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PROCEEDINGS OF THE WORKSHOP:

*Cultural Models of Nature and the Environment:
Self, Space, and Causality*

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5. Conjoining Cultural Models and Consensus Analysis: Two Examples and Some Nuts-n-Bolts Advice.

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Outline

- Overview
 - cultural model approach & cultural consensus analysis
 - reciprocal strengths and weaknesses → do both
- Cultural Models as Analytical Constructs
 - based on qualitative interviews
 - described in terms of propositions (simple lists or interrelated)
 - ‘composite’ model to accommodate individual differences
 - validating proposed model with additional data
- Credit Unions – A Tale of Two Studies
 - Pilot Study (Gatewood & Lowe 2006)
 - Follow-up Study (Gatewood & Lowe 2008)
- More about Questionnaire Items
 - re-polarizing items after the fact
 - why counter-balancing makes a difference
 - how to shorten a l-o-n-g questionnaire

Overview

Cultural Model Approach

STRENGTHS:

- Fine-grain focus on “what people know”
- Recognizes knowledge is integrated and generative
- Building composite models from diverse informants is something non-social scientists just don’t think of doing
- Produces insightful findings
- Has intuitive appeal to potential end-users of the information
- But ...
 - Credibility of the model? – replicability, validity, completeness, etc.
 - Degree of sharing? – expertise gradient or subcultural diversity, competing viewpoints or cognitive plurality, etc.
 - Generalizability of findings? – because usually based on convenience sampling

Cultural Consensus Analysis

STRENGTHS:

- Focus on “how knowledge is distributed in a population”
- Addresses the fact of intra-cultural diversity
- Explicit methodology (clear what has been done)
- Easily coupled with standard survey research; hence, data lend themselves to standard hypothesis testing, too
- But ...
 - Particulate view of knowledge isn’t plausible
 - How to decide on the questions?
 - Devil is in the details – e.g., must counter-balance questions if using rating data; how many questions needed to establish accurate respondent-profiles; etc.

Conjoining via Two-stage Research Design

- **PHASE 1: personal interviews → formulate Cultural Model**
 - Purposive sampling ... to get range of variation
 - Extract propositional content from interviews, then winnow and sort into coherent organization
- **PHASE 2: questionnaire-survey with items based on propositional content of Cultural Model → then Consensus Analysis**
 - Probability sampling ... necessary for generalizing from sample to a population
 - Univariate analyses of questionnaire items provides “validity check” on components of proposed model
 - Consensus analysis reveals degree to which model is shared and provides information on the distributional pattern

- Conjoining cultural models and consensus analysis this way, cognitive anthropology can contribute to a better understanding of the **social organization of knowledge** (a.k.a., socially distributed cognition).

Cultural Models as Analytical Constructs

Little Theories

- The cognitive perspective postulates that people have knowledge, which they use to do stuff.
- Our descriptions of what people know are also supposed to do something, i.e., explain a range of ethnographic facts in terms of (posited) underlying knowledge structures.
- In this sense, cultural models are little scientific theories.
- QUESTION: How do we know if a given cultural model is a “good” theory?

Discovery vs. Verification

- Discovery procedures ... (who knows where ideas come from?)
- Verification procedures are much clearer ...
A verified theory is our current best understanding ... meaning that:
 - It has withstood repeated efforts to falsify it, and
 - Its alternative theories have been eliminated.
 (“Validity checks” are a first step in the verification process.)

Awareness Gradient

- An individual’s awareness of his/her socially transmitted knowledge forms a gradient:

EXPLICIT, readily articulated knowledge	(What are the days of the week?) (Where can you buy a hammer?)
IMPLICIT, tacit knowledge	(What are your political values?) (How do you ride a bicycle?)
UNCONSCIOUS knowledge	(What are the phomenes in your language?)

- Validity checks for analytical construct X depend on the extent to which informants are aware that they know (have learned) X.
 - If EXPLICIT, then asking people if they know X makes sense (keeping in mind social norms may lead to denials)
 - If UNCONSCIOUS, then it makes no sense to ask people if they know X
 - If IMPLICIT ... well, I’ll get to that shortly

Implicit to Explicit ...

- Much of the knowledge individuals have learned lies beneath conscious awareness (...iceberg metaphor).
- Early efforts to “reveal” such implicit or unconscious knowledge were generally done intuitively by the ethnographer.

Example 1: Summary of Navaho Philosophy (Kluckhohn 1949)

1. The universe is orderly; all events are caused and interrelated.
 - a. Knowledge is power.
 - b. The quest is for harmony.
 - c. Harmony can be restored by orderly procedures.
 - d. One price of disorder, in human terms, is illness.
2. The universe tends to be personalized.
3. The universe is full of dangers.
4. Evil and good are complementary, and both are ever present.
5. Morality is conceived in traditionalistic and situational terms rather than in terms of abstract absolutes.
6. Human relations are premised upon familistic individualism.

