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Developing Categories from Interview Data: Text Analysis and Multidimensional Scaling. Part 1

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Introduction

We report here on methodological problems involved in studying conflict in Sino-American joint ventures. Perhaps the first problem is that most organization theory has been developed in the West. We were not convinced that past conflict and negotiation theories would hold up even in the West, not to mention in the People's Republic of China. Another problem is that most studies of conflict in international business research build on data from established surveys. They are typically developed to gauge the attitudes and practices of Americans in U.S. organizations. (And even then, there is controversy about the applicability of these surveys in U.S. organizations.)

We decided to investigate conflicts in U.S.foreign joint ventures from the point of
view of the people who were experiencing
those conflicts. We asked our informants
(U.S. expatriates in the PRC) to describe
situations in which they had experienced
controversy in the workplace. In a two-part
series, we demonstrate procedures for using
text analysis, factor analysis, and multidimensional scaling to identify emic categories associated with conflict.

The Interviews

We interviewed 76 American managers who had recently worked in or were currently working in Sino-American joint

ventures and asked them to describe a conflict in which they were involved. Each manager described a situation with a same-culture manager (intracultural process) and a different-culture manager (intercultural process) in person in the PRC (n=45) or over the phone (n=31). To avoid potential order effects, the order in which the intra-and intercultural descriptions were collected was counterbalanced.

To ensure thorough descriptions, each respondent answered five questions: (1) "What is the nature of your relationship with this person (e.g., peer, superior, or subordinate; same or different department)?" (2) "Who else was involved?" (3) "What was the conflict about?" (4) "What caused the conflict?" (5) "Was the conflict resolved? If so, how? If not, what is its current status?"

We could not use tape recorders—collecting this sort of data is a sensitive issue in Communist China—but took notes as close to verbatim as possible. Twenty-eight of the 76 interviews were conducted with both authors present so we could compare notes and check the reliability of our note taking. We found no major discrepancies in what we recorded, and the conflict scenarios extracted from our notes were virtually identical.

The interviews were transcribed and analyzed with ARCHITEXT, a text management program (Steffin and Jennings 1988). Any program that can count and alphabetize could be used.

Creating General Word Lists

Each word in each interview was identified alphabetically and by frequency of occurrence. Table 1 shows the first 10 words and the last 5 words from the frequency and alphabetic lists generated from the intercultural file. There is an option to delete "common" words such as "I," "a," and "the." We chose not to do this because we did not want to assume that "common" words in the Western context would be common in a Sino-American joint venture expatriate context. The frequency lists show which words informants mentioned most or least often. The alphabetic lists help us identify whether informants mentioned a specific word, and if so, how often.

There were 7479 unique words in the corpus of 76 intercultural conflict stories and 2747 unique words in the 76 intracultural conflict stories. We can compare the lists of words from the two files in search of clues about differences in the content of inter- and intracultural conflict because: a) we asked informants the same questions; b) we collected an intra- and an intercultural conflict story from each informant, and c) we have the same number of descriptions (76) in each file.

Creating Informant-Generated Categories

The next step was to identify those words most associated with "conflict." Instead of doing this ourselves, we identified three judges, all of whom had expatriate experience and who were blind to the conditions under study. The judges were told to broadly define "conflict" and were given neither a definition of conflict nor told what a conflict situation entails.

When they completed this task, the judges examined the alphabetic word lists from the intra- and intercultural scenarios. (All terms mentioned more than once in the interviews were on the lists.) The judges went through the lists and independently selected all terms in the lists that they felt were related to conflict. Then they went back over the lists

CAM June 1996

and resolved any differences they had. Two judges had to identify the term initially as being related to conflict and be able to convince the third judge that it belonged in the list. In the intracultural list, 252 words out of 2747 were considered related to conflict. In the intercultural list, 542 words out of 7479 were considered related to conflict.

Next, the judges categorized the conflict words on content similarity. A word was read aloud and a category was started through discussion and consensus. If there was nonconsensus, then at least two judges had to agree that a word belonged in a named category and convince the third of their opinion. Categories were often labeled by the first or second word placed in them. Eventually, all 252 conflict words in the intracultural list and (in a separate session) all 542 words in the intercultural list were categorized.

