawuk, and Gelfand (1995) (r' = -.04 in the combined data, r' = -.03 in the U.S. data, r' = -.06 in the Japanese data).

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[37] The participants in their study were all U.S. Americans.

These results suggest that self-construal has a stronger relationship to the horizontal dimensions than the vertical dimensions. The results also suggest that the shared feature of individualism/collectivism is stronger than the shared feature of vertical/horizontal. In other words, the relationship between the two individualism dimensions and the two collectivism dimensions (i.e., vertical individualism - horizontal individualism, and vertical collectivism - horizontal collectivism) is stronger than the relationship between the two vertical dimensions and the two horizontal dimensions (i.e., vertical individualism - vertical collectivism, and horizontal individualism - horizontal collectivism). In addition, the results indicate that the two horizontal dimensions are more strongly related to each other than the two vertical dimensions. While the main goal of the present study was not to validate the horizontal/vertical-individualism/ collectivism scale, it is clear from these results that further research investigating the relationship between these constructs is warranted.

Differences Between U.S. and Japanese Participants

The current literature in the field suggests that U.S. Americans should score higher than Japanese on independence, vertical individualism, and horizontal individualism, while Japanese should score higher on interdependence, vertical collectivism, and horizontal collectivism. Table 12 shows the results of t-tests between the U.S. and Japanese participants on the self-construal and vertical/horizontal-individualism/collectivism scales. When both sexes were combined, U.S. participants scored significantly higher on all scales except for vertical individualism. The fact that U.S. participants scored higher than Japanese participants on vertical collectivism and horizontal collectivism was contrary to what was expected from the existing literature in

intercultural communication field, which describe Japan as a more collectivistic society than the U.S.

Table 13 shows the results of the same analyses conducted separately for females and males. U.S. and Japanese were not significantly different in interdependent self-construal for both men and women. U.S. women were similar to Japanese women in vertical individualism, whereas U.S. men scored higher than Japanese men in vertical individualism. In addition, there were no U.S.-Japanese differences on vertical collectivism for women, but the difference was significant for men. The fact that U.S. men turned out to be more vertically collectivistic than Japanese men was contrary to the expectation. U.S. Americans scored higher than Japanese on horizontal collectivism for both men and women, which also unexpected from the existing literature which describe Japanese as more collectivistic than the U.S. Americans.

The reason for these unexpected results cannot be determined from this study. It may seem natural to suspect that some unidentified variable is moderator or mediating the relationship. However, while these results contradict the expectations made from the existing literature, there have been several studies in the past that found similar unexpected results. Kim et al. (1996) and Oetzel (1998) both reported that U.S. Americans were significantly more independent than Japanese, but there were no differences between the two groups in interdependence. Even Gudykunst et al. (1996) reported in their study that the results for the mean scores of self-construal and individualistic/collectivistic values "do <u>not</u> reflect the general cultural tendencies usually associated" with U.S. and Japan (p. 530, emphasis in the original). It is interesting to note that these results were obtained from studies using different scales for measuring

self-construal, hence making the possibility of systematic measurement error less plausible[38]. In light of these findings, it is important to note that the justification for assuming cultural characteristics a priori from previous studies is getting weaker than ever before.

[38] Kim et al. used an earlier version of the self-construal scale used in the present study. Gudykunst et al. (1996) constructed a measure for assessing self-construal and individualistic/collectivistic values in their study by conducting exploratory factor analyses of the collection of items from various existing scales. Oetzel (1998) used the self-construal measure used by Gudykunst et al. (1996).

CHAPTER 6

CONCLUSION

The most important contribution of this study was to construct a high/low-context communication scale, if only in a preliminary form. The results of the internal consistency test and parallelism show that the scale has construct validity, and the correlations with other scales of related constructs indicate that high/low-context communication is a distinct construct. The differences in the scale scores between the U.S. and Japanese participants suggest the content validity of the scale. A limitation of the current study is that it could not provide direct additional support for the discriminant validity of the high/low-context communication scale, because the detecting meaning items did not correlate highly with the high/low-context communication scale at the zero-order level. The next step in this line of research is to increase the reliability of the scale by adding more items to the scale, and to obtain additional support for demonstrating the discriminant validity of the scale.

It is also important to note that other scales used in this study were also subjected to rigorous measurement tests, which is not often the case in many studies. Yet, they did not behave in line with the predictions made from current literature in the field - only the results from independence scale and horizontal individualism scale were consistent with the theoretical predictions. Contrary to the prediction that Japanese participants would score higher on the interdependent self-construal and horizontal/vertical collectivism

scales, U.S. participants scored higher on all these scales. Although U.S. participants were expected to score higher than Japanese participants on the vertical individualism scale, the result was consistent with this prediction only for men, and there were no differences between U.S. and Japanese participants for women and when both sexes were combined.

More research is necessary before any decisive interpretation of these results can be made. However, we can no longer deny the possibility that Japanese individuals are starting to depart from the description they were traditionally associated with (e.g., Miyanaga, 1991). On the other hand, the present study also showed that the social norm of high-context communication is still very much alive in Japan. The results in the current study suggest an increasing discrepancy between what each individual feels, believes, or thinks privately, and how they actually interact and communicate with others. This discrepancy is especially noticeable among the Japanese participants. These results suggest that tapping into an individual's psychological aspect, such as his or her self-construal orientation, is not enough to predict that person's communication behavior.

Markus and Kitayama (1998) mention that people "organize their actions" (p. 66) based on the framework provided by the society. Communication is a social act, which is inevitably influenced by social norms. We must begin to pay more attention to the existence of social norms which affect the relationship between the individual's psychological makeup and their actual behavior. The scale proposed in this study is a step in this direction.

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APPENDICES

APPENDIX A

TABLES

Table 1.

Factor Loading of Each Item in Respective Scales

Item	Factor Loading		
	combined data	U.S. Data	Japanese Data
High/Low-Context Scale			
(1) I believe that in the United States* it is generally considered that a listener should be able to understand what a speaker is trying to say even if the speaker does not say everything that he or she intends to communicate.	.50	.42	.60
(2) I believe that in the United States it is generally considered that a speaker can expect a listener to be able to figure out what the speaker really means even if it is not clearly stated.	.59	.45	.63
(3) I believe that in the United States it is generally considered that a listener is expected to understand the intent of the speaker from the way the person talks.	.46	.36	.48
(4) I believe that in the United States it is generally considered that it is better to risk not speaking enough than to risk speaking too much.	.47	.39	.39

* The clause "in the United States" was changed to "in Japan" in the Japanese version.

Table 1 continued

Item	Factor Loading		
	combined data	U.S. Data	Japanese Data
(5) I believe that in the United States it is generally considered that it is usually more important to say things politely than clearly.	.58	.58	.43
(6) I believe that in the United States it is generally considered that the speaker's intent can be understood without having to be stated clearly.	.65	.54	.72
(7) I believe that in the United States it is generally considered that how something is communicated is usually more important than the content of the message.	.28	.41	.33
Independent Self-Construal Scale			
(1) I act as a unique person, separate from others.	.67	.56	.67
(2) I don't like depending upon others.	.44	.39	.31
(3) I take responsibility for my own actions.	.57	.51	.54
(4) It is very important for me to act as an independent person.	.70	.81	.67
(5) I don't change my opinions in conformity with those of the majority.	.47	.23	.52

Table 1 continued

Item	Factor Loading		
	combined data	U.S. Data	Japanese Data
Interdependent Self-Construal			
(1) My relationships with others in my group are more important than my personal accomplishment.	.53	.49	.66
(2) My happiness depends on the happiness of those in my group.	.64	.65	.62
(3) It is important to consult close friends and get their ideas before making decisions.	.48	.44	.49
Vertical Individualism Scale			
(1) Competition is the law of nature.	.61	.64	.58
(2) Without competition, it is not possible to have a good society.	.62	.57	.70
(3) Winning is everything.	.68	.69	.66
(4) Some people emphasize winning; I'm not one of them (reverse item).	.67	.65	.71

Table 1 continued

Item	Factor Loading		
	combined data	U.S. Data	Japanese Data
Vertical Collectivism Scale			
(1) I would sacrifice an activity that I enjoy very much if my family did not approve of it.	.55	.58	.50
(2) I would do what would please my family, even if I detested that activity.	.75	.82	.68
(3) Before taking a major trip, I consult with most members of my family and many friends.	.47	.34	.59
(4) We should keep our aging parents with us at home.	.27	.19	.54
Horizontal Individualism Scale			
(1) I often "do my own thing".	.48	.53	.53
(2) I like my privacy.	.43	.40	.22
(3) I prefer to be direct and forthright when discussing with people.	.44	.48	.51
(4) What happens to me is my own doing.	.33	.34	.52

Table 1 continued

Item	Factor Loading		
	combined data	U.S. Data	Japanese Data
(5) When I succeed, it is usually because of my abilities.	.49	.50	.29
(6) I enjoy being unique and different from others in many ways.	.63	.56	.50
Horizontal Collectivism Scale			
(1) The well-being of my co-worker is important to me.	.75	.79	.77
(2) If a co-worker gets a prize, I would feel proud.	.68	.50	.66
(3) I feel good when I cooperate with others.	.60	.44	.60
(4) To me, pleasure is spending time with others.	.50	.35	.42
Detecting Meaning Scale			
(1) I often find myself detecting the purpose or goals of what people are saying in conversations.	.60	.38	.73
(2) Many times, I pick up from conversation little bits of information that people don't want to disclose.	.47	.51	.31

Table 1 continued

Item	Factor Loading		
	combined data	U.S. Data	Japanese Data
(3) I can often understand why someone said something even though others don't see that intent.	.73	.56	.75
(4) In conversations I seem to be able to often predict what another person is going to say even before he or she says it.	.74	.61	.76
(5) I often find hidden meanings in what people are saying in conversations.	.81	.69	.89
(6) I often notice double meanings in conversations.	.68	.65	.72
(7) I often have a sense that I can forecast where people are going in conversations.	.78	.77	.77

Table 2.

T-test Between U.S. and Japanese Participants on the High/Low-Context Communication Scale

	Mean	SD	N	SE
U.S.	30.0759	5.4910	224	0.3369
Japan	34.2085	4.8984	211	0.3372

t	df	p (one-tailed)	mean difference (Japan - U.S.)	95% confidence interval for mean difference		treatment correlation
				lower end	upper end	
8.265	433	.000	4.1326	3.1499	5.1154	0.368

Note. A higher mean indicates more high-context communication style.

Table 3.

T-tests Between U.S. and Japanese Participants on the High/Low-Context Communication Scale for Females and Males

		Mean	SD	N	SE
females					
	U.S.	29.9790	5.1981	143	0.4347
	Japan	34.6000	5.4194	95	0.5560
males					
	U.S.	30.2469	6.0032	81	0.6670
	Japan	33.8897	4.4248	116	0.4108

Note. A higher mean indicates more high-context communication style.

Table 3 continued

	t	df	p (one-tailed)	mean difference (Japan - U.S.)	95% confidence interval for mean difference		treatment correlation
					lower end	upper end	
female	6.603	236	.000	4.6210	3.2422	5.9997	0.393
male	4.900	195	.000	3.6410	2.1756	5.1064	0.330

Table 4

T-tests between Females and Males on the High/Low-Context Communication Scale in the U.S. and Japan

		Mean	SD	N	SE
U.S.					
	Females	29.9790	5.1981	143	0.4347
	Males	30.2469	6.0032	81	0.6670
Japan					
	Females	34.6000	5.4194	95	0.5560
	Males	33.8879	4.4248	116	0.4108

Note. A higher mean indicates more high-context communication style.

Table 4 continued

	t	df	p (two-tailed)	mean difference (female - male)	95% confidence interval for mean difference lower end	upper end	treatment correlation
U.S.	0.350	222	.727	-0.2679	-1.2399	1.7757	0.023
Japan	1.051	209	.295	0.7121	-2.0480	0.6238	0.072

Table 5

Multiple Regression of Extraneous Variables onto the High/Low-Context Communication Scale

	standardized coefficients (Beta)	t	p
country (U.S. or Japan)	.388	7.010	.000
sex	-.026	-0.561	.575
year in college	.022	0.301	.763
age	.046	0.718	.473

Note. The dependent variable is the high/low-context communication scale. All other variables were treated as independent variables.

Table 6

Multiple Regression of Other Scales onto the High/Low-Context Communication Scale

		standardized coefficients (Beta)	t	p
Combined data				
	Independent Self-construal	-.094	-1.356	.176
	Interdependent Self-construal	.026	0.454	.650
	Vertical Individualism	.053	1.062	.289
	Vertical Collectivism	.143	2.872	.004
	Horizontal Individualism	-.017	-0.247	.805
	Horizontal Collectivism	-.199	-3.395	.001
	Detecting Meaning	.141	2.572	.010

Note. The dependent variable is the high/low-context communication scale. All other scales were treated as independent variables.

Table 6 continued

		standardized coefficients (Beta)	t	p
U.S. Data				
	Independent Self-construal	.141	1.601	.111
	Interdependent Self-construal	.083	1.166	.245
	Vertical Individualism	.039	0.586	.559
	Vertical Collectivism	.241	3.720	.000
	Horizontal Individualism	-.040	-0.437	.663
	Horizontal Collectivism	-.059	-0.803	.423
	Detecting Meaning	.227	3.140	.002

Note. The dependent variable is the high/low-context communication scale. All other scales were treated as independent variables.

Table 6 continued

		standardized coefficients (Beta)	t	p
Japanese Data				
	Independent Self-construal	-.170	-1.862	.064
	Interdependent Self-construal	-.098	-1.108	.269
	Vertical Individualism	.046	.638	.524
	Vertical Collectivism	.055	.742	.459
	Horizontal Individualism	.060	.655	.513
	Horizontal Collectivism	.011	.130	.897
	Detecting Meaning	.242	3.310	.001

Note. The dependent variable is the high/low-context communication scale. All other scales were treated as independent variables.