Example 2: Basic Postulates of Cheyenne (Hoebel 1978 [revision of 1954])

1. The world (universe) is fundamentally a mechanical system with a limited energy quotient which progressively diminishes as it is expended.
2. The energy quotient of the world is rechargeable through compulsive mimetic acts of sympathetic ritual.
3. Human beings are subordinate to supernatural forces and spirit beings. These forces and beings have superior knowledge concerning the operation of the universe and are benevolently inclined toward mankind.
4. The social order is fragile and threatened by aggressive tendencies in Cheyenne character.
5. The authority of the tribal council is derived from the supernaturals and is supreme over all other elements in the society.
6. The killing of a Cheyenne by a fellow Cheyenne pollutes the tribal fetishes and also the murderer.
7. Sex interests generate jealousy and hostility; they must be held to a minimum.
8. Sex relations are necessary for procreation and regenerative ritual.
9. War is necessary to defend and advance the interests of the tribe.
10. War is necessary to permit individual self-expression and personality development of the male.
11. The virility of men, like the energy of the world, is limited.
12. Men are more important than women.
13. Children (excluding infants) have the same qualities as adults; they lack only in experience.
14. All land, and the tribal fetishes, are public property.
15. All other material goods are private property, but they should be generously shared with others.
16. The individual is personality is important.

Cultural Models

- **LIKE** Kluckhohn and Hoebel, contemporary research using the cultural model concept is concerned with **revealing “underlying” knowledge**.
- **UNLIKE** Kluckhohn and Hoebel, cultural models are grounded in **fine-grained analyses of the ways people talk** ... including metaphors and unsaid premises (Quinn, ed. 2005).
- Nonetheless, the final description of cultural models is often in the form of **lists of propositions**.

Example: American Model of Society (D’Andrade 2005)

1. There are different levels of American society based on wealth and social status.
2. In America people move up (and down) these levels.
3. Success means either moving up (getting ahead) or staying at the top levels.
4. Money and social status motivate people to try to succeed.
5. People can succeed if they have opportunities, work hard, and have talent.
6. In America, people have more opportunity than in other countries.
7. Although people in America have equal rights, they do not have equal opportunities.
8. People have more opportunity to succeed if they come from families with money, or have special connections, or if they have good luck.
9. People who have worked to reach high levels deserve their wealth and superior position.
10. Everyone wants to be treated as an equal because it is painful to be treated as inferior.
11. People feel more comfortable with others who are similar to them with respect to wealth and social status because they feel equal to each other.
12. Differences in drive, talent, and opportunity produce differences in wealth and position.
13. Differences in wealth result in inequality of opportunity because the rich and well placed can give special advantages to their children with respect to education, social skills, and connections.
14. No group should be given special opportunities or privileges.
15. Prejudice is morally wrong.
16. Prejudice prevents people from receiving equal opportunities they should have and withholds proper rewards for achievement.

BUT... Individuals Can and Do Differ

- Individuals’ understandings often differ in terms of:
 - degree of elaboration or completeness
 - degree of emotional investment or motivational force
 - familiarity with competing models for same topic (e.g., Democrat vs. Republican views on debt-reduction)

- Thus, analyst's "cultural model" is usually a COMPOSITE pieced together from several informants
- Furthermore, qualitative interviewing (by itself) cannot address:
 - degree to which the analyst's model is ethnographically valid
 - degree to which the analyst's model is shared
- Only subsequent systematic data collections can determine:
 - (1) ethnographic validity of components in the composite model
 - (2) degree of sharedness (and distributional pattern)

Credit Unions – A Tale of Two Studies

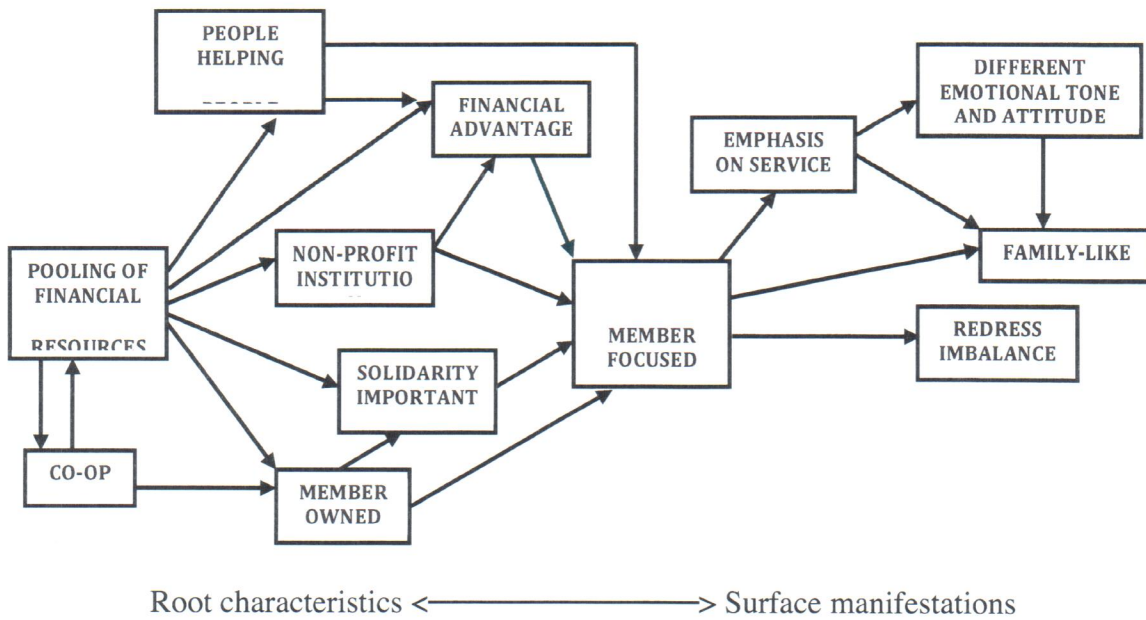
1. PILOT STUDY (Gatewood & Lowe 2006)