Table 2 shows examples of words placed in categories by this process, as well as frequency totals for several categories. In the intracultural corpus, the most frequently mentioned words in the category "conflict" are problem(s), conflict(s), difference(s), and angry. The category includes a total of 18 words. Summing how many times any of these 18 words appear in the intracultural file, there are 64 occurrences. Thus, we can say that the concept of "conflict" was mentioned 64 times in the intracultural file.

Calculating Frequency Scores

Table 3 shows the complete lists of categories and the number of times each category was mentioned in intra- and intercultural conflicts. Since the sizes of the files were different, we calculated the ratios of frequency of term per total terms (number of times the word was mentioned divided by the total number of words in the file, multiplied by 1000). Thus, for conflict terms in Table 3: (64/2747) x (1000)=23.30.

We see from Table 3 that conflict words occur more frequently in the intracultural interviews than in the intercultural interviews. In addition, resolution was much more likely to be mentioned in the intercultural interviews than in the intracultural interviews. The intercultural interviews contained more contentious terms than did the intracultural interviews.

Table 1: Sample output from ARCHITEXT: Word list in frequency and alphabetical order for intercultural file.

	Alphabetical List				
	Frequency List				
1 2 3 4 5 6 7 8	the to I and Chinese a it that we for	396 264 203 184 180 155 118 111 96	1 2 3 4 5 6 7 8 9	a abc about accept accommodating account account account account account accused	155 1 4 15 5 1 1 1
10 1484 1485 1486 1487 488	paid pace delegating delegation demanded	1 1 1 1	1484 1485 1486 1487 1488	young your yr yuan zinger	2 3 1 2 1
Total		7479	IGEAL		/1/2

Table 2: Example of words in category lists by intra- and intercultural data.

Intracultural		Can' L Needs	7	Dispute Demanded	1
COMPLICT Problem(s) Conflict(s) Difference(s)(T) Angry Fight Disagree Bit Mad Opposed Clash(es) Blaming Criticism Unlike Confrontational Competitive Disputes Against	20 11 5 4 3 3 1 2 2 2 2 2 2 2 2 1 1 1	Needs Expectations Total ETHICS Ethics Cheats Bad Fair Mrong Values Total Intercultural CONFLICT Problem(s) Conflict(s) Differences	1 1 25 3 3 2 2 2 1 13	Demanded Aggressive Revolution Struggles Yelled Outburst Grab Confrontation Total NEEDS Want#ed)(S) Need(ed)(S) Can't Should Expect Value Couldn't Worth Proper	1 1 1 1 1 1 1 1 81 30 16 16 13 4 3 3
Tempter Total EXPECTATIONS Should Want (ing) (Ed)	64 8 8	Fight (ing) Shouting (ed) Argue (s) Trouble Tough Swore	2 2 2 2 2	Ideal Total	81

Table 3: Conflict categories with frequency counts and ratios for the intra- and intercultural data.

Intracultural	Conflict		Intercultural Conflict		
Frequ	uencies	Ratios	•	uencies	Ratios
Freq Conflict Expectations Rules Power Volatile Change Understand Personality Resolved Weak Hard Delay Barriers	encies 64 25 6 21 7 23 36 12 18 6 3	23.30 9.10 2.18 7.65 2.55- 6.37 13.11 4.37 6.55 2.18 1.09 2.18	Conflict Needs Standards 1 Power Contentious Lose Patience Feelings Resolution Silly Bad Avoid Negotiating Issues	81 88 8 43 58 15 10 44 85 6 8 15 58	10.83 11.77 2.41 5.75 7.76 2.01 1.34 5.88 11.37 0.80 1.07 2.01 7.76
Ethics Blame	13 5	4.73 1.82	Fight	4	0.53

Frequency counts may capture something about the salience of various aspects of conflict for our informants, but they tell us nothing about content—whether informants were saying that a particular aspect of conflict (i.e., aggressiveness, shouting, negotiating) is typical or not, good or bad, intense or mild, etc. To answer these kinds of questions, we used factor analysis and multidimensional scaling to make comparisons across groups. This is the subject of the second part in the next issue of *CAM*.

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A review of WORDS2 appeared in CAM 8(1). WORDS2 was developed by Eric Johnson and is provided to students in Johnson's course on text analysis. The course is taught over the Internet. For more information, contact Johnson by e-mail: johnsone@dsuvax.dsu.edu, or visit his web site: http://www.dsu.edu/~johnsone/chum.html.