Table 7

Correlations Between the High/Low-Context Communication Scale and Other Scales

		Indep	Inter	Ver Ind	Ver Col	Hor Ind	Hor Col	Detect
Combined data	uncorrected correlation	-.096	.004	.074	.107	-.062	-.144	.063
	corrected correlation	-.14	.01	.10	.17	-.09	-.20	.08
	95% confidence interval for corrected correlation lower end, upper end	-.23, -.05	-.08, .10	.01, .19	.08, .26	-.18, .00	-.29, -.11	-.01, .17
U.S. data	uncorrected correlation	.197	.115	.099	.262	.144	.100	.276
	corrected correlation	.32	.20	.14	.45	.23	.16	.39
	95% confidence interval for corrected correlation lower end, upper end	.20, .44	.07, .33	.01, .27	.34, .56	.10, .36	.03, .29	.28, .50

Note. Indep = Independent Self-construal Scale, Inter = Interdependent Self-construal Scale, Ver Ind = Vertical Individualism Scale, Ver Col = Vertical Collectivism Scale, Hor Ind = Horizontal Individualism Scale, Hor Col = Horizontal Collectivism Scale, Detect = Detecting Meaning Scale

Table 7 continued

		Indep	Inter	Ver Ind	Ver Col	Hor Ind	Hor Col	Detect
Japanese data	uncorrected correlation	-.066	-.045	.076	.062	.030	-.041	.212
	corrected correlation	-.10	-.07	.10	.09	.05	-.06	.27
	95% confidence interval for corrected correlation lower end, upper end	-.23, .03	-.20, .06	-.03, .23	-.04, .22	-.08, .18	-.19, .07	.15, .39

Note. Indep = Independent Self-construal Scale, Inter = Interdependent Self-construal Scale, Ver Ind = Vertical Individualism Scale, Ver Col = Vertical Collectivism Scale, Hor Ind = Horizontal Individualism Scale, Hor Col = Horizontal Collectivism Scale, Detect = Detecting Meaning Scale

Table 8

Correlations Between Detecting Meaning Items and Other Scales

		Highlow	Indep	Inter	Ver Ind	Ver Col	Hor Ind	Hor Col
Combined data	uncorrected correlation	.063	.419	.119	.102	.112	.425	.280
	corrected correlation	.08	.54	.17	.13	.16	.58	.35
	95% confidence interval for corrected correlation lower end, upper end	-.01, .17	.48, .60	.08, .26	.04, .22	.07, .25	.52, .64	.27, .43
U.S. data	uncorrected correlation	.276	.370	.105	.180	.072	.400	.315
	corrected correlation	.39	.53	.16	.24	.11	.57	.46
	95% confidence interval for corrected correlation lower end, upper end	.28, .50	.44, .62	.03, .29	.12, .36	-.02, .24	.48, .66	.36, .56

Note. Highlow = High/Low-context Communication Scale, Indep = Independent Self-construal Scale, Inter = Interdependent Self-construal Scale, Ver Ind = Vertical Individualism Scale, Ver Col = Vertical Collectivism Scale, Hor Ind = Horizontal Individualism Scale, Hor Col = Horizontal Collectivism Scale

Table 8 continued

		Highlow	Indep	Inter	Ver Ind	Ver Col	Hor Ind	Hor Col
Japanese data	uncorrected correlation	.212	.263	.073	.022	.057	.268	.013
	corrected correlation	.27	.34	.10	.03	.07	.38	.02
	95% confidence interval for corrected correlation lower end, upper end	.15, .39	.22, .46	-.03, .23	-.10, .16	-.06, .20	.27, .49	-.11, .15

Note. Highlow = High/Low-context Communication Scale, Indep = Independent Self-construal Scale, Inter = Interdependent Self-construal Scale, Ver Ind = Vertical Individualism Scale, Ver Col = Vertical Collectivism Scale, Hor Ind = Horizontal Individualism Scale, Hor Col = Horizontal Collectivism Scale

Table 9

Correlations Between All Scales for Combined Data

	Highlow	Indep	Inter	Ver Ind	Ver Col	Hor Ind	Hor Col	Detect
Highlow	.70	-.14	.01	.10	.17	-.09	.20	.08
		(.046)	(.047)	(.047)	(.046)	(.047)	(.045)	(.047)
Indep	-.096	.70	-.22	.17	.01	1.00	.34	.54
			(.045)	(.046)	(.047)	(.000)	(.042)	(.033)
Inter	.004	-.139	.56	-.07	.46	-.17	.70	.17
				(.047)	(.037)	(.046)	(.024)	(.046)
Ver Ind	.074	.124	-.042	.74	-.04	.34	-.14	.13
					(.047)	(.042)	(.046)	(.046)
Ver Col	.107	.007	.260	-.025	.57	.03	.41	.16
						(.047)	(.039)	(.046)
Hor Ind	-.062	.707	-.103	.234	.016	.62	.38	.58
							(.040)	(.031)
Hor Col	-.144	.240	.445	-.092	.263	.253	.72	.35
								(.041)
Detect	.063	.419	.119	.102	.112	.425	.280	.86

Note. The numbers in the lower triangle (darker shade) are the uncorrected correlations. The numbers in the upper triangle (lighter shade) are the correlations corrected for attenuation due to error of measurement. The standard error for corrected correlations is indicated in parentheses. The numbers in the diagonal are reliabilities of the scale used when correcting for attenuation. Some corrected correlations are 1.00 because of the algorithm for calculating the corrected correlation;
[obtained correlation] ÷ [(√ reliability)×(√ reliability)].
High Low = High/Low-context Communication Scale,
Indep = Independent Self-construal Scale, Inter = Interdependent Self-construal Scale,
Ver Ind = Vertical Individualism Scale, Ver Col = Vertical Collectivism Scale,
Hor Ind = Horizontal Individualism Scale, Hor Col = Horizontal Collectivism Scale,
Detect = Detecting Meaning Scale

Table 10

Correlations Between All Scales for U.S. Data

	Highlow	Indep	Inter	Ver Ind	Ver Col	Hor Ind	Hor Col	Detect
Highlow	.64	.32	.20	.14	.45	.23	.16	.39
		(.060)	(.064)	(.066)	(.054)	(.064)	(.065)	(.057)
Indep	.197	.61	-.36	.29	.15	1.00	.35	.53
			(.058)	(.061)	(.066)	(.000)	(.059)	(.048)
Inter	.115	-.206	.53	.01	.35	-.26	.55	.16
				(.067)	(.059)	(.063)	(.047)	(.065)
Ver Ind	.099	.196	.007	.73	-.03	.40	-.09	.24
					(.067)	(.056)	(.067)	(.063)
Ver Col	.262	.082	.185	-.017	.52	.12	.32	.11
						(.066)	(.060)	(.066)
Hor Ind	.144	.676	-.149	.269	.068	.63	.47	.57
							(.052)	(.045)
Hor Col	.100	.209	.309	-.058	.177	.288	.59	.46
								(.053)
Detect	.276	.370	.105	.180	.072	.400	.315	.79

Note. The numbers in the lower triangle (darker shade) are the uncorrected correlations. The numbers in the upper triangle (lighter shade) are the correlations corrected for attenuation due to error of measurement. The standard error for corrected correlations is indicated in parentheses. The numbers in the diagonal are reliabilities of the scale used when correcting for attenuation. Some correlations are 1.00 because of the algorithm for calculating the corrected correlation;
[obtained correlation] ÷ [(√ reliability)×(√ reliability)].
Highlow = High/Low-context Communication Scale,
Indep = Independent Self-construal Scale, Inter = Interdependent Self-construal Scale,
Ver Ind = Vertical Individualism Scale, Ver Col = Vertical Collectivism Scale,
Hor Ind = Horizontal Individualism Scale, Hor Col = Horizontal Collectivism Scale,
Detect = Detecting Meaning Scale

Table 11

Correlations Between All Scales for Japanese Data

	Highlow	Indep	Inter	Ver Ind	Ver Col	Hor Ind	Hor Col	Detect
Highlow	.71	-.10	-.07	.10	.09	.05	-.06	.27
		(.068)	(.068)	(.068)	(.068)	(.068)	(.068)	(.063)
Indep	-.066	.67	-.30	.07	-.31	1.00	.06	.34
			(.062)	(.068)	(.062)	(.000)	(.068)	(.060)
Inter	-.045	-.191	.62	-.16	.51	-.26	.88	.10
				(.067)	(.051)	(.064)	(.015)	(.068)
Ver Ind	.076	.051	-.110	.76	-.06	.32	-.26	.03
					(.068)	(.061)	(.064)	(.068)
Ver Col	.062	-.205	.326	-.044	.67	-.26	.39	.07
						(.064)	(.058)	(.068)
Hor Ind	.030	.632	-.155	.210	-.161	.57	-.07	.38
							(.068)	(.058)
Hor Col	-.041	.039	.582	-.192	.269	-.044	.70	.02
								(.068)
Detect	.212	.263	.073	.022	.057	.268	.013	.87

Note. The numbers in the lower triangle (darker shade) are the uncorrected correlations. The numbers in the upper triangle (lighter shade) are the correlations corrected for attenuation due to error of measurement. The standard error for corrected correlations is indicated in parentheses. The numbers in the diagonal are reliabilities of the scale used when correcting for attenuation. Some correlations are 1.00 because of the algorithm for calculating the corrected correlation;
[obtained correlation] ÷ [(√ reliability)×(√ reliability)].
Highlow = High/Low-context Communication Scale,
Indep = Independent Self-construal Scale, Inter = Interdependent Self-construal Scale,
Ver Ind = Vertical Individualism Scale, Ver Col = Vertical Collectivism Scale,
Hor Ind = Horizontal Individualism Scale, Hor Col = Horizontal Collectivism Scale,
Detect = Detecting Meaning Scale

Table 12.

T-tests between U.S. and Japanese Participants on the Self-Construal Scales and the Vertical/Horizontal-Individualism/Collectivism Scales

		Mean	SD	N	SE
Independent Self-construal	U.S.	28.4170	3.7430	223	0.2506
	Japan	24.8246	4.1002	211	0.2823
Interdependent Self-construal	U.S.	13.1467	3.2281	225	0.2152
	Japan	12.5446	3.1193	213	0.2137
Vertical Individualism	U.S.	16.8616	5.0160	224	0.3351
	Japan	16.6398	4.4146	211	0.3039
Vertical Collectivism	U.S.	17.2578	4.2778	225	0.2852
	Japan	16.0429	4.0891	210	0.2822
Horizontal Individualism	U.S.	34.1295	4.1654	224	0.2783
	Japan	30.6699	4.3080	209	0.2980

Table 12 continued

		Mean	SD	N	SE
Horizontal Collectivism	U.S.	22.9156	2.7446	225	0.1830
	Japan	19.7000	3.6590	210	0.2525

	t	df	p (two-tailed)	mean difference (U.S. - Japan)	95% confidence interval for mean difference lower end	upper end	treatment correlation
Independent Self-construal	9.540	432	.000	3.5924	2.8523	4.3325	0.416
Interdependent Self-construal	1.983	436	.048	0.6021	0.0053	1.1988	-0.094
Vertical Individualism	0.488	433	.626	0.2218	-0.6708	1.1144	0.023
Vertical Collectivism	3.024	433	.003	1.2149	0.4252	2.0047	-0.143
Horizontal Individualism	8.495	431	.000	3.4596	2.6591	4.2601	0.378
Horizontal Collectivism	10.412	433	.000	3.2156	2.6086	3.8225	-0.447

Note. The negative treatment correlation indicates that the direction of means were opposite from the prediction.

Table 13.

T-tests between U.S. and Japanese Participants on the Self-Construal Scales and the Vertical/Horizontal-Individualism/Collectivism Scales for Females and Males

			Mean	SD	N	SE
Independent Self-construal	Females	U.S.	28.2098	3.8417	143	0.3213
		Japan	24.6421	4.0104	95	0.4115
	Males	U.S.	28.7875	3.5532	80	0.3973
		Japan	24.9741	4.1837	116	0.3885
Interdependent Self-construal	Females	U.S.	13.1389	3.1592	144	0.2633
		Japan	12.5158	2.8985	95	0.2974
	Males	U.S.	13.1605	3.3670	81	0.3741
		Japan	12.5678	3.2985	118	0.3036

Table 13 continued

			Mean	SD	N	SE
Vertical Individualism	Females	U.S.	15.3056	4.8492	144	0.4041
		Japan	15.7263	3.7797	95	0.3878
	Males	U.S.	19.6625	4.0125	80	0.4486
		Japan	17.3879	4.7599	116	0.4419
Vertical Collectivism	Females	U.S.	17.2500	3.9746	144	0.3312
		Japan	16.8085	4.3460	94	0.4483
	Males	U.S.	17.2716	4.7959	81	0.5329
		Japan	15.4224	3.7744	116	0.3504

Table 13 continued

			Mean	SD	N	SE
Horizontal Individualism	Females	U.S.	33.7500	3.9339	144	0.3278
		Japan	30.9574	4.1657	94	0.4297
	Males	U.S.	34.8125	4.4978	80	0.5029
		Japan	30.4348	4.4251	115	0.4126
Horizontal Collectivism	Females	U.S.	23.3333	2.4694	144	0.2058
		Japan	20.2979	3.0929	94	0.3190
	Males	U.S.	22.1728	3.0528	81	0.3392
		Japan	19.2155	4.0083	116	0.3722

Table 13 continued

		t	df	p (two-tailed)	mean difference (U.S. - Japan)	95% confidence interval for mean difference lower end	95% confidence interval for mean difference upper end	treatment correlation
Independent Self-construal	Females	6.894	236	.000	3.5677	2.5482	4.5972	0.408
	Males	6.661	194	.000	3.8134	2.6843	4.9424	0.430
Interdependent Self-construal	Females	1.541	237	.125	0.6231	-0.1733	1.4195	-0.099
	Males	1.235	197	.218	0.5927	-0.3539	1.5393	-0.087
Vertical Individualism	Females	-0.714	237	.476	-0.4208	-1.5810	0.7395	-0.046
	Males	3.501	194	.001	2.2746	0.9932	3.5560	0.243
Vertical Collectivism	Females	0.807	236	.420	0.4415	-0.6361	1.5190	-0.052
	Males	3.024	195	.003	1.8492	0.6431	3.0553	-0.211

Note. The negative treatment correlation indicates that the direction of means were opposite from the prediction.

Table 13 continued

		t	df	p (two-tailed)	mean difference (U.S. – Japan)	95% confidence interval for mean difference lower end	95% confidence interval for mean difference upper end	treatment correlation
Horizontal Individualism	Females	5.230	236	.000	2.7926	1.7406	3.8445	0.321
	Males	6.750	193	.000	4.3777	3.0985	5.6569	0.435
Horizontal Collectivism	Females	8.379	236	.000	3.0355	2.3217	3.7492	-0.477
	Males	5.601	195	.000	2.9573	1.9159	3.9987	-0.371

Note. The negative treatment correlation indicates that the direction of means were opposite from the prediction.

APPENDIX B

QUESTIONNAIRE AND RESEARCH CONSENT FORM

(IRB# 99293, approved May 18, 1999)

The seven-point anchor was inserted after each item in the questionnaire.

The abbreviation after each item indicate the following:

[HIGHLOW #] – High/Low-context Communication Scale item # (passed CFA tests in this study)
(HL) – item thought to be measuring high/low-context communication, but failed CFA test(s) in this study
[INDEP #] – Independent Self-construal Scale item # (passed CFA tests in this study)
(D) – Kim et al.'s independent self-construal scale item, but failed CFA test(s) in this study
[INTER #] – Interdependent Self-construal Scale item # (passed CFA tests in this study)
(T) – Kim et al.'s interdependent self-construal scale item, but failed CFA test(s) in this study
[VERIND #] – Vertical Individualism Scale item # (passed CFA tests in this study)
(VI) – Singelis et al.'s vertical individualism scale item, but failed CFA test(s) in this study
[VERCOL #] – Vertical Collectivism Scale item # (passed CFA tests in this study)
(VC) – Singelis et al.'s vertical collectivism scale item, but failed CFA test(s) in this study
[HORIND #] – Horizontal Individualism Scale item # (passed CFA tests in this study)
(HI) – Singelis et al.'s horizontal individualism scale item, but failed CFA test(s) in this study
[HORCOL #] – Horizontal Collectivism Scale item # (passed CFA tests in this study)
(HC) – Singelis et al.'s horizontal collectivism scale item, but failed CFA test(s) in this study
[DETECT #] – Detecting Meaning Scale item # (passed CFA tests in this study)
(DM) – Daly et al.'s detecting meaning scale item, but failed CFA test(s) in this study

Please indicate how much you agree or disagree with the following statements by circling the appropriate number on the scale.