Pilot Study: Overview

- Purpose: pilot study to demonstrate that anthropological research can produce results relevant to mission of the Filene Institute
- Focus: meaning of "credit union" among employees of such institutions
- Sample: 30 employees (CEO to teller) in two New Jersey credit unions.
- Method: two phases – interviews, then survey

Cultural Model of Credit Unions

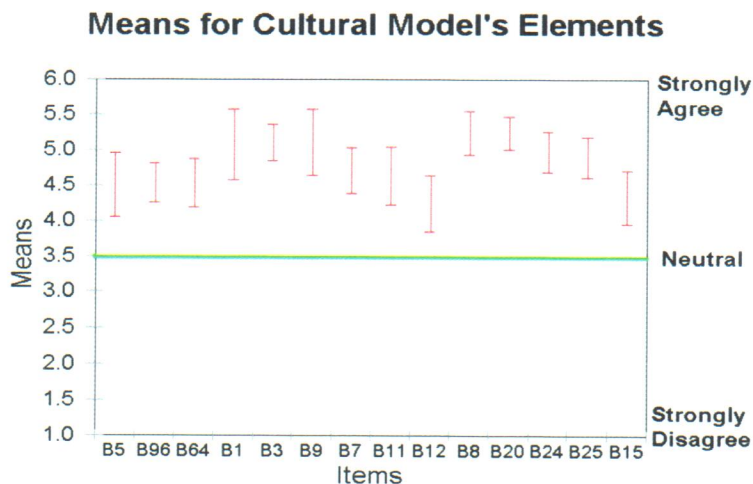
- During the open-ended interviews, the 30 employees made 1,000+ propositions concerning characteristics of credit unions.
- But ... no one could articulate a coherent "explanation" of what a credit union is and how it differs from a bank. Indeed, we were struck by the diversity of views expressed during the interviews.
- Reviewing our notes, we slowly realized that different things people told us could be pieced together into a logically coherent model.
- So, WE put together an analytical composite.
- To reiterate:
 - No one person could tell us the "whole story."
 - Still, the composite we assembled is firmly grounded in what different informants did tell us, and each element was corroborated by at least two informants.
- Schematically, our cultural model of credit unions is as follows ...