Example

Children's cartoon programs are too violent.

1 ---------- 2 ---------- 3 ---------- 4 ----------(5)---------- 6 ---------- 7

strongly disagree	moderately disagree	slightly disagree	neither agree nor disagree	slightly agree	moderately agree	strongly agree

The circle on 5 indicates that you slightly agree that children's cartoon programs are too violent.

Please do not skip any questions even if some of them seem redundant. Thank you very much for your cooperation.

A.

In the following section, you will find a set of statements asking your belief about daily conversation in the U.S. Please respond according to what you believe to be the general practice among typical people that you meet and observe in this society.

<1> In the U.S. it is generally considered that a listener should be able to understand what a speaker is trying to express even if the speaker does not say everything that he or she intends to communicate. [HIGHLOW 1]

1 ---------- 2 ---------- 3 ---------- 4 ----------5---------- 6 ---------- 7

strongly disagree	moderately disagree	slightly disagree	neither agree nor disagree	slightly agree	moderately agree	strongly agree

<2> In the U.S. it is generally considered that what a person really means can often be different from what the person actually expresses in words. (HL)

<3> In the U.S. it is generally considered that how a person says something is usually more important than what she or he says. (HL)

<4> In the U.S. it is generally considered that the content of the message is usually more important than how it is communicated. (HL)

<5> In the U.S. it is generally considered that some things that one wants to express are better left unsaid. (HL)

<6> In the U.S. it is generally considered that a speaker usually can expect a listener to be able to figure out what the speaker really means even if it is not clearly stated. [HIGHLOW 2]

<7> In the U.S. it is generally considered that the speaker's intent cannot really be understood unless they are stated clearly. (HL)

<8> In the U.S. it is generally considered that if a listener misunderstands what a speaker is saying, it is because the speaker had not adequately explained what he or she meant. (HL)

<9> In the U.S. it is generally considered that everything that one wants to communicate should be expressed fully by words. (HL)

<10> In the U.S. it is generally considered that a listener is expected to understand the intent of the speaker from the way the person talks. [HIGHLOW 3]

<11> In the U.S. it is generally considered that there are some things that cannot be expressed by words. (HL)

<12> In the U.S. it is generally considered that a listener usually cannot be expected to be able to figure out what the speaker really means unless it is clearly stated. (HL)

<13> In the U.S. it is generally considered that it is better to risk not speaking enough than to risk speaking too much. [HIGHLOW 4]

<14> In the U.S. it is generally considered that it is usually more important to say things politely than clearly. [HIGHLOW 5]

<15> In the U.S. it is generally considered that the speaker's intent can be understood without having to be stated clearly. [HIGHLOW 6]

<16> In the U.S. it is generally considered that a speaker should express everything clearly for the listener in order for the listener to understand what a speaker intends to communicate. (HL)

<17> In the U.S. it is generally considered that how something is communicated is usually more important than the content of the message. [HIGHLOW 7]

<18> In the U.S. it is generally considered that it is usually more important to say things clearly than politely. (HL)

<19> In the U.S. it is generally considered that it is better to risk speaking too much than to risk not speaking enough. (HL)

<20> In the U.S. it is generally considered that if a listener misunderstands what a speaker is saying, it is the listener's problem, not the speaker's. (HL)

B.

The following section asks about some of your personal preferences. We are interested in what you think and how you behave. Please respond according to what you personally think, or how you yourself would behave.

<21> I don't like depending upon others. [INDEP 2]

1 ---------- 2 ---------- 3 ---------- 4 ----------5---------- 6 ---------- 7

strongly disagree	moderately disagree	slightly disagree	neither agree nor disagree	slightly agree	moderately agree	strongly agree

<22> I often find myself detecting the purpose or goals of what people are saying in conversations. [DETECT 1]

<23> It annoys me when other people perform better than I do. (VI)

<24> I enjoy being admired for my unique qualities. (D)

<25> The well-being of my co-workers is important to me. [HORCOL 1]

<26> I feel uncomfortable disagreeing with my group. (T1)

<27> I often "do my own thing". [HORIND 1]

<28> Understanding myself is a major goal in my life. (D)

<29> I would sacrifice an activity that I enjoy very much if my family did not approve of it. [VERCOL 1]

<30> I should be judged on my own merit. (VC)

<31> Competition is the law of nature. [VERIND 1]

<32> I conceal my negative emotions so I won't cause unhappiness in my group. (T)

<33> One should live one's life independently of others. (HI)

<34> Many times, I pick up from conversation little bits of information that people don't want to disclose. [DETECT 2]

<35> If a co-worker gets a prize, I would feel proud. [HORCOL 2]

<36> I try to meet demands of my group, even if it means controlling my own desires. (T)

<37> I would do what would please my family, even if I detested that activity. [VERCOL 2]

<38> The security of being an accepted member of a group is very important to me. (T)

<39> If a relative were in a financial difficulty, I would help within my means. (HC)

<40> My relationships with others in my group are more important than my personal accomplishment. [INTER 1]

<41> When another person does better than I do, I get tense and aroused. (VI)

<42> Having a lively imagination is important to me. (D)

<43> Before taking a major trip, I consult with most members of my family and many friends. [VERCOL 3]

<44> I can often understand why someone said something even though others don't see that intent. [DETECT 3]

<45> I like my privacy. [HORIND 2]

<46> I voice my opinions in group discussions. (D)

<47> I usually sacrifice my self-interest for the benefit of my group. (VC)

<48> Speaking up in a work/task group is not a problem for me. (D)

<49> I prefer to be direct and forthright when discussing with people. [HORIND 3]

<50> My happiness depends on the happiness of those in my group. [INTER 2]

<51> It is important to me to maintain harmony within my group. (HC)

<52> It is important to consult close friends and get their ideas before making decisions. [INTER 3]

<53> Without competition, it is not possible to have a good society. [VERIND 2]

<54> In conversations I seem to be able to often predict what another person is going to say even before he or she says it. [DETECT 4]

<55> Winning is everything. [VERIND 3]

<56> I often consider how I can be helpful to specific others in my group. (T)

<57> I like sharing little things with my neighbors. (HC)

<58> I often hear things in what people are saying that others don't seem to even notice. (CS)

<59> I am a unique individual. (HI)

<60> I don't change my opinions in conformity with those of the majority. [INDEP 5]

<61> Children should be taught to place duty before pleasure. (VC)

<62> My personal identity, independent of others, is very important to me. (D)

<63> What happens to me is my own doing. [HORIND 4]

<64> I am careful to maintain harmony in my group. (T)

<65> I hate to disagree with others in my group. (VC)

<66> I enjoy being unique and different from others. (D)

<67> I often find hidden meanings in what people are saying in conversations. [DETECT 5]

<68> I feel good when I cooperate with others. [HORCOL 3]

<69> I have an opinion about most things; I know what I like, and I know what I don't like. (D)

<70> It is important that I do my job better than others. (VI)

<71> If my brother or sister fails, I feel responsible. (T)

<72> I often notice double meanings in conversations. [DETECT 6]

<73> My happiness depends very much on the happiness of those around me. (HC)

<74> When I'm with my group, I watch my words so I won't offend anyone. (T)

<75> We should keep our aging parents with us at home. [VERCOL 4]

<76> It is very important for me to act as an independent person. [INDEP 4]

<77> I enjoy working in situations involving competitions with others. (VI)

<78> I should take into consideration my parents' advice when making education and career plans. (T)

<79> When I succeed, it is usually because of my abilities. [HORIND 5]

<80> I prefer to be self-reliant rather than dependent on others. (D)

<81> To me, pleasure is spending time with others. [HORCOL 4]

<82> I would sacrifice my self-interest for the benefit of my group. (T)

<83> I enjoy being unique and different from others in many ways. [HORIND 6]

<84> I take responsibility for my own actions. [INDEP 3]

<85> Children should feel honored if their parents receive a distinguished award. (VC)

<86> I act as a unique person, separate from others. [INDEP 1]

<87> Some people emphasize winning; I'm not one of them. [VERIND 4; reverse item]

<88> I often have a sense that I can forecast where people are going in conversations. [DETECT 7]

<89> I act as fellow group members would prefer me to. (T)

C.
Please circle the appropriate choice, or fill in the blank.

What is your sex? male female

How old are you? _____

What is your ethnicity? African American Asian American Caucasian American
Hispanic American Native American international student
Other (please specify) _____

What is your major? _____

What is your year in college? _____

Was any part of this questionnaire confusing to you? Yes No

If Yes, which question?

_____

This questionnaire is printed on both sides of the paper.
Please make sure that you filled out all pages of the questionnaire.

THANK YOU VERY MUCH FOR YOUR PARTICIPATION!

RESEARCH CONSENT FORM

The purpose of this study is to develop a new scale. Some of your attitudes and behaviors will be asked. It will take approximately 30 minutes of your time.

- Apart from your participation in this study, your actual performance in this study will in no way affect your evaluation in this course, or in any other courses.
- Any credit you may earn via participating in this research is not transferable to another class or another semester.
- Your participation in this study does not guarantee any beneficial results to you.
- You have the right to withdraw from this study at any time without penalty.
- You have the right to have this study explained to you to your satisfaction.
- The results of this study will be treated with strict confidence with regard to the data of any given participation. With this restriction, the results will be made available to you at your request.
- The data you provide to the researcher as a result of your participation in this study may be used by other scientists for secondary analysis. Again, data will be treated with strict confidence.
- Should you have any questions, problems, complaints, or if you desire further information, you have the right to contact the following person:

Rie Ohashi
Department of Communication
Michigan State University
East Lansing, MI

****

Given these understandings, I voluntarily agree to participate in this research as described.

SIGNED _____ DATE _____

NAME (print) _____ STUDENT # _____

COURSE _____ INSTRUCTOR _____

****

次の各文に書かれている内容に対し、あなたはどの程度同意、または反対しますか？各文の下の尺度に書かれている数字の中で、最も当てはまる数字を○して下さい。

例

子供向きのアニメには暴力シーンが多すぎる。

1 ----------2 ---------- 3 ---------- 4 ----------(5)---------- 6 ---------- 7

全くそうは思わない	そうは思わない	余りそうは思わない	どちらでもない	少しそう思う	そう思う	かなりそう思う

5に○がついているのは、子供向けのアニメには暴力シーンが多すぎるということにあなたが少し同意することを表します。

同じようなことを聞いているように思える質問があっても飛ばさないで全ての質問に答えて下さい。ご協力よろしくお願いします。

A.

以下の部分は、日本での日常会話の一般常識に関する質問です。ごく一般的な日本人の日本での普通の日常会話について、一般的にどう考えられていると思いますか？あなたの目から見た一般常識について回答して下さい。

＜1＞ 日本では一般的に、伝えたいことを全部言葉にしなくても、聞く人はしゃべる側の意図がわかるはずだと考えられている。 [HIGHLOW 1]

1 ---------- 2 ---------- 3 ---------- 4 ----------5---------- 6 ---------- 7

全くそうは思わない	そうは思わない	余りそうは思わない	どちらでもない	少しそう思う	そう思う	かなりそう思う

＜2＞ 日本では一般的に、人の真意は実際に言葉で表現されることとは違うことがよくあると考えられている。(HL)

＜3＞ 日本では一般的に、言う中身よりそれをどう言うかの方が大切だと考えられている。(HL)

＜4＞ 日本では一般的に、伝える内容の方が、それをどう伝えるかよりも大切だと考えられている。(HL)

＜5＞ 日本では一般的に、伝えたいと思っても言葉に出さない方がいいこともあると考えられている。(HL)

＜6＞ 日本では一般的に、しゃべる側がはっきり口に出さないことでも、聞く側が大抵の場合は理解してくれるだろうと考えられている。[HIGHLOW 2]

＜7＞ 日本では一般的に、はっきりと言葉で表現しなければ、しゃべる側の意図はわからないことが多いと考えられている。(HL)

＜8＞ 日本では一般的に、聞く側が話している人の意図を誤解した場合、それは話す側がきちんと説明しなかったせいだと考えられている。(HL)

＜9＞ 日本では一般的に、伝えたいことは全て言葉で表現するべきだと考えられている。(HL)

＜10＞ 日本では一般的に、聞き手は話し手のしゃべり方からその人の意図を読み取ることを期待されている。[HIGHLOW 3]

＜11＞ 日本では一般的に、言葉で表現できないものもあると考えられている。(HL)

＜12＞ 日本では一般的に、しゃべる側がはっきり口に出さないことは、聞く側も大抵の場合は理解してくれないだろうと考えられている。(HL)

＜13＞ 日本では一般的に、言い過ぎるよりは言い足りない方が無難だと考えられている。[HIGHLOW 4]

＜14＞ 日本では一般的に、大抵の場合、はっきりとものを言うより礼儀正しく言う方が大切だと考えられている。[HIGHLOW 5]

＜15＞ 日本では一般的に、はっきりと言葉で表現しなくてもしゃべる側の意図がわかることが多いと考えられている。[HIGHLOW 6]

＜16＞ 日本では一般的に、しゃべる側の意図を聞き手に理解してもらうためには、伝えたいことを全てはっきりと言葉にするべきだと考えられている。(HL)

＜17＞ 日本では一般的に、内容をどう伝えるかの方が、伝える内容そのものよりも大切だと考えられている。[HIGHLOW 7]

＜18＞ 日本では一般的に、大抵の場合、礼儀正しくものを言うよりはっきりと言う方が大切だと考えられている。(HL)

＜19＞ 日本では一般的に、言い足りないよりは言い過ぎる方が無難だと考えられている。(HL)

＜20＞ 日本では一般的に、聞く側が話している人の意図を誤解した場合、それは聞く側が悪いのであって話す側が悪いのではないと考えられている。(HL)

B.

以下の部分は、あなたの考え方や行動の傾向に関する質問です。あなた自身の考え方や行動は、各文に書いてある内容とどの程度近いですか？あなた自身が個人的にどう考えるか、どう行動するかに従って答えて下さい。

＜21＞ 他人に頼るのは嫌いだ。[INDEP 2]

1 ----------2 ---------- 3 ---------- 4 ----------5---------- 6 ---------- 7

全くそうは思わない　そうは思わない　余りそうは思わない　どちらでもない　少しそう思う　そう思う　かなりそう思う

＜22＞ 会話をしている時､相手の言いたいことや言おうとしていることを見透かしていることが多い。[DETECT 1]

＜23＞ 他人が自分よりうまく物事をこなすと腹が立つ。(VI)

＜24＞ 自分の独自性を敬われるのが好きだ。(D)

＜25＞ 自分の同僚が幸せなことは、自分にとって大切なことである。[HORCOL 1]

＜26＞ 仲間の意見に反対するのは居心地が悪い。(T)

＜27＞ 普段、自分のしたいことをする。[HORIND 1]

＜28＞ 自分自身を理解するということは自分の人生の中で大きな目標である。(D)

＜29＞ 自分が好きなことでも、もし家族から反対されたらあきらめる。[VERCOL 1]

＜30＞ 自分を評価するなら、中身で判断してくれるべきだ。(D)

＜31＞ 競争は自然の摂理である。[VERIND 1]

＜32＞ 仲間に迷惑をかけないように、自分が嫌な気分でもそれを表さないようにする。(T)

＜33＞ 他人から独立した人生を生きるべきである。(HI)

＜34＞ 会話中に、相手が打ち明ける気がないのに話してしまっている内容に気づくことが多い。 [DETECT 2]

＜35＞ もし同僚が賞をもらったら、自分も誇りに思う。[HORCOL 2]

＜36＞ 自分のしたいことを制限してでも、仲間の要求に応じようとする。(T)

＜37＞ 家族が喜ぶことなら、やりたくなくてもする。[VERCOL 2]

＜38＞ 仲間に受け入れられているという安心感は自分にとっては大切なものである。(T)

＜39＞ もし親戚の誰かが金に困っていたら、自分のできる範囲で援助する。(HC)

＜40＞ 自分自身の成功よりも、自分と仲間との人間関係の方が大切である。[INTER 1]

＜41＞ 他の人が自分よりうまくやると、イライラしたりピリピリしたりする。(VI)

＜42＞ 自分にとって、豊かな想像力を持っているということは大切なことである。(D)

＜43＞ 大きな旅行に行く前には、家族の大部分の人や、友人の多くに相談する。[VERCOL 3]

＜44＞ 人が何かをしゃべった理由が、他の人には見えなくても自分にはわかることが多い。[DETECT 3]

＜45＞ 自分のプライバシーを保つのが好きだ。[HORIND 2]

＜46＞ グループで話し合いをする時には、自分の意見をためらいなく言う。(D)

＜47＞ 大抵、仲間の利益の為になら自分の利益を犠牲にする。(VC)

＜48＞ 同僚の前で自分の意見を言うことに抵抗は感じない。(D12)

＜49＞ 人と議論するときは率直にものを言いたい。[HORIND 3]

＜50＞ 自分がどのくらい幸せかは自分の仲間がどのくらい幸せかによる。[INTER 2]

＜51＞ 仲間の和を保つことは自分にとって大切なことである。(HC)

＜52＞ 何かを決定する前には、親しい友人に話して意見を聞くことが大切である。[INTER 3]

＜53＞ 競争がなければ良い社会はできない。[VERIND 2]

＜54＞ 会話中に、相手が何を言うつもりなのか、相手が言う前から予測できることが多い気がする。[DETECT 4]

＜55＞ 勝つことが全てである。[VERIND 3]

＜56＞ 自分はよく、仲間の中の特定の人に対して、どうやったらその人の役に立てるだろうかと考える。(T)

＜57＞ ちょっとしたものをご近所と貸し借りするのが好きだ。(HC)

＜58＞ 誰かが何かを言う時、他の人は気づかないようなことでも自分は気づくことが多い。(DM)

＜59＞ 自分は独特な人間である。(HI)

＜60＞ 多数派の意見に応じて自分の意見を変えることはしない。[INDEP 5]

＜61＞ 子供は、自分の楽しみより義務を優先させるべきだということを覚えるべきである。(VC)

＜62＞ 他人とは無関係に、自分がどのような人間であるか（自己アイデンティティ）は、自分にとって大切である。(D)

＜63＞ 自分がどうなるかは自分の行動次第である。[HORIND 4]

＜64＞ 仲間の和を保つように気を付けている。(T)

＜65＞ 仲間と意見が合わないのは嫌だ。(VC)

＜66＞ 他人と違う、独特の人間でいるのが好きだ。(D)

＜67＞ 会話中に、相手の言葉の背後の、隠された意味に気づくことが多い。[DETECT 5]

＜68＞ 他人と協力すると気分がいい。[HORCOL 3]

＜69＞ 自分はほとんどの事がらに対して意見を持っているし、好き・嫌いもはっきりしている。(D)

＜70＞ 他人よりうまく自分の仕事をやることが重要である。(VI)

＜71＞ もし自分の兄弟が失敗した場合、責任を感じる。(T)

＜72＞ 会話中に、相手の言っていることに裏があることに気づくことが多い。[DETECT 6]

＜73＞ 自分の幸せは自分の周りにいる人たちの幸せによるところが大きい。(HC)

＜74＞ 仲間と一緒にいる時は、人の気分を害さないように口の利き方に気を付ける。(T)

＜75＞ 年老いた親は自分の家で世話するべきだ。[VERCOL 4]

＜76＞ 個人として行動することは自分にとって大切なことである。[INDEP 4]

＜77＞ 他人との競争があるところで仕事をするのは好きだ。(VI)

＜78＞ 進学や就職に関する決定をする場合には親の言うことも取り入れるべきである。(T)

＜79＞ 自分の成功は大抵、自分の能力による。[HORIND 5]

＜80＞ 他人に頼るより自分自身で物事を解決したい。(D)

＜81＞ 自分にとっての楽しみとは、他人と共に時を過ごすことである。[HORCOL 4]

＜82＞ 仲間の利益のためになら自分の利益を犠牲にする。(T)

＜83＞ 多くの面で、他人とは違う独自性をもっていることが好きだ。[HORIND 6]

＜84＞ 自分の行動には自分で責任を取る。[INDEP 3]

＜85＞ もし親が何か名誉な賞を受賞したら、子供はそのことを名誉に思うべきである。(VC)

＜86＞ 他人とは別に、一人の個人として行動する。[INDEP 1]

＜87＞ 勝つことが大事だと強調する人もいるが、自分はそうではない。[VERIND 4; reverse item]

＜88＞ 会話をしていると、話の流れを予想できる気がすることが多い。[DETECT 7]

＜89＞ 自分は仲間に期待されているように行動する。(T)

C.
適切な選択肢に丸を付け、空欄を埋めて下さい。

性別は何ですか？　　男性　　女性

何歳ですか？　　_____ 歳

何人ですか？

日本人　　在日韓国人　　在日中国人　　アイヌ人

留学生　　その他の在日外国人（具体的に）_____

専攻は何ですか？　　_____

何年生ですか？　　_____

この質問用紙の中で、どこかわかりにくい部分がありましたか？

あった　　なかった

もしあった場合、どの部分がわかりにくかったですか？

_____

この質問用紙は両面印刷になっています。
すべてのページの質問に答えたかどうか、確認して下さい。

ご協力、誠にありがとうございました！

調査同意書

このアンケートは、新しい尺度（スケール）を作成するためのものです。全部で３０分程度で終わります。

あなたがこの調査に協力するかどうか、及び、あなたがこの調査にどう答えるかによって、この授業や他の授業のあなたの成績が影響されることは絶対にありません。この調査に答えることによってあなたに何か直接的な利益があるとは限りませんが、ご協力いただければ学問の発展に寄与していただいたことになります。もし興味があれば、あなたは納得の行くまでこの調査に対して説明を受けることができます。もし気が進まなくなった場合には、いつでもこの調査に対する協力を止めることができます。あなたが途中で協力を止めても、あなたに対して何か不利益が生じることはありません。

この調査の結果は統計的に処理され、個人の名前や回答が外部に漏れることは決してありません。この調査を行っている研究班の班員以外の者が、回答済みの調査用紙を扱うことはありません。結果は学問的な目的にのみ使われ、それ以外の用途に使用されることはありません。以上のような条件のもとで、もしご希望があれば、統計的に処理された結果をご報告いたします。また、この調査の結果は他の研究者によって二次的な分析の為に使われる可能性もありますが、その場合でも、個人の名前や回答が外部に漏れることはありません。

何か質問や疑問がある場合、またはもっと詳しいことが知りたい場合は、以下の者までご連絡下さい。

アメリカ合衆国ミシガン州イースト・ランシング市
ミシガン州立大学 コミュニケーション学部
大橋理枝
メールアドレス：ohashiri@pilot.msu.edu

＊＊

上の文章を読んだ上で、この調査に協力することに同意します。

日付：　＿＿＿＿＿ 月　＿＿＿＿＿ 日

名前：　＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿　学生番号：　＿＿＿＿＿＿＿＿＿＿

授業名：　＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿　教官：＿＿＿＿＿＿＿＿＿＿＿＿

APPENDIX C

CORRELATION AND ERROR MATRICES

The correlations in regular font are obtained correlations.
The correlations in square brackets under the obtained correlations are predicted correlations.
The italicized bold numbers are errors.
The shaded blocks are internal consistency blocks.

Correlation Matrix for Combined Data

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
HL1	25	+4	+3	-3	-7	+3	-2	+2	+1	+10	+6	+1	0	-1	+4
HL2	34 [30]	35	-2	-3	-7	+7	-1	-7	-6	+3	-1	-14	-1	-1	0
HL3	26 [23]	25 [27]	21	-4	+4	-1	0	-5	+2	+3	+8	-7	+7	-1	+2
HL4	21 +2 [24]	25 [28]	18 [22]	22	+11	-4		-3	-11	0	+3	-10	-1	-9	0
HL5	22 [29]	27 [34]	31 [27]	38 [27]	33	-6	+4	+2	-1	+6	+9	-10	+3	-7	+3
HL6	36 [33]	45 [38]	29 [30]	27 [31]	32 [38]	42	-2	-6	-3	-1	+4	-3	+2	-2	-11
HL7	12 [14]	16 [17]	13 [13]	15 [13]	20 [16]	16 [18]	8	+8	+5	+11	+16	-7	+3	0	+5
D1	-1 [-3]	-11 [-4]	-8 [-3]	-6 [-3]	-2 [-4]	-10 [-4]	6 [-2]	45	-6	-3	+3	+6	-15	+6	+2
D2	-1 [-2]	-9 [-3]	0 [-2]	-13 [-2]	-4 [-3]	-6 [-3]	4 [-1]	23 [29]	19	0	+2	+2	-1	+2	-10
D3	7 [-3]	0 [-3]	0 [-3]	-3 [-3]	3 [-3]	-5 [-4]	9 [-2]	35 [38]	25 [25]	33	+3	0	-3	+13	+12
D4	2 [-4]	-5 [-4]	5 [-3]	0 [-3]	5 [-4]	-1 [-5]	14 [-2]	50 [47]	33 [31]	43 [40]	50	-8	-11	+9	-2
D5	-1 [-2]	-17 [-3]	-9 [-2]	-12 [-2]	-13 [-3]	-6 [-3]	-8 [-1]	37 [31]	23 [21]	27 [27]	25 [33]	22	-9	+6	-3

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
T1	1	0	7	-1	4	3	3	-22	-6	-9	-17	-14	28	***0***	***0***
	[1]	[1]	[0]	[0]	[1]	[1]	[0]	[-7]	[-5]	[-6]	[-8]	[-5]			
T2	0	0	0	-8	-6	-1	0	-3	-4	5	0	0	34	41	***0***
	[1]	[1]	[1]	[1]	[1]	[1]	[0]	[-9]	[-6]	[-8]	[-9]	[-6]	[34]		
T3	4	1	2	0	4	-9	5	-5	-14	6	-9	-8	25	31	23
	[0]	[1]	[0]	[0]	[1]	[1]	[0]	[-7]	[-4]	[-6]	[-7]	[-5]	[25]	[31]	
VI1	4	5	15	4	12	5	6	2	17	9	16	3	-5	-3	2
	[4]	[5]	[4]	[4]	[5]	[5]	[2]	[11]	[5]	[6]	[8]	[5]	[-2]	[-2]	[-2]
VI2	18	6	5	3	8	9	12	3	0	14	11	-3	-3	11	16
	[4]	[5]	[4]	[4]	[5]	[5]	[2]	[7]	[5]	[6]	[8]	[5]	[-2]	[-2]	[-2]
VI3	-3	1	7	2	6	4	5	7	14	6	8	0	-12	2	-4
	[4]	[5]	[4]	[4]	[5]	[6]	[2]	[8]	[5]	[7]	[9]	[6]	[-2]	[-3]	[-2]
VI4	-5	-6	-5	-4	0	-3	4	7	5	3	10	1	-19	-5	-6
	[4]	[5]	[4]	[4]	[5]	[6]	[2]	[8]	[5]	[7]	[8]	[6]	[-2]	[-3]	[-2]
VC1	9	-2	-8	-13	-9	-1	15	0	9	-1	2	-10	16	14	6
	[5]	[6]	[5]	[5]	[6]	[6]	[3]	[1]	[7]	[1]	[1]	[1]	[13]	[15]	[12]
VC2	10	6	12	1	14	9	18	5	5	4	2	-5	16	19	11
	[7]	[8]	[6]	[6]	[8]	[9]	[4]	[2]	[1]	[1]	[2]	[1]	[17]	[21]	[16]
VC3	-2	0	-3	-6	-2	0	14	4	0	6	7	0	10	14	27
	[4]	[5]	[4]	[4]	[5]	[5]	[2]	[1]	[1]	[1]	[1]	[1]	[11]	[13]	[10]
VC4	6	12	4	12	10	14	11	-7	-5	6	2	-6	13	2	-1
	[2]	[3]	[2]	[2]	[3]	[3]	[1]	[1]	[0]	[0]	[1]	[0]	[6]	[8]	[6]

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
HI1	-8	-1	-1	6	5	-4	7	31	9	31	33	23	-19	-8	4
	[-2]	[-2]	[-2]	[-2]	[-2]	[-2]	[-1]	[35]	[23]	[30]	[37]	[25]	[-4]	[-5]	[-4]
HI2	-5	-8	-10	-14	-11	-8	9	33	22	25	34	24	-14	0	1
	[-2]	[-2]	[-2]	[-2]	[-2]	[-2]	[-1]	[31]	[21]	[27]	[33]	[22]	[-4]	[-5]	[-4]
HI3	2	3	13	5	12	4	5	22	16	29	33	25	-13	-2	4
	[-2]	[-2]	[-2]	[-2]	[-2]	[-2]	[-1]	[32]	[21]	[27]	[34]	[23]	[-4]	[-5]	[-4]
HI4	3	-2	9	1	10	7	2	26	10	24	34	14	-7	1	-4
	[-1]	[-2]	[-1]	[-1]	[-2]	[-2]	[-1]	[24]	[16]	[21]	[25]	[17]	[-3]	[-4]	[-3]
HI5	2	-9	-14	-16	-15	-11	10	41	23	34	35	31	-19	6	4
	[-2]	[-2]	[-2]	[-2]	[-2]	[-3]	[-1]	[36]	[24]	[30]	[37]	[25]	[-4]	[-5]	[-4]
HI6	-5	-16	-10	-8	-5	-17	2	62	22	39	47	40	-15	3	-1
	[-3]	[-3]	[-2]	[-2]	[-3]	[-3]	[-1]	[46]	[30]	[39]	[48]	[32]	[-6]	[-7]	[-5]
HC1	-1	-2	-6	-13	0	-6	3	7	9	20	11	9	23	31	21
	[-7]	[-8]	[-7]	[-7]	[-8]	[-9]	[-4]	[17]	[11]	[15]	[18]	[12]	[28]	[34]	[25]
HC2	-3	-13	-7	-17	-7	-14	4	14	19	20	18	19	18	22	21
	[-6]	[-8]	[-6]	[-6]	[-7]	[-8]	[-4]	[15]	[10]	[13]	[16]	[11]	[25]	[30]	[23]
HC3	1	-11	3	-9	2	-5	4	8	4	22	17	5	20	26	31
	[-6]	[-7]	[-5]	[-5]	[-7]	[-7]	[-3]	[14]	[9]	[12]	[14]	[10]	[22]	[27]	[20]
HC4	-9	-15	-11	-12	-6	-15	-1	12	-1	14	8	7	15	31	34
	[-5]	[-6]	[-4]	[-4]	[-6]	[-6]	[-3]	[11]	[7]	[10]	[12]	[8]	[19]	[22]	[17]