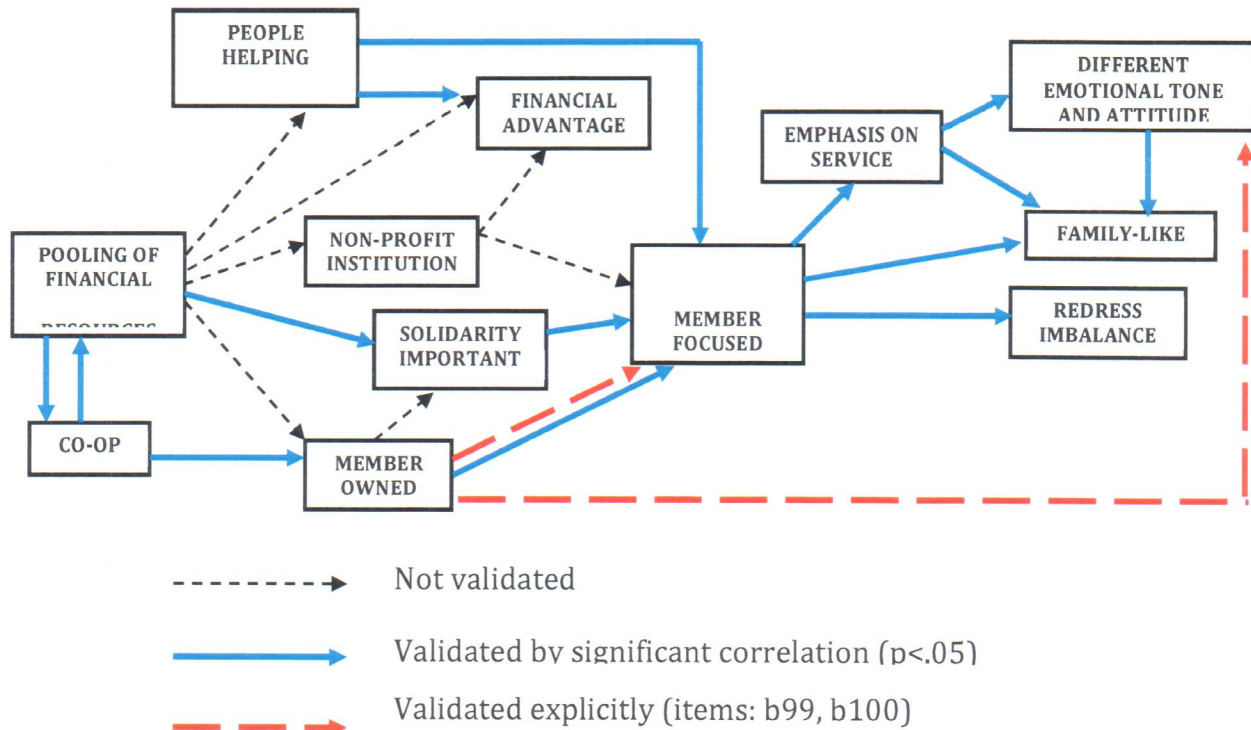
Ex Post Facto Validity Check

- Given that the model consists of propositions and chains of reasoning connecting them, employees can be asked directly whether they agree or disagree with these (now-articulated) statements.
- Validating elements of the model is a matter of examining the mean values of questionnaire items best corresponding to them.
- Validating linkages between elements can be done two ways:
 - Explicitly through awkwardly-worded items
e.g., “Because credit unions are member-owned collectives, they exist only to serve members.”
 - Implicitly through correlations

Elements – All Validated



Linkages – Mostly Validated



Conclusion concerning Validity of Model

- Survey findings validated all the propositional elements in our Pilot Study model and most of the linkages.
- YET ... Validation does not guarantee completeness ... we may have missed other, equally-valid components.
Nor do the univariate validations address the issue of “sharedness,” which is done through Consensus Analysis.

Consensus Analysis ... very puzzling results !

- **IF** the data are analyzed as ratings using the “informal method” of consensus analysis – i.e., Pearson r is the measure of similarity between respondents, and the correlation matrix (unadjusted for guessing) is the input to the minimum residual factor analysis – **then NO consensus:**
 - ratio of 1st to 2nd eigenvalues is only 1.278
 - mean 1st factor loading is only .343
 - 20% of the sample have negative 1st factor loadings).
- **IF** the ratings are dichotomized and then analyzed using the “formal method” of consensus analysis – i.e., proportion of exact matches is the measure of similarity between respondents, and the agreement matrix is corrected for guessing before being input to the minimum residual factor analysis – **then STRONG consensus:**
 - ratio of 1st to 2nd eigenvalues is 10.030

mean 1st factor loading is .804
 only 3% (one person) of sample has negative 1st factor loading.

PILOT STUDY (N = 30)					
14 “positively-phrased” items					
RATING DATA 1-to-6 scale			DICHOTOMIZED DATA agree / disagree		
Factor	Eigenvalue	Ratio	Factor	Eigenvalue	Ratio
1:	6.017	1.278	1:	21.206	10.030
2:	4.708	1.409	2:	2.114	1.535
3:	3.341		3:	1.377	
Mean 1st factor = .343 with 6 negative, or 20.0% of sample			Mean 1st factor = .804 with 1 negative, or 3.3% of sample		
NO consensus			STRONG consensus		

Summary of Pilot Study

- Whereas “cultural models” refer to (mostly) implicit knowledge shared among members of a human group, the models described by researchers are themselves explicit analytical constructions.
- A proposed model’s constituent propositions (and their logical implications) can and should be checked for ethnographic validity through subsequent systematic data collections.

KEY FINDINGS:

- (1) Pilot Study’s cultural model was validated, but
- (2) results of consensus analysis were puzzling:
 - Data analyzed as 1-to-6 ratings → NO consensus
 - Dichotomized data (agree/disagree) → STRONG consensus

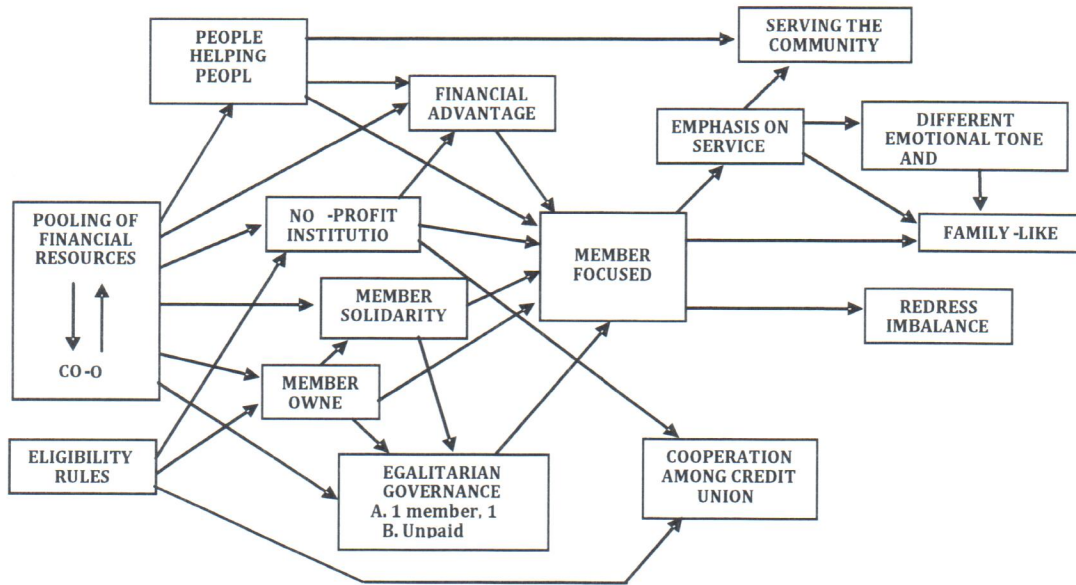
2. FOLLOW-UP STUDY (Gatewood & Lowe 2008)

Follow-up Study: Overview

- Purpose: build upon the Pilot Study, but produce more credible results by refining questionnaire and better sampling
- Focus: meaning of “credit union” among employees
- Sampling:
 - 10 credit unions (2 East Coast, 4 Midwest, 4 West Coast)
 - 93 personal interviews (CEOs to tellers)
 - 343 randomly-selected employees completed “Form A” questionnaire
 - 115 randomly-selected employees completed “Form B” questionnaire

- Method: two phases – interviews, then survey

Revised (expanded) Cultural Model



Root characteristics <-----> Surface manifestations

“New, Improved” Battery of Survey Items

- With the Cultural Model formulated IN ADVANCE, we increased the number of survey items “testing” the Model (50 rather than 14) AND used “paired-opposites” format for these questions, as illustrated in the following table:

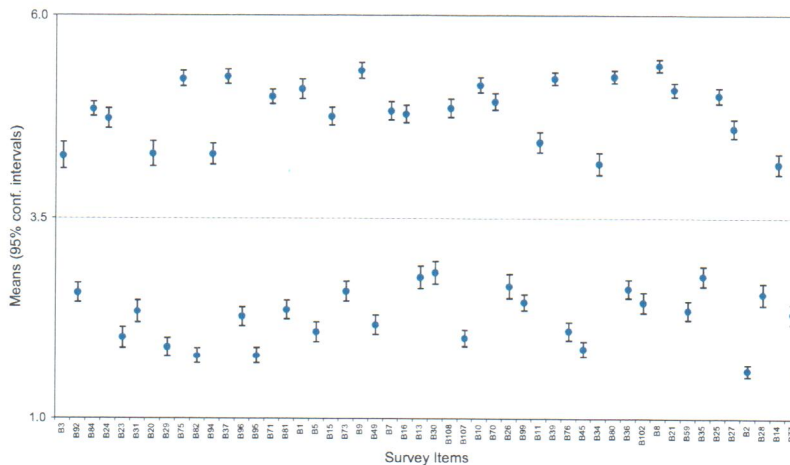
Cultural Model Items		← Disagree			Agree →			Mean
CO-OP								
3.	Basically, a credit union is a co-op.	12	48	28	44	123	60	4.26
92.	It's just wrong to think of a credit union as some sort of financial cooperative.	43	141	84	39	18	5	2.58
POOLING OF FINANCIAL RESOURCES								
84.	Fundamentally, a credit union is a pooling of the members' financial resources for the members' benefit.	0	6	13	66	188	55	4.83
24.	Whereas a bank can issue stock to raise capital, the money available to a credit union comes almost entirely from its members' depository accounts.	8	14	12	62	157	69	4.72
23.	Credit unions, like banks, can issue stock to raise capital.	133	103	34	23	13	5	2.02
31.	There is no pooling of resources in a credit union. The money a credit union loans to people comes from the institution's capital reserves, not from other members' deposits.	72	140	48	19	22	7	2.35

ELIGIBILITY CRITERIA								
20.	Unlike banks, all credit unions have restrictions on who is eligible to become a member.	20	35	26	59	142	55	4.28
29.	Anybody can become a member of any credit union they want. There are no restrictions on membership.	147	135	33	10	14	4	1.90

- And, to see whether having a “neutral” response made a difference, we used TWO FORMS of the questionnaire:
 - **Form A** (N=343) ... 1-to-6 response scale (strongly disagree to strongly agree)
 - 1-to-6 responses can be dichotomized to simply “disagree/agree” → can compare results of Interval vs. Nominal methods of Consensus Analysis
 - **Form B** (N=115) ... 1-to-5 response scale (strongly disagree to strongly agree)

Elements – All Validated

Survey's Measures of Model's Elements



Consensus Analyses: Pilot vs. Follow-up

- Analysis of the Follow-up Study’s improved battery of questions shows an even stronger cultural consensus among employees than did analysis of the dichotomized data from the Pilot Study:
 - ratio of 1st to 2nd eigenvalue is 15.027
 - mean 1st factor loading is .782
 - only 1.2% of sample (4 people) had negative 1st factor loadings

PILOT STUDY (N = 30) 14 “positive” items		FOLLOW-UP STUDY (N = 343) 50 “counter-balanced” items			
RATING DATA 1-to-6 scale		DICHOTOMIZED DATA agree / disagree		RATING DATA 1-to-6 scale	
Fac. Eigenvalue Ratio		Fac. Eigenvalue Ratio		Fac. Eigenvalue Ratio	
1: 6.017	1.278	1: 21.206	10.030	1: 222.3	15.027
2: 4.708	1.409	2: 2.114	1.535	2: 14.8	2.157
3: 3.341		3: 1.377		3: 6.9	
Mean 1st factor = .343 with 6 negative, or 20.0% of sample		Mean 1st factor = .804 with 1 negative, or 3.3% of sample		Mean 1st factor = .782 with 4 negative, or 1.2% of sample	
NO consensus		STRONG consensus		STRONG consensus	

Consensus Analyses: “Informal” vs “Formal” Method of Consensus Analysis

- Furthermore, when we dichotomize the Follow-up Study’s ratings and analyze those using the “formal method,” the indicators of cultural consensus are very comparable as those obtained when using the “informal method” (see table below).
- Counter-balancing the 1-to-6 rating questions, done via paired-opposite phrasings, resolved the discrepancy observed in the Pilot Study (in which the two methods of assessing respondent-by-respondent similarities produced opposite conclusions).