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
DM1	11	5	0	-2	3	3	8	23	23	22	17	22	4	14	7
	[2]	[2]	[2]	[2]	[2]	[3]	[1]	[22]	[14]	[18]	[23]	[15]	[5]	[7]	[5]
DM2	6	3	-2	-6	-10	-4	14	17	19	18	12	12	0	16	9
	[2]	[2]	[2]	[2]	[2]	[2]	[1]	[17]	[11]	[14]	[18]	[12]	[4]	[5]	[4]
DM3	3	-4	1	-7	-5	-2	14	21	22	26	20	22	-1	17	12
	[3]	[3]	[2]	[2]	[3]	[3]	[1]	[26]	[17]	[22]	[28]	[19]	[7]	[8]	[6]
DM4	6	6	-4	-2	-8	-1	6	24	17	17	23	21	-4	12	9
	[3]	[3]	[2]	[2]	[3]	[3]	[1]	[27]	[18]	[23]	[28]	[19]	[7]	[8]	[6]
DM5	9	9	-4	-4	-3	3	8	25	17	33	24	27	-5	13	5
	[3]	[3]	[3]	[3]	[3]	[4]	[2]	[29]	[19]	[25]	[31]	[21]	[7]	[9]	[7]
DM6	7	10	4	-1	8	3	11	18	14	21	22	17	-6	12	5
	[2]	[3]	[2]	[2]	[3]	[3]	[1]	[25]	[16]	[21]	[26]	[17]	[6]	[7]	[6]
DM7	10	8	0	1	0	-3	11	29	10	26	23	31	-3	8	12
	[3]	[3]	[3]	[3]	[3]	[4]	[2]	[28]	[19]	[24]	[29]	[20]	[7]	[8]	[6]
HL	50	59	46	47	58	65	28	-9	-8	3	6	-19	5	-4	2
D	2	-15	-4	-12	-4	-10	9	67	44	57	70	47	-24	-1	-10
T	3	1	5	-5	2	-5	5	-18	-15	1	-15	-13	53	64	48
VI	6	2	9	2	10	6	10	7	14	13	18	0	-15	2	3
VC	11	8	2	-3	6	11	28	1	4	7	6	-10	27	24	22
HI	-4	-12	-4	-9	-1	-10	12	77	37	65	77	56	-31	0	3
HC	-5	-16	-9	-20	-5	-16	4	16	12	30	22	16	30	43	43
DM	11	8	-1	-4	-3	0	15	33	26	34	29	32	-3	19	12

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
HL1	0	+14	-7	-9	+4	+3	-6	+4	-6	-3	+4	+4	+4	-2
HL2	0	+1	-4	-11	-8	-2	-5	+9	+1	-6	+5	0	-7	-13
HL3	+11	+1	+3	-9	-13	+6	-7	+2	+1	-8	+15	+10	-12	-8
HL4	0	-1	-2	-8	-18	-5	-10	+10	+8	-12	+7	+2	-14	-6
HL5	+7	+3	+1	-5	-15	+6	-7	+7	+7	-9	+14	+12	-13	-2
HL6	0	+4	-2	-9	-7	0	-5	+11	-2	-6	+6	+5	-9	-14
HL7	+4	+10	+3	+2	+13	+14	+12	+10	+8	+10	+6	+3	+11	+3
D1	-9	-4	-1	-1	-1	+3	+3	-8	-4	+2	-10	+2	+5	+16
D2	+12	-5	+11	0	+2	+4	-1	-5	-14	+1	-5	-6	-1	-8
D3	+3	+8	-1	-4	-2	+3	+5	+6	+1	-2	+2	+3	+4	0
D4	+8	+3	-1	+2	+1	0	+6	+1	-4	+1	-1	+9	-2	-1
D5	-2	-8	-6	-5	-11	-6	-1	-6	-2	+2	+2	-3	+6	+8

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
T1	***-3***	***-1***	***-10***	***-17***	***+3***	***-1***	***-1***	***+7***	***-15***	***-10***	***-9***	***-4***	***-15***	***-9***
T2	***-1***	***+13***	***+5***	***-2***	***-1***	***-2***	***+1***	***-6***	***-3***	***+5***	***+3***	***+5***	***+11***	***+10***
T3	***+4***	***+18***	***-2***	***-4***	***-6***	***-5***	***+17***	***-7***	***+8***	***+5***	***+8***	***-1***	***+8***	***+4***
VI1	38	***+8***	***-5***	***-3***	***-7***	***+3***	***-3***	***+2***	***+4***	***-4***	***+14***	***+10***	***0***	***0***
VI2	46 [38]	38	***-3***	***-6***	***-10***	***+6***	***+7***	***+3***	***-4***	***-9***	***+5***	***+8***	***-5***	***-4***
VI3	36 [41]	39 [42]	46	***+9***	***-5***	***+4***	***-3***	***+4***	***-6***	***-8***	***+6***	***-6***	***+1***	***-5***
VI4	38 [41]	36 [42]	54 [46]	45	***-4***	***+3***	***+2***	***-6***	***-5***	***-4***	***+6***	***-6***	***+8***	***-3***
VC1	-8 [-1]	-11 [-1]	-6 [-1]	-5 [-1]	30	***+2***	***+3***	***-6***	***-11***	***+13***	***-15***	***-9***	***+8***	***-2***
VC2	1 [-2]	4 [-2]	6 [-2]	1 [-2]	43 [41]	56	***-6***	***+4***	***-5***	***+1***	***-8***	***0***	***-1***	***+6***
VC3	-4 [-1]	6 [-1]	-4 [-1]	1 [-1]	29 [26]	29 [35]	22	***+2***	***-3***	***+11***	***-4***	***+1***	***+8***	***+10***
VC4	1 [-1]	2 [-1]	3 [-1]	-7 [-1]	9 [15]	24 [20]	15 [13]	7	***0***	***-1***	***+3***	***+9***	***-7***	***-7***

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
HI1	14	6	5	6	-10	-4	-2	0	23	***-5***	***+7***	***+4***	***-5***	***-4***
	[10]	[10]	[11]	[11]	[1]	[1]	[1]	[0]						
HI2	5	0	9	6	14	2	12	-1	16	18	***-2***	***-4***	***+10***	***0***
	[9]	[9]	[17]	[10]	[1]	[1]	[1]	[0]	[21]					
HI3	23	15	16	16	-14	-7	-3	3	28	17	19	***+3***	***-10***	***0***
	[9]	[10]	[10]	[10]	[1]	[1]	[1]	[0]	[21]	[19]				
HI4	17	15	2	2	-8	1	1	9	20	10	18	11	***-1***	***-3***
	[7]	[7]	[8]	[8]	[1]	[1]	[0]	[0]	[16]	[14]	[15]			
HI5	10	6	13	19	9	0	9	-7	19	31	12	15	24	***+5***
	[10]	[11]	[12]	[11]	[1]	[1]	[1]	[0]	[24]	[21]	[22]	[16]		
HI6	13	10	10	12	-1	7	11	-6	26	27	28	18	36	39
	[13]	[14]	[15]	[15]	[1]	[1]	[1]	[1]	[30]	[27]	[28]	[21]	[31]	
HC2	0	-1	-15	-12	20	15	25	1	2	15	8	2	20	18
	[-5]	[-5]	[-6]	[-6]	[15]	[20]	[12]	[7]	[12]	[11]	[11]	[8]	[12]	[16]
HC3	8	9	-13	-13	12	15	25	6	9	23	8	9	17	19
	[-5]	[-5]	[-5]	[-5]	[13]	[18]	[11]	[6]	[11]	[10]	[10]	[7]	[11]	[14]
HC4	-5	0	-8	-4	9	3	16	-5	5	7	7	-1	27	21
	[-4]	[-4]	[-4]	[-4]	[11]	[15]	[9]	[5]	[9]	[8]	[8]	[6]	[9]	[12]

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
DM1	6	1	7	2	5	9	6	4	10	15	12	4	19	21
	[5]	[5]	[5]	[5]	[5]	[7]	[5]	[3]	[16]	[15]	[15]	[11]	[17]	[22]
DM2	9	6	8	2	13	4	8	-2	10	22	6	9	29	15
	[4]	[4]	[4]	[4]	[4]	[6]	[4]	[2]	[13]	[12]	[12]	[9]	[13]	[17]
DM3	10	-1	4	-1	8	7	18	4	14	28	17	5	32	26
	[6]	[6]	[6]	[6]	[6]	[9]	[5]	[3]	[20]	[18]	[18]	[14]	[20]	[26]
DM4	5	2	10	3	6	3	10	3	12	28	17	11	28	26
	[6]	[6]	[7]	[6]	[7]	[9]	[6]	[3]	[20]	[18]	[19]	[14]	[21]	[27]
DM5	15	7	12	-1	1	5	7	10	14	23	18	7	31	36
	[6]	[7]	[7]	[7]	[7]	[10]	[6]	[3]	[22]	[20]	[20]	[15]	[23]	[29]
DM6	9	6	3	6	0	5	4	7	17	10	12	7	16	26
	[5]	[5]	[6]	[6]	[6]	[8]	[5]	[3]	[19]	[17]	[17]	[13]	[19]	[24]
DM7	15	7	5	-1	0	4	5	1	17	23	22	12	24	34
	[6]	[6]	[7]	[7]	[7]	[9]	[6]	[3]	[21]	[19]	[20]	[15]	[22]	[28]
HL	14	17	6	-5	-3	20	0	20	2	-13	12	9	-15	-17
D	16	9	13	9	0	4	6	-3	45	49	44	37	57	73
T	-3	15	-8	-18	22	28	31	8	-14	-8	-7	-6	-5	-8
VI	61	62	68	67	-12	5	0	0	12	8	27	14	19	17
VC	-5	0	0	-5	55	75	47	27	-8	13	-10	1	6	5
HI	29	19	19	21	-3	-1	10	0	48	43	44	33	49	63
HC	2	2	-21	-16	22	20	35	3	8	20	12	4	33	28
DM	14	6	10	2	7	7	12	5	19	31	22	11	37	38

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
HL1	+6	+3	+7	-4	+9	+4	0	+3	+6	+5	+7
HL2	+6	-5	-4	-9	+3	+1	-7	+3	+6	+7	+5
HL3	+1	-1	+8	-7	-2	-4	-1	-6	-7	+2	-3
HL4	-6	-11	-4	-8	-4	-8	-9	-4	-7	-3	-2
HL5	+8	0	+9	0	+1	-12	-8	-11	-6	+5	-3
HL6	+3	-6	+2	-9	0	-6	-5	-4	-1	0	-7
HL7	+7	+8	+7	+2	+7	+13	+13	+5	+6	+10	+9
D1	-10	-1	-6	+1	+1	0	-5	-3	-4	-7	+1
D2	-2	+9	-5	-8	+9	+8	+5	-1	-2	-2	-9
D3	+5	+7	+10	+4	+4	+4	+4	-6	+8	0	+2
D4	-7	+2	+3	-4	-6	-6	-8	-5	-7	-4	-6
D5	-3	+8	-5	-1	+7	0	+3	+2	+6	0	+11

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
T1	-5	-7	-2	-4	-1	-4	-8	-11	-12	-12	-10
T2	-3	-8	-1	+9	+7	+11	+9	+4	+4	+5	0
T3	-4	-2	+11	+17	+2	+5	+6	+3	-2	-1	+6
VI1	+8	+5	+13	-1	+1	+5	+4	-1	+9	+4	+9
VI2	+3	+4	+14	+4	-4	+2	-7	-4	0	+1	+1
VI3	-10	-9	-8	-4	+2	+4	-2	+3	+5	-3	-2
VI4	-4	-6	-8	0	-3	-2	-7	-3	-8	0	-8
VC1	-1	+5	-1	-2	0	+9	+2	-1	-6	-6	-7
VC2	-6	-5	-3	-12	+2	-2	-2	-6	-5	-3	-5
VC3	+7	+13	+14	+7	+1	+4	+13	+4	+1	-1	-1
VC4	-3	-6	0	-10	+1	-4	+1	0	+7	+4	-2

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
HI1	-9	-10	-2	-4	-6	-3	-6	-8	-8	-2	-4
HI2	-6	+4	+13	-1	0	+10	+10	+10	+3	-7	+4
HI3	-6	-3	-2	-1	-3	-6	-1	-2	-2	-5	+2
HI4	-8	-6	+2	-7	-7	0	-9	-3	-8	-6	-3
HI5	+4	+8	+6	+18	+2	+16	+12	+7	+8	-3	+2
HI6	-5	+2	+5	+9	-1	-2	0	-1	+7	+2	+6
HC1	56	+1	-2	0	-2	-2	+3	-7	-8	-10	-10
HC2	52 [51]	46	-1	-2	-5	+2	+6	-2	-6	-8	-4
HC3	43 [45]	40 [41]	36	+2	+4	+1	+16	-1	+5	-4	+4
HC4	38 [38]	32 [34]	32 [30]	25	+1	+9	+15	+3	-1	-2	-2

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
DM1	14	9	17	12	36	***-2***	***+1***	***-2***	***0***	***+2***	***0***
	[16]	[14]	[13]	[11]							
DM2	10	13	11	17	26	22	***+5***	***+3***	***-2***	***-4***	***-1***
	[12]	[11]	[10]	[8]	[28]						
DM3	22	23	31	28	45	39	53	***+4***	***-3***	***-2***	***-7***
	[19]	[17]	[15]	[13]	[44]	[34]					
DM4	12	16	15	18	42	38	58	54	***-4***	***-6***	***+3***
	[19]	[18]	[16]	[13]	[44]	[35]	[54]				
DM5	13	13	22	13	49	36	56	56	65	***+6***	***+1***
	[21]	[19]	[17]	[14]	[49]	[38]	[59]	[60]			
DM6	8	8	10	10	43	28	48	44	61	46	***+2***
	[18]	[16]	[14]	[12]	[41]	[32]	[50]	[50]	[55]		
DM7	10	15	20	12	47	36	50	61	64	55	60
	[20]	[19]	[16]	[14]	[47]	[37]	[57]	[58]	[63]	[53]	
HL	-7	-16	-4	-20	8	0	0	1	5	12	8
D	20	32	20	14	38	27	39	36	44	32	42
T	45	37	46	48	15	15	17	10	8	6	10
VI	-11	-11	-3	-6	6	10	4	8	12	9	10
VC	28	30	29	12	11	11	18	11	11	8	5
HI	17	24	30	24	29	33	43	44	46	32	48
HC	75	68	60	50	21	20	42	24	24	14	23
CS	19	20	26	23	60	47	73	74	81	68	78