FOLLOW-UP STUDY – Form A (N=343) 50 “counter-balanced” items					
RATING DATA 1-to-6 scale			DICHOTOMIZED DATA agree / disagree		
Factor	Eigenvalue	Ratio	Factor	Eigenvalue	Ratio
1:	222.3	15.027	1:	215.2	16.797
2:	14.8	2.157	2:	12.8	1.723
3:	6.9		3:	7.4	
Mean 1st factor = .782 with 4 negative, or 1.2% of sample			Mean 1st factor = .761 with 7 negative, or 2.0% of sample		
STRONG consensus			STRONG consensus		

Consensus Analysis: Form A vs Form B

- Finally, whether the response scale was 1-to-5 or 1-to-6 made virtually no difference with respect to the indicators of cultural consensus, i.e., the ratio of eigenvalues, mean 1st factor loadings, and percentage with negative 1st factor loadings are very similar between the sample of 343 respondents given Form A (1-to-6 scale) and the sample of 115 respondents given Form B (1-to-5 scale):

FORM A (N=343) 50 “counter-balanced” items			FORM B (N=115) 50 “counter-balanced” items		
RATING DATA 1-to-6 response scale			RATING DATA 1-to-5 response scale		
Factor	Eigenvalue	Ratio	Factor	Eigenvalue	Ratio
1:	222.3	15.027	1:	74.373	16.242
2:	14.8	2.157	2:	4.579	1.961
3:	6.9		3:	2.335	
Mean 1st factor = .782 with 4 negative, or 1.2% of sample			Mean 1st factor = .785 with 0 negative, or 0.0% of sample		
STRONG consensus			STRONG consensus		

Lessons from the Credit Union Studies

1. formulate Cultural Model, **then** design questionnaire
2. for Consensus Analyses, **more questions** are better than fewer
3. when items involve ratings, must **counter-balance** the set of items (“paired-opposites” format ensures this)
... because IF items are counter-balanced, THEN both methods of Consensus Analysis produce very similar results.
4. **two-stage research design** is necessary to:
 - (a) validate a proposed Cultural Model, and
 - (b) assess degree to which the Model is shared

In short, CONJOINING the cultural model and consensus approaches is the way to go.

More about Questionnaire Items

Credit Union studies showed importance of counter-balancing questionnaire items. This leads to three related nuts-n-bolts points:

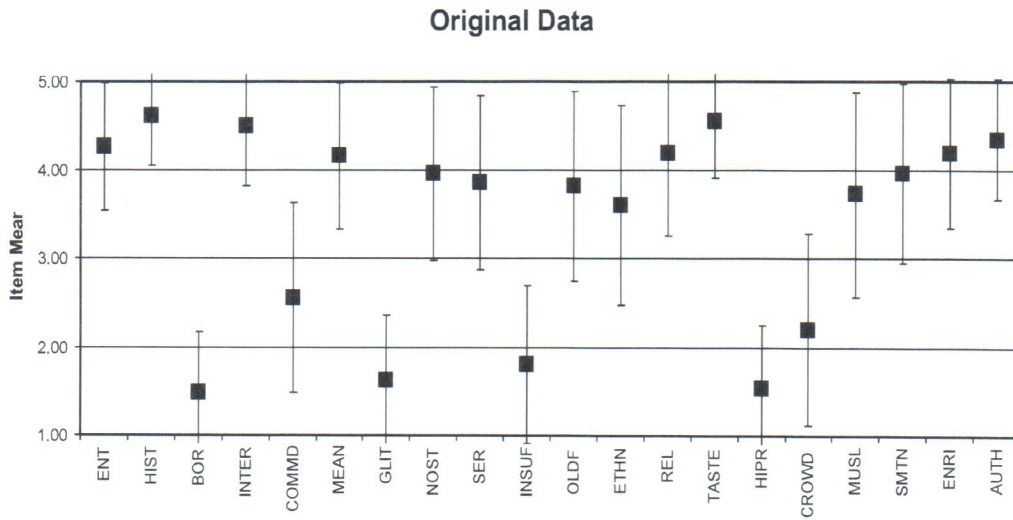
1. “re-polarizing” items (after the fact) as alternative to formulating paired-opposite questions
2. why counter-balancing items makes a difference
3. how to shorten a very l-o-n-g questionnaire

Point #1: The Christmas Program in Bethlehem, PA (1-to-5 ratings for 20 adjectives)
“How well does each of the following words describe Bethlehem’s Christmas Program?”