Factor Correlations Used for Parallelism Test

	HL	D	T	VI	VC	HI	HC	DM
HL	100	-10	2	13	18	-8	-19	7
D	-10	100	-21	18	3	109	34	54
T	2	-21	100	-6	44	-17	70	17
VI	13	18	-6	100	-4	35	-13	13
VC	18	3	44	-4	100	3	39	16
HI	-8	109	-17	35	3	100	37	57
HC	-19	34	70	-13	39	37	100	35
DM	7	54	17	13	16	57	35	100

Correlation Matrix for the U.S. Data

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
HL1	18	-1	+3	0	-4	+6	-4	-12	0	+3	-2	-4	-1	+2	+5
HL2	18 [19]	20	+2	-4	-5	+10	-1	-12	+1	+1	-7	-13	0	+9	+2
HL3	18 [15]	18 [16]	13	-6	+4	0	-2	-2	+9	+1	+5	+2	+2	+4	+3
HL4	16 [16]	14 [18]	8 [14]	16	+9	-5	+8	-3	+3	+12	+8	+1	-3	-10	+1
HL5	20 [24]	21 [26]	25 [21]	32 [23]	34	-6	+3	-5	+7	+6	-1	-3	+1	+2	+4
HL6	29 [23]	34 [24]	19 [19]	16 [21]	25 [31]	29	-4	-11	0	-11	-1	+3	-2	+2	-11
HL7	13 [17]	17 [18]	13 [15]	24 [16]	27 [24]	18 [22]	16	+8	+3	+11	+9	-4	+1	-5	-9
D1	-4 [8]	-4 [8]	4 [6]	4 [7]	5 [10]	-1 [10]	15 [7]	31	-7	+1	-2	+7	-8	+7	+4
D2	5 [5]	7 [6]	13 [4]	8 [5]	14 [7]	7 [7]	8 [5]	15 [22]	15	+1	+6	0	+3	-7	-4
D3	10 [7]	8 [7]	7 [6]	18 [6]	15 [9]	-2 [9]	18 [7]	30 [29]	21 [20]	26	+1	-3	-2	+10	+12
D4	9 [11]	5 [12]	14 [9]	18 [10]	14 [15]	13 [14]	20 [11]	43 [45]	38 [32]	42 [41]	65	-6	-4	+12	-1
D5	-1 [3]	-10 [3]	5 [3]	4 [3]	1 [4]	7 [4]	-1 [3]	20 [13]	9 [9]	9 [12]	13 [19]	5	-9	-9	-7

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
T1	3	4	6	1	7	3	5	-17	-3	-10	-17	-13	24	***0***	***-1***
	[4]	[4]	[4]	[4]	[6]	[5]	[4]	[-9]	[-6]	[-8]	[-13]	[-4]			
T2	7	15	9	-5	10	9	0	-5	-16	-1	-6	14	32	43	***0***
	[5]	[6]	[5]	[5]	[8]	[7]	[5]	[-12]	[-9]	[-11]	[-18]	[-5]	[32]		
T3	9	6	6	4	9	-6	-5	-4	-10	4	-13	-10	21	29	20
	[4]	[4]	[3]	[3]	[5]	[5]	[4]	[-8]	[-6]	[-8]	[-12]	[-3]	[22]	[29]	
VI1	5	4	14	6	15	3	6	11	31	20	28	6	-5	-3	1
	[5]	[5]	[4]	[4]	[6]	[6]	[4]	[11]	[8]	[10]	[16]	[5]	[0]	[0]	[0]
VI2	18	-1	3	4	6	12	14	13	-1	21	16	-7	2	18	13
	[4]	[4]	[3]	[4]	[6]	[5]	[4]	[10]	[7]	[9]	[14]	[4]	[0]	[0]	[0]
VI3	-3	1	13	10	6	2	9	8	11	11	13	-1	-7	6	2
	[5]	[5]	[4]	[5]	[7]	[6]	[5]	[12]	[8]	[11]	[17]	[5]	[0]	[0]	[0]
VI4	-7	-11	4	4	1	0	3	4	4	-2	13	-3	-10	-3	-11
	[5]	[5]	[4]	[4]	[6]	[6]	[5]	[11]	[8]	[10]	[16]	[5]	[0]	[0]	[0]
VC1	15	6	-6	-4	6	12	7	1	8	3	0	-10	16	6	5
	[11]	[11]	[9]	[10]	[15]	[14]	[10]	[5]	[4]	[4]	[7]	[2]	[10]	[13]	[9]
VC2	16	9	13	0	17	8	15	18	6	4	4	-5	12	19	16
	[15]	[16]	[13]	[14]	[21]	[19]	[15]	[7]	[5]	[6]	[10]	[3]	[14]	[18]	[12]
VC3	6	9	9	8	12	19	10	6	-2	7	4	-9	4	9	22
	[6]	[7]	[5]	[6]	[9]	[8]	[6]	[2]	[2]	[3]	[4]	[1]	[6]	[8]	[5]
VC4	8	10	1	14	13	16	15	12	4	11	7	-1	4	-3	-6
	[4]	[4]	[3]	[3]	[5]	[5]	[3]	[2]	[1]	[1]	[2]	[1]	[3]	[4]	[3]

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
HI1	-6	1	4	15	10	-5	6	32	16	33	31	25	-21	-16	-1
	[5]	[5]	[4]	[5]	[7]	[6]	[5]	[33]	[23]	[30]	[48]	[14]	[-6]	[-9]	[-6]
HI2	-5	-3	-2	8	5	0	7	19	19	15	39	-3	-11	-7	10
	[4]	[4]	[3]	[3]	[5]	[5]	[4]	[25]	[17]	[23]	[36]	[10]	[-5]	[-7]	[-4]
HI3	-1	3	14	9	11	3	13	19	22	29	39	17	-14	-10	-5
	[4]	[5]	[4]	[4]	[6]	[6]	[4]	[30]	[21]	[27]	[43]	[12]	[-6]	[-8]	[-5]
HI4	5	2	10	3	9	8	13	19	18	29	33	3	1	7	-6
	[3]	[3]	[3]	[3]	[4]	[4]	[3]	[21]	[15]	[19]	[31]	[9]	[-4]	[-6]	[-4]
HI5	8	2	2	6	7	0	14	30	12	37	41	12	-14	-1	5
	[5]	[5]	[4]	[4]	[6]	[6]	[5]	[31]	[22]	[28]	[45]	[13]	[-6]	[-8]	[-6]
HI6	-1	-4	3	11	10	-9	10	65	16	38	46	30	-16	-6	-6
	[5]	[6]	[4]	[5]	[7]	[7]	[5]	[35]	[24]	[32]	[50]	[14]	[-7]	[-9]	[-6]
HC1	0	18	-7	-4	16	2	4	6	3	16	8	-4	21	22	12
	[5]	[5]	[4]	[5]	[7]	[6]	[5]	[15]	[11]	[14]	[22]	[6]	[21]	[28]	[19]
HC2	3	6	-2	-2	16	-8	7	11	13	21	14	8	11	3	6
	[3]	[3]	[3]	[3]	[4]	[4]	[3]	[1]	[7]	[9]	[14]	[4]	[13]	[18]	[12]
HC3	8	1	7	-3	11	1	-2	16	7	26	23	-7	13	17	27
	[3]	[3]	[2]	[3]	[4]	[4]	[3]	[9]	[6]	[8]	[12]	[4]	[12]	[16]	[11]
HC4	7	3	6	-1	14	-5	-1	6	-6	16	5	-3	5	22	20
	[2]	[2]	[2]	[2]	[3]	[3]	[2]	[7]	[5]	[6]	[10]	[3]	[9]	[13]	[8]

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
DM1	11	8	10	3	23	12	10	17	20	16	17	13	12	12	14
	[6]	[6]	[5]	[5]	[8]	[8]	[6]	[11]	[7]	[10]	[17]	[5]	[3]	[4]	[3]
DM2	10	22	8	13	7	5	12	7	5	31	21	6	-5	13	18
	[8]	[8]	[7]	[7]	[11]	[10]	[8]	[15]	[11]	[14]	[22]	[6]	[4]	[5]	[4]
DM3	7	14	21	11	19	12	15	14	13	25	19	6	-8	-8	10
	[9]	[9]	[7]	[8]	[12]	[11]	[8]	[17]	[12]	[15]	[24]	[7]	[4]	[6]	[4]
DM4	-3	15	10	8	4	4	1	13	12	12	24	0	0	0	19
	[9]	[10]	[8]	[9]	[13]	[12]	[9]	[18]	[13]	[17]	[27]	[8]	[5]	[6]	[4]
DM5	11	18	3	3	9	6	5	22	12	32	22	18	-6	-3	10
	[11]	[11]	[9]	[10]	[15]	[14]	[10]	[21]	[15]	[19]	[30]	[9]	[5]	[7]	[5]
DM6	7	19	14	3	25	10	11	16	12	19	22	13	-3	7	2
	[10]	[11]	[9]	[9]	[14]	[13]	[10]	[20]	[14]	[18]	[28]	[8]	[5]	[7]	[5]
DM7	6	19	10	5	7	-3	9	15	5	27	18	19	-1	0	19
	[12]	[13]	[10]	[11]	[17]	[15]	[12]	[23]	[16]	[21]	[34]	[10]	[6]	[8]	[5]
HL	42	45	36	39	58	54	41	6	19	24	30	2	9	15	8
D	8	2	17	21	20	10	24	56	39	51	81	23	-24	-17	-13
T	12	16	14	0	17	4	0	-17	-18	-4	-23	-23	49	65	44
VI	5	-3	13	9	11	7	13	14	18	20	27	-2	-8	7	2
VC	23	18	9	10	25	29	25	19	8	13	8	-13	18	16	19
HI	0	0	11	19	19	-1	22	66	37	64	81	30	-27	-12	-1
HC	8	13	2	-5	27	-4	4	19	9	38	24	-3	25	31	31
DM	12	28	18	11	22	11	15	25	19	39	34	18	-2	5	22

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
HL1	0	+14	-8	-12	+4	+1	0	+4	-11	-9	-5	+2	+3	-6
HL2	-1	-5	-4	-16	-5	-7	+2	+6	-4	-7	-2	-1	-3	-10
HL3	+10	0	+9	0	-15	0	+4	-2	0	-5	+10	+7	-2	-1
HL4	+2	0	+5	0	-14	-14	+2	+11	+10	+5	+5	0	+2	+6
HL5	+9	0	-1	-5	-9	-4	+3	+8	+3	0	+5	+5	+1	+3
HL6	-3	+7	-4	-6	-2	-11	+11	+11	-11	-5	-3	+4	-6	-16
HL7	+2	+10	+4	-2	-3	0	+4	+12	+1	+3	+9	+10	+9	+5
D1	0	+3	-4	-7	-4	+11	+4	+10	-1	-6	-11	-2	-1	+30
D2	+23	-8	+3	-4	+4	+1	-4	+3	-7	+2	+1	+3	-10	-8
D3	+10	+12	0	-12	-1	-2	+4	+10	+3	-8	+2	+10	+9	+6
D4	+12	+2	-4	-3	-7	-6	0	+5	-17	+3	-4	+2	-4	-4
D5	+1	-11	-6	-8	-12	-8	-10	-2	+11	-13	+5	-6	-1	+16

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
T1	-5	+2	-7	-10	+6	-2	-2	+1	-15	-6	-8	+5	-8	-9
T2	-3	+18	+6	-3	-7	+1	+1	-7	-7	0	-2	+13	+7	+3
T3	+1	+13	+2	-11	-4	+4	+17	-9	+5	+14	0	-2	+11	0
VI1	42	+5	-4	0	-6	+1	-8	+4	+6	-5	+22	+17	+3	+14
VI2	41 [36]	32	0	-5	-11	+4	+2	+4	-8	-9	0	+14	-3	+3
VI3	40 [44]	39 [39]	47	+5	-6	+15	-4	+11	-3	-8	+12	-9	-8	-3
VI4	42 [42]	32 [37]	50 [45]	43	-5	+4	-3	-6	-8	-14	+10	-8	-11	-3
VC1	-7 [-1]	-12 [-1]	-7 [-1]	-6 [-1]	34	+1	-2	0	-5	-2	-10	-3	-6	-5
VC2	0 [-1]	3 [-1]	14 [-1]	3 [-1]	49 [48]	67	0	-2	-8	-6	-12	-1	+6	+9
VC3	-8 [0]	2 [0]	-4 [0]	-3 [0]	18 [20]	28 [28]	11	+2	-4	+3	-5	+1	+7	+3
VC4	4 [0]	4 [0]	11 [0]	-6 [0]	11 [11]	14 [16]	8 [6]	4	+1	+4	+11	+7	+7	+6

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
HI1	19	4	11	5	-1	-2	-2	2	28	***+4***	***+1***	***-5***	***-4***	***+3***
	[13]	[12]	[14]	[13]	[4]	[6]	[2]	[1]						
HI2	5	0	3	-4	4	-2	5	5	25	16	***+2***	***-1***	***-1***	***-4***
	[10]	[9]	[11]	[10]	[6]	[4]	[2]	[1]	[21]					
HI3	34	11	25	22	-6	-7	-3	12	26	21	23	***+1***	***-1***	***-2***
	[12]	[11]	[13]	[12]	[4]	[5]	[2]	[1]	[25]	[19]				
HI4	25	22	0	1	0	3	3	8	13	13	17	12	***+4***	***+2***
	[8]	[8]	[9]	[9]	[3]	[4]	[2]	[1]	[18]	[14]	[16]			
HI5	15	8	5	2	-2	11	9	8	23	19	23	21	25	***+1***
	[12]	[11]	[13]	[13]	[4]	[5]	[2]	[1]	[27]	[20]	[24]	[17]		
HI6	28	15	12	11	-1	15	5	7	33	18	25	21	29	32
	[14]	[12]	[15]	[14]	[4]	[6]	[2]	[1]	[30]	[22]	[27]	[19]	[28]	
HC1	4	1	-12	-7	7	10	18	3	10	4	5	0	29	9
	[-5]	[-5]	[-5]	[-5]	[14]	[20]	[8]	[5]	[19]	[15]	[17]	[12]	[18]	[20]
HC2	0	-1	-11	-7	15	17	16	7	13	7	1	1	19	14
	[-3]	[-3]	[-3]	[-3]	[9]	[13]	[5]	[3]	[12]	[9]	[11]	[8]	[12]	[13]
HC3	7	17	-7	-11	-5	4	13	0	14	31	8	20	29	19
	[-3]	[-3]	[-3]	[-3]	[8]	[11]	[5]	[3]	[11]	[8]	[10]	[7]	[10]	[11]
HC4	-5	4	-13	-9	2	12	10	-6	6	-7	5	5	20	9
	[-2]	[-2]	[-2]	[-2]	[6]	[9]	[4]	[2]	[9]	[6]	[8]	[5]	[8]	[9]