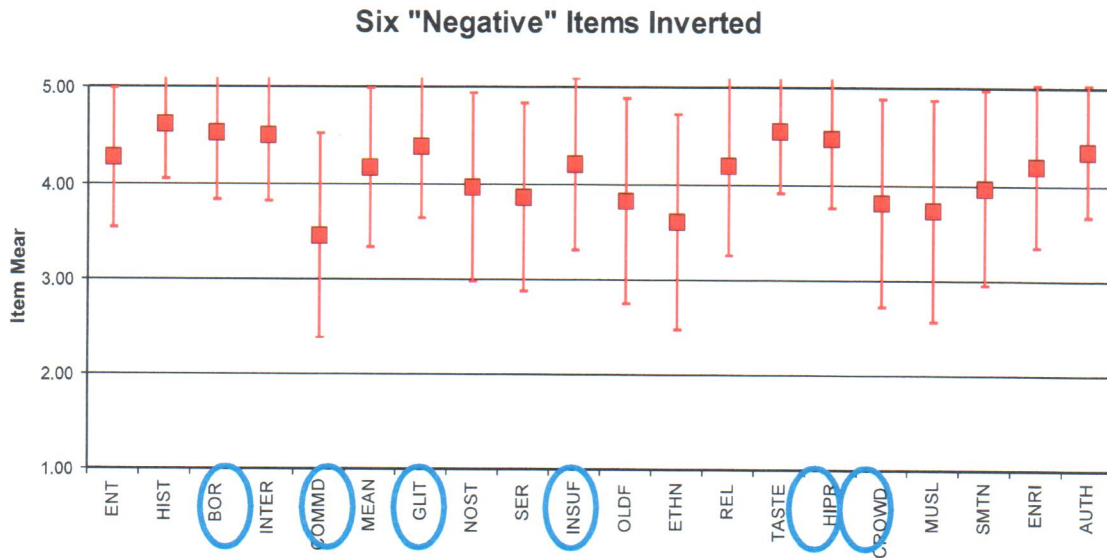
(where RED items with asterisks = “negative” connotations)

Entertaining	Old fashioned
Historic	Ethnic
*Boring	Religious
Interesting	Tasteful
*Commercialized	*High pressured
Meaningful	*Crowded
*Glitzy	Musical
Nostalgic	Small townish
Serene	Enriching
*Insufficient	Authentic

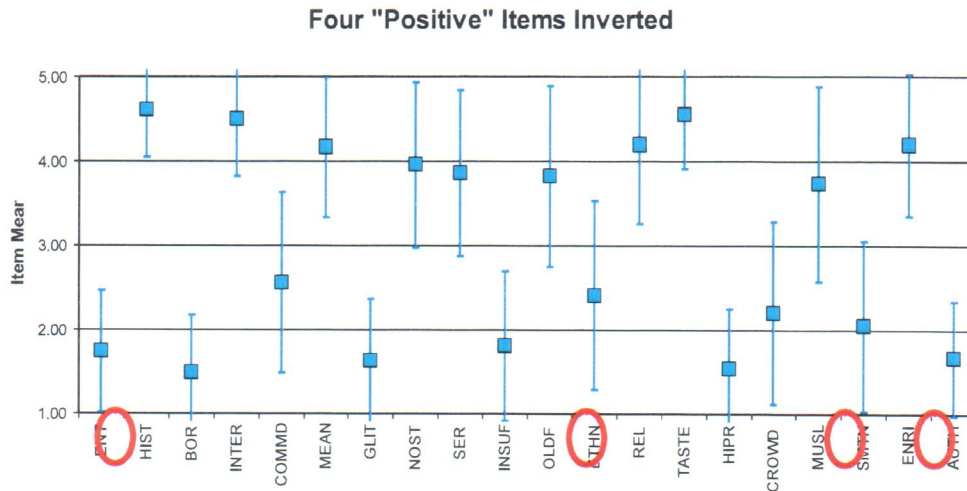
Original 'Christmas Program' data ... (item means and standard deviations)



Same data with "negative" items inverted



Evenly counter-balanced data (4 positive items inverted)



Different consensus findings !

ORIGINAL DATA (N = 112) 14 "positive" items 6 "negative" items	NEGATIVES INVERTED (N = 112) 20 "positive" items 0 "negative" items	COUNTER- BALANCED (N = 112) 10 "positive" items 10 "negative" items
Fac. Eigenvalue Ratio	Fac. Eigenvalue Ratio	Fac. Eigenvalue Ratio
1: 77.184 16.230	1: 24.284 1.860	1: 79.805 18.508
2: 4.756 1.262	2: 13.055 1.237	2: 4.312 1.063
3: 3.767	3: 10.554	3: 4.058
Mean 1st factor = .813 with 1 negative, or 0.9% of sample	Mean 1st factor = .403 with 7 negative, or 6.3% of sample	Mean 1st factor = .824 with 1 negative, or 0.9% of sample

LESSONS:

Point #1: Counter-balance

If one's data collection strategy is to use Likert-format questions (e.g., 1-to-6, disagree-to-agree response scales) and then analyze these using the "informal method" of cultural consensus analysis, then it is imperative that the items be counter-balanced, with roughly half the items having mean values above the midpoint of the response-scale and half below the midpoint. This can be done when crafting the data collection instrument (by

asking each question twice with opposite phrasings) or ex post facto (by randomly re-polarizing items). But, failure to counter-balance the battery of items will, all by itself, result in underestimating the degree of cultural consensus.