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
DM1	15	12	8	0	7	6	-2	5	13	-1	12	7	4	14
	[6]	[5]	[6]	[6]	[2]	[3]	[1]	[1]	[11]	[8]	[10]	[7]	[10]	[12]
DM2	18	18	0	0	-3	-3	0	4	24	6	21	21	14	11
	[8]	[7]	[8]	[8]	[3]	[5]	[2]	[1]	[15]	[11]	[13]	[10]	[14]	[16]
DM3	20	8	-1	-5	-6	0	16	7	29	8	25	15	20	15
	[9]	[8]	[9]	[9]	[4]	[5]	[2]	[1]	[16]	[12]	[15]	[10]	[15]	[17]
DM4	19	10	10	3	-2	-3	8	5	22	12	13	17	15	12
	[9]	[8]	[10]	[10]	[4]	[6]	[2]	[1]	[18]	[13]	[16]	[11]	[17]	[19]
DM5	25	15	15	-1	-1	-2	9	13	21	-1	23	6	21	39
	[11]	[9]	[11]	[11]	[4]	[6]	[3]	[1]	[20]	[15]	[18]	[13]	[19]	[21]
DM6	15	4	0	1	2	1	6	16	22	-4	19	10	10	25
	[10]	[9]	[11]	[10]	[4]	[6]	[2]	[1]	[19]	[14]	[17]	[12]	[18]	[20]
DM7	26	16	7	1	-5	1	5	5	21	4	28	14	13	31
	[12]	[11]	[13]	[12]	[5]	[7]	[3]	[2]	[22]	[17]	[20]	[14]	[21]	[24]
HL	17	18	12	-2	12	25	23	25	8	4	17	16	12	6
D	39	17	16	6	1	11	3	13	55	36	51	41	53	78
T	-5	21	0	-15	17	30	22	-3	-24	-5	-18	1	-7	-18
VI	64	57	69	65	-12	8	-5	5	15	2	36	19	12	26
VC	-6	-1	7	-6	58	82	34	19	-2	6	-2	8	13	13
HI	45	22	20	13	-2	7	6	15	53	40	48	34	50	56
HC	3	10	-21	-16	9	21	27	2	21	16	9	12	47	25
DM	33	20	9	0	-2	0	10	13	36	6	34	22	23	35

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
HL1	-5	0	+5	+5	+5	+2	-2	-12	0	-3	-6
HL2	+13	+3	-2	+1	+2	+14	+5	+5	+7	+8	+6
HL3	-11	-5	+5	+4	+5	+1	+14	+2	-6	+5	0
HL4	-9	-5	-6	-3	-2	+6	+3	-1	-7	-6	-6
HL5	+9	+12	+7	+11	+15	-4	+7	-9	-6	+9	-10
HL6	-4	-12	-3	-8	+4	-5	+1	-8	-8	-3	-18
HL7	-1	+4	-5	-3	+4	+4	+7	-8	-5	+1	-3
D1	-9	+10	+7	-1	+6	-8	-3	-5	+1	-4	-8
D2	-8	+6	+1	-11	+13	-6	+1	-1	-3	-2	-11
D3	+2	+12	+18	+10	+6	+17	+10	-5	+13	+1	+6
D4	-14	0	+11	-5	0	-1	-5	-3	-8	-6	-16
D5	-10	+4	-11	-6	+8	0	-1	-8	-9	+5	+9

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
T1	0	-2	+1	-4	+10	-9	-12	-5	-11	-8	-7
T2	-6	-15	+1	+9	+8	+8	-14	-6	-10	0	-8
T3	-7	-6	+16	+12	+11	+14	+6	+15	+5	-3	+14
VI1	+9	+3	+10	-3	+9	+10	+11	+10	+14	+5	+14
VI2	+6	+2	+20	+6	+8	+11	0	+2	+6	-5	+5
VI3	-7	-8	-4	-11	+2	-8	-10	0	+4	-11	-6
VI4	-2	-4	-8	-7	-6	-8	-14	-7	-12	-9	-11
VC1	-7	+6	-13	-4	+5	-6	-10	-6	-5	-2	-10
VC2	-10	+4	-7	+3	+3	-8	-5	-9	-8	-5	-6
VC3	+10	+11	+8	+6	-3	-2	+14	+6	+6	+4	+2
VC4	-2	+4	-3	-8	+4	+3	+6	+4	+12	+15	+3

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
HI1	-9	+1	+3	-3	+2	+9	+13	+4	+1	+3	-1
HI2	-11	-2	+23	-13	-9	-5	-4	-1	-16	-18	-13
HI3	-12	-10	-2	-3	+2	+8	+10	-3	+5	+2	+8
HI4	-12	-7	+13	0	0	+11	+5	+6	-7	-2	0
HI5	+11	+7	+19	+12	-6	0	+5	-2	-2	-8	-8
HI6	-11	+1	+8	0	+2	-5	-2	-7	+18	-5	+7
HC1	62	0	-4	+3	+4	-7	-2	-6	-6	-6	-18
HC2	40 [40]	25	+3	-4	+2	+1	-1	-2	-6	-1	-10
HC3	31 [35]	25 [22]	19	+1	+15	+3	+10	+1	+9	-3	0
HC4	31 [28]	14 [18]	16 [15]	12	+8	+5	+11	+2	-3	+4	-5

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
DM1	17	10	22	14	15	***-1***	***+7***	***-7***	***+1***	***+1***	***+1***
	[13]	[8]	[7]	[6]							
DM2	11	12	13	13	18	26	***+1***	***+4***	***0***	***0***	***-3***
	[18]	[11]	[10]	[8]	[19]						
DM3	17	11	21	20	28	30	32	***+2***	***-3***	***-2***	***-4***
	[19]	[12]	[11]	[9]	[21]	[29]					
DM4	15	11	13	11	16	35	36	37	***-4***	***-1***	***+5***
	[21]	[13]	[12]	[9]	[23]	[31]	[34]				
DM5	18	9	22	8	27	35	36	38	47	***+1***	***+3***
	[24]	[15]	[13]	[11]	[26]	[35]	[39]	[42]			
DM6	17	13	10	14	26	33	34	39	46	42	***-1***
	[23]	[14]	[13]	[10]	[25]	[33]	[36]	[40]	[45]		
DM7	9	7	15	7	30	36	39	52	56	49	59
	[27]	[17]	[15]	[12]	[29]	[39]	[43]	[47]	[53]	[50]	
HL	9	6	8	7	24	24	31	12	18	29	17
D	11	27	26	7	33	28	31	24	43	33	34
T	35	13	36	30	25	17	-4	12	1	4	12
VI	-5	-7	2	-9	14	14	9	16	21	8	20
VC	19	28	6	10	9	-1	8	4	10	13	3
HI	21	20	43	13	17	34	40	32	39	30	39
HC	79	50	44	35	30	23	33	24	27	26	19
CS	25	17	28	21	38	51	56	61	69	65	77

Factor Correlations Used for Parallelism Test

	HL	D	T	VI	VC	HI	HC	DM
HL	100	32	20	17	44	22	15	37
D	32	100	-34	31	15	111	35	54
T	20	-34	100	1	34	-25	55	16
VI	17	31	1	100	-2	39	-10	24
VC	44	15	34	-2	100	13	31	11
HI	22	111	-25	39	13	100	46	55
HC	15	35	55	-10	31	46	100	44
DM	37	54	16	24	11	55	44	100

Correlation Matrix for the Japanese Data

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
HL1	36	+13	+5	-3	-9	0	-7	+13	+2	+12	+1	+11	-1	-3	+3
HL2	51 [38]	40	-8	-2	-9	+6	0	+4	-7	+9	-2	-4	-7	-5	+3
HL3	34 [29]	22 [30]	23	-4	+4	-1	+3	-5	+2	+8	+7	-7	+6	0	+3
HL4	20 [23]	23 [25]	15 [19]	15	+10	0	-3	+6	-19	-11	-10	-5	-8	+2	+5
HL5	17 [26]	18 [27]	25 [21]	27 [17]	19	-4	+7	+15	0	+9	+11	-5	-4	-11	+9
HL6	43 [43]	51 [45]	34 [35]	28 [28]	27 [31]	51	-3	-1	-2	+6	-4	-1	0	-3	-5
HL7	13 [20]	21 [21]	19 [16]	10 [13]	21 [14]	21 [24]	11	-8	-5	-3	+4	-21	+4	-2	+15
D1	11 [-2]	1 [-3]	-7 [-2]	5 [-1]	13 [-2]	-4 [-3]	-9 [-1]	45	-4	-5	+7	+2	-15	0	-3
D2	1 [-1]	-8 [-1]	1 [-1]	-20 [-1]	-1 [-1]	-3 [-1]	-6 [-1]	17 [21]	10	+2	-2	+5	-1	+3	-23
D3	10 [-2]	7 [-2]	6 [-2]	-12 [-1]	8 [-1]	4 [-2]	-4 [-1]	31 [36]	19 [17]	30	+2	+2	+4	+11	+10
D4	-1 [-2]	-5 [-3]	5 [-2]	-12 [-2]	9 [-2]	-7 [-3]	3 [-1]	52 [45]	19 [21]	38 [36]	44	+9	-2	+13	0
D5	9 [-2]	-6 [-2]	-8 [-1]	-6 [-1]	-6 [-1]	-3 [-2]	-22 [-1]	37 [35]	21 [16]	30 [28]	26 [35]	27	-3	+10	-7

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
T1	-3	-9	4	-10	-6	-3	3	-27	-7	-6	-14	-13	44	***0***	***+1***
	[-2]	[-2]	[-2]	[-2]	[-2]	[-3]	[-1]	[-12]	[-6]	[-10]	[-12]	[-10]			
T2	-5	-7	-2	1	-13	-6	-3	-12	-2	2	1	1	41	38	***0***
	[-2]	[-2]	[-2]	[-1]	[-2]	[-3]	[-1]	[-12]	[-5]	[-9]	[-12]	[-9]	[41]		
T3	1	1	2	4	8	-7	14	12	-27	3	-9	-14	-33	30	24
	[-2]	[-2]	[-1]	[-1]	[-1]	[-2]	[-1]	[-9]	[-4]	[-7]	[-9]	[-7]	[32]	[30]	
VI1	2	5	18	-3	7	7	6	-8	2	-2	0	2	-4	-1	4
	[4]	[4]	[3]	[2]	[3]	[5]	[2]	[2]	[1]	[2]	[2]	[2]	[-5]	[-4]	[-4]
VI2	17	14	7	-1	9	3	11	-6	5	9	6	3	-10	4	21
	[5]	[5]	[4]	[3]	[3]	[6]	[3]	[3]	[1]	[2]	[3]	[2]	[-6]	[-6]	[-5]
VI3	-2	2	-1	-9	8	8	0	5	19	1	2	1	-20	-2	-10
	[4]	[5]	[3]	[3]	[3]	[5]	[2]	[3]	[1]	[2]	[3]	[2]	[-6]	[-6]	[-5]
VI4	0	8	-12	-8	6	0	3	5	-1	3	2	-3	-32	-12	-4
	[5]	[5]	[4]	[3]	[3]	[6]	[3]	[3]	[1]	[2]	[3]	[2]	[-7]	[-6]	[-5]
VC1	10	6	7	-4	-8	-3	23	-21	-8	-21	-10	-35	22	15	1
	[3]	[3]	[2]	[2]	[2]	[4]	[2]	[-9]	[-4]	[-7]	[-9]	[-7]	[16]	[15]	[12]
VC2	2	2	11	4	11	13	21	-10	2	3	-2	-6	22	19	6
	[4]	[4]	[3]	[3]	[3]	[5]	[2]	[-12]	[-5]	[-10]	[-12]	[-9]	[22]	[21]	[16]
VC3	-5	5	-5	-7	0	-9	16	-15	-13	-6	0	-10	23	11	30
	[4]	[4]	[3]	[2]	[3]	[4]	[2]	[-10]	[-5]	[-8]	[-10]	[-8]	[19]	[18]	[14]
VC4	-2	4	-4	-8	-7	1	9	-19	-5	10	3	1	24	16	10
	[3]	[3]	[3]	[2]	[2]	[4]	[2]	[-9]	[-4]	[-8]	[-9]	[-7]	[17]	[16]	[13]

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
HI1	-10	-1	-4	-2	4	1	8	31	0	29	35	22	-16	-1	8
	[2]	[2]	[2]	[1]	[1]	[2]	[1]	[37]	[17]	[30]	[37]	[29]	[-9]	[-9]	[-7]
HI2	8	15	6	-5	5	9	5	25	4	18	19	19	-15	-10	-17
	[1]	[1]	[1]	[1]	[1]	[1]	[0]	[15]	[7]	[12]	[15]	[12]	[-4]	[-4]	[-3]
HI3	6	3	14	0	17	8	-6	27	10	30	26	34	-12	6	14
	[2]	[2]	[1]	[1]	[1]	[2]	[1]	[36]	[16]	[29]	[36]	[28]	[-9]	[-8]	[-6]
HI4	-1	-11	5	-7	9	3	-12	40	6	22	39	29	-20	-4	1
	[2]	[2]	[1]	[1]	[1]	[2]	[1]	[36]	[17]	[29]	[36]	[28]	[-9]	[-8]	[-7]
HI5	14	13	-6	-2	1	9	0	31	7	17	19	20	-23	-5	-7
	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[20]	[9]	[16]	[20]	[16]	[-5]	[-5]	[-4]
HI6	0	-9	-7	-6	5	-10	-13	50	10	30	41	33	-11	0	-4
	[2]	[2]	[1]	[1]	[1]	[2]	[1]	[35]	[16]	[28]	[35]	[27]	[-9]	[-8]	[-6]
HC1	5	-7	10	-7	3	-1	-3	-8	0	15	5	4	31	33	26
	[-1]	[-1]	[-1]	[-1]	[-1]	[-2]	[-1]	[-2]	[-1]	[-2]	[-2]	[-2]	[45]	[42]	[33]
HC2	1	-10	6	-10	-4	-3	-4	-3	6	6	10	8	34	30	29
	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-2]	[-1]	[-2]	[-2]	[-1]	[38]	[36]	[28]
HC3	3	-6	16	5	14	6	5	-16	-17	9	2	-5	34	28	31
	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-2]	[-1]	[-1]	[-2]	[-1]	[35]	[33]	[26]
HC4	-15	-10	-10	4	2	-8	-8	-5	-22	-2	-4	-11	33	33	44
	[-1]	[-1]	[-1]	[0]	[-1]	[-1]	[0]	[-1]	[-1]	[-1]	[-1]	[-1]	[24]	[23]	[18]