Point #2: WHY counter-balancing makes a difference

The informal method of consensus analysis uses Pearson r as the measure of similarity between respondents' "response profiles" – their pattern of answers across a battery of similarly-formatted questions. Thus, respondents with similar patterns of up's-and-down's will have higher correlations than respondents with dissimilar patterns. But, since the Pearson r statistic assesses the degree of co-variation (see formulas below), there must be some variation in each respondent's response profile – correlation between two constants is simply undefined (would result in division by zero).

IF responses are expressed as z-scores:
$$z = (X - m) / s$$

- m = respondent's mean across items
- s = respondent's st. dev. across items

THEN the Pearson correlation coefficient is:
$$r = \sum (z_i z_j) / N$$

(between respondents i and j)

COUNTER-BALANCING ITEMS ...

1. **increases within-respondent variances** ... more "undulations" in each person's response profile
 - hence, counter-balancing makes higher correlations among respondents mathematically possible (although not necessary)
2. **induces respondents to use more of the response-scale**
→ finer gradations of responses, more "interval-like" data

Point #3: Shortening a L-O-N-G questionnaire, but ensuring it will be counter-balanced

Example drawn from Gatewood & Cameron (2009) ... residents' ("Belongers") understandings of tourism and its impacts in the Turks and Caicos Islands

- After developing our composite Cultural Model, we formulated "paired-opposite" questions for each component idea.
- BUT ... we had way too many questions (162 of them).
- So, using data from the Follow-up Credit Union study, I split those 50 cultural model questions into two sets of 25 items each:
 - The first "positive" question was put in Set A and first "negative" in Set B, then reversed the assignments for the second pair of questions, and so on, such that
 - Set A had 13 "positive" and 12 "negative" items
 - Set B had 12 "positive" and 13 "negative" items
- Consensus analyses of these two subsets of items were virtually identical

- LESSON: don't need positively- and negatively-phrased questions for every single idea
- Thus, our Turks and Caicos study ended up using the following procedure to reduce the number of items in the survey form:
 - Cate and I went through the list of paired-questions (independently of one another) and decided whether we had a prediction about how a "knowledgeable" Belonger would answer each question
 - IF we couldn't make a prediction, then BOTH phrasings about that topic were included in the survey
 - IF either of us had a prediction about responses to a topic, then we included ONLY ONE of the paired phrasings in the survey
 - And, when choosing which phrasing to include for these "singleton" items, we made sure we had an equal number of negatively- and positively-phrased questions
- RESULT: 162 paired-opposite questions were shortened to 119 Cultural Model items

Conclusion

The cultural model and cultural consensus approaches have almost reciprocal strengths and weaknesses. Fortunately, there is a rather straightforward research strategy whereby the two approaches can be conjoined. The strategy involves two phases of data collections: first qualitative, then quantitative. By conjoining cultural models and consensus analysis this way, cognitive anthropology can contribute to a better understanding of the social organization of knowledge (a.k.a., socially distributed cognition).

With respect to the process of developing cultural models, it is important to recognize that individuals' understandings of a cultural domain both can and do differ. People cannot share understandings, metaphors such as "shared culture" or "culture sharing" notwithstanding. (When we say "culture is shared," what we really mean is that individuals are similar to some degree.) For some domains – e.g., the days of the week – the degree of similarity among normally functioning school age children through senior citizens is very, very high. But for many other domains, the degree of sharing is highly variable. And, especially when studying more complicated cultural domains – e.g., credit unions, effects of tourism, etc. – the analyst's "cultural model" is usually a composite pieced together from several informants. In these circumstances, individual differences with respect to cultural models can take several forms, such as degree of elaboration or completeness, degree of emotional investment or motivational force, and familiarity with competing models for same topic. Lastly, qualitative interviewing (by itself) cannot address the degree to which the analyst's model is ethnographically valid or the degree to which the analyst's model is shared. Only subsequent systematic data collections can determine both the ethnographic validity of components in the composite model and the degree to which the model is shared (its distributional pattern).

With respect to cultural consensus analysis, there are a couple of methodological points to bear in mind. Firstly, once a cultural model has been distilled to a list of constituent propositions, it is very easy to construct a battery of standardized questions to test the ethnographic validity of

those propositions. Typically, Likert-format rating questions are used, i.e., respondents are asked to rate how much they agree or disagree with each statement using a response-scale with a fixed number of increments (e.g., 1=“strongly disagree” to 6=“strongly agree”). And, importantly, the degree of “culture sharing” with respect to these questions can be determined through consensus analysis. Secondly, whenever using the “informal method” of consensus analysis on rating data (e.g., in Anthropac’s consensus routine, “Type of Analysis: Interval”), one must make sure that the battery of items is counter-balanced, with roughly half the items having mean values above the midpoint of the response scale and half below that midpoint. This can be done in advance of data collection by asking pairs of oppositely-phrased questions for every idea or, ex post facto, by re-polarizing a subset of questionnaire items. But, the informal method of consensus analysis, if don on non-counter-balanced rating data, will give false and misleading results, i.e., it will underestimate the true degree of “culture sharing.”

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