	HL1	HL2	HL3	HL4	HL5	HL6	HL7	D1	D2	D3	D4	D5	T1	T2	T3
DM1	19	17	-1	8	-3	8	4	18	16	19	10	20	-2	9	-4
	[11]	[11]	[8]	[7]	[8]	[13]	[6]	[17]	[8]	[13]	[17]	[13]	[5]	[5]	[4]
DM2	14	9	9	-1	-1	10	13	4	12	-8	-13	-5	10	9	-7
	[4]	[5]	[4]	[3]	[3]	[5]	[2]	[7]	[3]	[6]	[7]	[5]	[2]	[2]	[2]
DM3	12	6	6	7	3	10	9	6	10	14	9	10	13	28	7
	[11]	[11]	[9]	[7]	[8]	[13]	[6]	[17]	[8]	[14]	[17]	[13]	[5]	[5]	[4]
DM4	24	18	-3	12	2	14	6	20	7	11	13	20	-5	14	-4
	[11]	[11]	[9]	[7]	[8]	[13]	[6]	[17]	[8]	[14]	[17]	[13]	[6]	[5]	[4]
DM5	14	15	0	6	0	15	7	16	11	27	19	23	0	22	-4
	[13]	[13]	[10]	[8]	[9]	[15]	[7]	[20]	[9]	[16]	[20]	[16]	[6]	[6]	[5]
DM6	12	11	1	6	3	5	9	12	8	19	17	12	-8	13	4
	[10]	[11]	[8]	[7]	[7]	[12]	[6]	[16]	[8]	[13]	[16]	[13]	[5]	[5]	[4]
DM7	22	12	1	17	12	12	11	32	2	18	21	30	-3	8	0
	[11]	[12]	[9]	[7]	[8]	[13]	[6]	[18]	[8]	[14]	[18]	[14]	[6]	[5]	[4]
HL	60	63	48	39	43	72	33	3	-10	5	-3	-12	-6	-10	7
D	11	-4	-1	-16	8	-5	-14	67	31	54	67	52	-25	-3	-22
T	-4	-8	2	-3	-6	-9	8	-29	-20	0	-13	-15	66	62	49
VI	7	11	5	-7	11	7	8	-2	9	4	4	1	-25	-4	4
VC	2	7	4	-7	-2	1	30	-28	-10	-6	-4	-22	39	27	21
HI	6	4	3	-8	16	8	-7	79	15	57	70	61	-38	-6	-2
HC	-3	-14	9	-4	6	-2	-4	-13	-13	11	5	-1	53	50	53
DM	24	18	3	11	3	15	12	22	13	20	15	22	1	20	-2

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
HL1	-2	+12	-6	-5	+7	-2	-9	-5	-12	+7	+4	-3	+13	-2
HL2	+1	+9	-3	+3	+3	-2	+1	+1	-3	+14	+1	-13	+12	-11
HL3	+15	+3	-4	-16	+5	+8	-8	-7	-6	+5	+13	+4	-7	-8
HL4	-5	-4	-12	-11	-6	+1	-9	-10	-3	-6	-1	-8	-3	-7
HL5	+4	+6	+5	+3	-10	+8	-3	-9	+3	+4	+16	+8	0	+4
HL6	+2	-3	+3	-6	-7	+8	-13	-3	-1	+8	+6	+1	+8	-12
HL7	+4	+8	-2	0	+21	+19	+14	+7	+7	+5	-7	-13	-1	-14
D1	-10	-9	+2	+2	-12	+2	-5	-10	-6	+10	-9	+4	+11	+15
D2	+1	+4	+18	-2	-4	+7	-8	-1	-17	-3	-6	-11	-2	-6
D3	-4	+7	-1	+1	-14	+13	+2	+18	-1	+6	+1	-7	+1	+2
D4	-2	+3	-1	-1	-1	+10	+10	+12	-2	+4	-10	+3	-1	+6
D5	0	+1	-1	-5	-28	+3	-2	+8	-7	+7	+6	+1	+4	+6

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
T1	***+1***	***-4***	***-14***	***-25***	***+6***	***0***	***+4***	***+7***	***-7***	***-11***	***-3***	***-11***	***-18***	***-2***
T2	***+3***	***+10***	***+4***	***-6***	***0***	***-2***	***-7***	***0***	***+8***	***-6***	***+14***	***+4***	***0***	***+8***
T3	***+8***	***+26***	***-5***	***-1***	***-11***	***-10***	***+16***	***-3***	***+15***	***-14***	***+20***	***+8***	***-3***	***+2***
VI1	33	***+13***	***-6***	***-7***	***-9***	***+6***	***+5***	***-1***	***-3***	***+4***	***0***	***-5***	***+7***	***-9***
VI2	54 [41]	49	***-7***	***-7***	***-6***	***+8***	***+15***	***-1***	***-3***	***-1***	***+10***	***-6***	***+5***	***-3***
VI3	32 [38]	39 [46]	44	***+13***	***-4***	***-1***	***-4***	***-5***	***-13***	***+11***	***-5***	***-7***	***+18***	***-3***
VI4	34 [41]	43 [50]	60 [47]	50	***-10***	***+3***	***+3***	***-1***	***-6***	***+2***	***-4***	***-6***	***+23***	***-5***
VC1	-11 [-2]	-8 [-2]	-6 [-2]	-12 [-2]	25	***+4***	***-3***	***-8***	***-17***	***+2***	***-20***	***-9***	***-8***	***-17***
VC2	4 [-2]	5 [-3]	-4 [-3]	0 [-3]	38 [34]	46	***-8***	***+3***	***+2***	***+10***	***+1***	***+6***	***-7***	***+7***
VC3	3 [-2]	13 [-2]	-6 [-2]	0 [-3]	33 [30]	32 [40]	35	***+4***	***+4***	***+1***	***+3***	***+9***	***-11***	***+10***
VC4	-3 [-2]	-3 [-2]	-7 [-2]	-3 [-2]	19 [27]	40 [37]	36 [32]	29	***+8***	***+15***	***-1***	***+14***	***+2***	***0***

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
HI1	7	9	-2	6	-24	-7	-4	1	28	***-3***	***+4***	***0***	***+3***	***+3***
	[10]	[12]	[11]	[12]	[-7]	[-9]	[-8]	[-7]						
HI2	8	4	16	7	-1	6	-2	12	9	5	***+5***	***+3***	***-4***	***0***
	[4]	[5]	[5]	[5]	[-3]	[-4]	[-3]	[-3]	[12]					
HI3	9	21	5	7	-26	-8	-5	-8	31	16	26	***-7***	***-9***	***+7***
	[9]	[11]	[10]	[11]	[-6]	[-9]	[-8]	[-7]	[27]	[11]				
HI4	4	5	4	5	-16	-3	1	7	28	14	20	27	***+8***	***-4***
	[9]	[11]	[11]	[11]	[-7]	[-9]	[-8]	[-7]	[28]	[11]	[27]			
HI5	12	11	24	29	-12	-12	-15	-2	18	2	6	23	8	***+3***
	[5]	[6]	[6]	[6]	[-4]	[-5]	[-4]	[-4]	[15]	[6]	[15]	[15]		
HI6	0	8	7	6	-23	-2	1	-7	20	11	33	22	18	25
	[9]	[11]	[10]	[11]	[-6]	[-9]	[-9]	[-7]	[27]	[11]	[26]	[26]	[15]	
HC1	1	-5	-23	-23	10	24	14	19	-3	-14	6	5	-11	-1
	[-10]	[-12]	[-11]	[-12]	[15]	[20]	[17]	[16]	[-2]	[-1]	[-2]	[-2]	[-1]	[-2]
HC2	1	2	-22	-27	8	17	21	11	-9	-7	14	7	-10	1
	[-8]	[-10]	[-10]	[-10]	[13]	[17]	[15]	[14]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]
HC3	11	3	-20	-23	14	29	26	24	3	-2	8	2	-16	4
	[-8]	[-9]	[-9]	[-9]	[11]	[16]	[13]	[12]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]
HC4	-4	0	-6	-10	-6	-6	5	10	1	-17	9	-2	0	9
	[-5]	[-6]	[-6]	[-7]	[8]	[11]	[9]	[9]	[-1]	[0]	[-1]	[-1]	[0]	[-1]

	VI1	VI2	VI3	VI4	VC1	VC2	VC3	VC4	HI1	HI2	HI3	HI4	HI5	HI6
DM1	-4	-9	6	-1	-12	12	4	10	6	12	13	3	14	17
	[1]	[1]	[1]	[1]	[3]	[4]	[3]	[3]	[14]	[6]	[14]	[14]	[8]	[14]
DM2	1	-1	16	-6	11	13	-3	6	-4	6	-8	2	10	-4
	[0]	[0]	[0]	[0]	[1]	[2]	[1]	[1]	[6]	[3]	[6]	[6]	[3]	[6]
DM3	3	-7	8	-9	-3	15	4	20	0	13	12	0	6	12
	[1]	[1]	[1]	[1]	[3]	[4]	[4]	[3]	[15]	[6]	[14]	[14]	[8]	[14]
DM4	-6	-4	10	-3	-3	9	-3	12	3	19	22	10	14	21
	[1]	[1]	[1]	[1]	[3]	[4]	[4]	[3]	[15]	[6]	[14]	[15]	[8]	[14]
DM5	4	-1	8	-6	-12	12	-5	17	6	26	13	11	23	24
	[1]	[1]	[1]	[1]	[4]	[5]	[4]	[4]	[17]	[7]	[17]	[17]	[10]	[16]
DM6	3	9	6	8	-13	9	-7	4	11	8	5	6	9	20
	[1]	[1]	[1]	[1]	[3]	[4]	[3]	[3]	[14]	[6]	[14]	[14]	[8]	[13]
DM7	2	-3	1	-8	-9	9	-7	5	12	22	17	14	15	27
	[1]	[1]	[1]	[1]	[3]	[4]	[4]	[3]	[15]	[6]	[15]	[15]	[8]	[14]
HL	12	17	2	-1	8	18	-2	-2	-2	12	12	-4	8	-11
D	-2	6	10	2	-35	-5	-17	-3	43	32	47	50	35	61
T	-1	8	-18	-27	22	27	36	29	-5	-24	4	-13	-20	-9
VI	58	70	66	71	-14	2	4	-6	8	13	16	7	28	8
VC	-3	3	-10	-7	50	68	59	54	-15	6	-20	-5	-18	-13
HI	15	23	21	23	-40	-10	-9	1	53	22	51	52	29	50
HC	4	0	-29	-34	11	26	27	26	-3	-16	15	5	-15	5
DM	1	-3	11	-5	-8	16	-3	15	7	21	15	9	19	24

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
HL1	+6	+2	+4	-14	+8	+10	+1	+13	+1	+2	+11
HL2	-6	-9	-5	-9	+8	+4	-5	+7	+2	0	0
HL3	+11	+7	+17	-9	-9	+5	-3	-12	-10	-7	-8
HL4	-6	-9	+6	+4	+1	-4	0	+5	-2	-1	+10
HL5	+4	-3	+15	+3	-11	-4	-5	-6	-9	-4	+4
HL6	+1	-2	+7	-7	-5	+5	-3	+1	0	+7	-1
HL7	-2	-3	+6	-8	-2	+11	+3	0	0	+3	+5
D1	-6	-1	-14	-4	+1	-3	-11	+3	-4	-4	+14
D2	+1	+7	-16	-21	+8	+9	+2	-1	+2	0	-6
D3	+17	+8	+10	-1	+6	-14	0	-3	+11	+6	+4
D4	+7	+12	+4	-3	-7	-20	-8	-4	-1	+1	+3
D5	+6	+9	-4	-10	+3	-10	-3	+3	+7	-1	+16

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
T1	-14	-4	-1	+9	-7	+8	+8	-11	-6	-13	-9
T2	-9	-6	-5	+10	+4	+7	+23	+9	+16	+8	+3
T3	-7	+1	+5	+26	-8	-9	+5	-8	-0	0	-4
VI1	+11	+9	+19	+1	-5	+1	+2	-7	+3	+2	+1
VI2	+7	+12	+12	+6	-10	-1	-8	-5	-2	+8	-4
VI3	-12	-12	-11	0	+5	+16	+7	+9	+7	+5	0
VI4	-11	-17	-14	-3	-2	-6	-10	-4	-7	+7	-9
VC1	-5	-5	+3	-14	-15	+10	-6	-6	-16	-16	-12
VC2	+4	0	+13	-17	+8	+11	+11	+5	+7	+5	+5
VC3	-3	+6	+13	-4	+1	-4	0	-7	-9	-10	-11
VC4	+3	-3	+12	+1	+7	+5	+17	+9	+13	+1	+2

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
HI1	-1	-8	+2	+2	-8	-10	-15	-12	-11	-3	-3
HI2	-13	-6	-1	-17	+6	+3	+7	+13	+19	+2	+16
HI3	+8	+15	+9	+10	-1	-14	-2	+8	-4	-9	+2
HI4	+7	+8	+3	-1	-11	-4	-14	-5	-6	-8	-1
HI5	-10	-9	-15	0	+6	+7	-2	+6	+13	+1	+7
HI6	+1	+2	+5	+10	+3	-10	-2	+7	+8	+7	+13
HC1	59	+3	-2	0	+1	-8	+7	-5	-5	-8	-2
HC2	54 [51]	44	0	-2	-6	-10	+7	+1	-1	-8	+6
HC3	44 [46]	40 [40]	36	+3	+2	-11	+20	0	+10	+1	+10
HC4	32 [32]	26 [28]	28 [25]	18	-4	-6	+9	+4	+2	-4	0

	HC1	HC2	HC3	HC4	DM1	DM2	DM3	DM4	DM5	DM6	DM7
DM1	3	-4	4	-3	54	***-1***	***-5***	***+2***	***0***	***+3***	***+2***
	[2]	[2]	[2]	[1]							
DM2	-7	-9	-10	-5	22	9	***+4***	***+3***	***-3***	***-5***	***+1***
	[1]	[1]	[1]	[1]	[23]						
DM3	9	9	22	10	50	27	56	***+6***	***-1***	***+2***	***-6***
	[2]	[2]	[2]	[1]	[55]	[23]					
DM4	-3	3	2	5	57	27	63	58	***-5***	***-10***	***+4***
	[2]	[2]	[2]	[1]	[55]	[24]	[57]				
DM5	-2	1	12	3	65	25	67	63	79	***+8***	***-2***
	[3]	[2]	[2]	[1]	[65]	[28]	[68]	[68]			
DM6	-6	-6	3	-3	56	17	56	45	72	52	***+3***
	[2]	[2]	[2]	[1]	[53]	[22]	[54]	[55]	[64]		
DM7	0	8	12	1	58	25	52	63	67	58	60
	[2]	[2]	[2]	[1]	[56]	[24]	[58]	[59]	[69]	[55]	
HL	0	-7	12	-13	14	15	15	20	16	13	24
D	6	10	-10	-17	31	-4	18	26	35	25	38
T	51	53	52	62	2	7	27	3	10	5	3
VI	-19	-18	-11	-7	-3	4	-2	-1	2	10	-2
VC	29	24	40	1	6	12	15	7	5	-3	-1
HI	-7	-2	-1	0	25	1	17	35	40	23	42
HC	77	66	60	42	0	-13	21	2	6	-5	9
CS	-1	0	9	2	73	31	75	76	89	72	77

Factor Correlations Used for Parallelism Test

	HL	D	T	VI	VC	HI	HC	DM
HL	100	-6	-6	11	10	6	-3	24
D	-6	100	-28	6	-26	104	-4	34
T	-6	-28	100	-14	49	-26	88	11
VI	11	6	-14	100	-6	31	-22	2
VC	10	-26	49	-6	100	-25	38	8
HI	6	104	-26	31	-25	100	-4	37
HC	-3	-4	88	-22	38	-4	100	4
CS	24	34	11	2	8	37	4	100