Developing, validating, and delivering a cultural model of credit unions

A tale of two applied studies

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Cultural Analysis

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Preview

• Some Generalities
  • “Cultural models” … dimensions of variation
  • Cultural model approach & cultural consensus analysis
  • Reciprocal strengths and weaknesses → Do both

• Credit Unions – A Tale of Two Studies
  • Pilot study (Gatewood & Lowe, 2006)
  • Follow-up study (Gatewood & Lowe, 2008)

• Key Findings from Clients’ Viewpoint
  • Employees fail essay exam, but ace multiple-choice test
  • Need to coach employees about how to explain what a credit union is
  • Some interesting relations between CCA 1st factor loadings and other variables

• Summary
SOME GENERALITIES
“Cultural Model” … a definition

D’Andrade’s (1995: 180) definition works for us:

“**Model** – a schema or interrelated set of cognitive schemas used to represent something, to reason with or to calculate from by mentally manipulating the parts of the model to solve some problem. A single schema may serve as a model… , or a number of interrelated schemas may be used to construct the model. … Typically, cultural models are not formulated as explicit declarative knowledge (as in a *theory*), but are implicit knowledge, based on schemas embedded in words but not formulated as explicit propositions.”
Dimensions of Variation among CM’s

**COGNITIVE PROPERTIES**
- Temporal scale
  - Time to become activated
  - Duration of activation
- Inertial characteristics
  - Time to learn / construct
  - Time to unlearn / modify
- Functional integrity
  - Number of component parts
  - Degree of integration among the components (E.g., all activated at once; all activated but separately; or some components can be activated without activating others)
- Generative capacity
- Motivational force
- Degree of implicitness / ease of communication

**SOCIAL-DISTRIBUTIONAL PROPERTIES**
- Degree of elaboration across individuals
  - E.g., components learned separately or as package; core’ components widely shared but variable with respect to ‘peripheral’ components; or just idiosyncratic variation
- Patterns of “sharing” across individuals
  - E.g., uniformly and widely shared; subcultural differences; expertise gradients; perspectival gradients; or free variation
- Degree to which X is a topic of discussion (hence, more subject to standardization and/or polarization)
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 or purposive 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 reliable respondent-profiles; etc.
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).

• And, such research can also produce **useful** (a.k.a., credible) findings for clients.
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

• **Specific Objective**: find out what “credit union” means to employees of such institutions … (word-of-mouth is principal way credit unions can recruit new members)

• **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 was firmly grounded in what
different informants did tell us, and each element was corroborated
by at least two informants.

• Schematically, our 2006 cultural model of credit unions
  was as follows …
Root characteristics ← Surface manifestations
Ex Post Facto Validity Check

- Given 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
    “Because credit unions are member-owned collectives, they exist only to serve members.”
  - Implicitly through correlations
Elements – All Validated

Means for Cultural Model’s Elements

Strongly Agree
Neutral
Strongly Disagree

Means

Items

B5 B9 B06 B64 B1 B3 B9 B7 B11 B12 B8 B20 B24 B25 B15
Linkages – Mostly Validated

- Not validated
- Validated by significant correlation (p<.05)
- Validated explicitly (items: b99, b100)
Conclusion concerning Validity

Survey findings validated all the propositional elements in our Pilot Study model and most of the linkages.

• BUT …

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 … puzzling results

<table>
<thead>
<tr>
<th>RATING DATA (1-to-6 scale)</th>
<th>DICHOTOMIZED DATA (agree / disagree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>Eigenvalue</td>
</tr>
<tr>
<td>1:</td>
<td>6.017</td>
</tr>
<tr>
<td>2:</td>
<td>4.708</td>
</tr>
<tr>
<td>3:</td>
<td>3.341</td>
</tr>
</tbody>
</table>

Mean 1st factor = 0.343 with 6 negative, or 20.0% of sample

NO consensus

Mean 1st factor = 0.804 with 1 negative, or 3.3% of sample

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

• **Specific Objective:** 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 and Improved Battery of 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

  < see HANDOUT >

• 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
    • 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
Elements – All Validated

Survey's Measures of Model's Elements

Means (95% conf. intervals)
Consensus Analyses: Pilot vs. Follow-up

<table>
<thead>
<tr>
<th>PILOT STUDY</th>
<th>FOLLOW-UP STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N = 30)</td>
<td>(N = 343)</td>
</tr>
<tr>
<td>14 “positive” items</td>
<td>50 “counter-balanced” items</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rating Data</th>
<th>Dichotomized Data</th>
<th>Rating Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-to-6 scale</td>
<td>agree / disagree</td>
<td>1-to-6 scale</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fac.</th>
<th>Eigenvalue</th>
<th>Ratio</th>
<th>Fac.</th>
<th>Eigenvalue</th>
<th>Ratio</th>
<th>Fac.</th>
<th>Eigenvalue</th>
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</tbody>
</table>

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: Two Methods

### FOLLOW-UP STUDY – Form A \( (N=343) \)

50 “counter-balanced” items

### RATING DATA

<table>
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<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>2:</td>
<td>14.8</td>
<td>2.157</td>
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<tr>
<td>3:</td>
<td>6.9</td>
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</tr>
</tbody>
</table>

Mean 1st factor = 0.782 with 4 negative, or 1.2% of sample

### DICHOTOMIZED DATA

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<th>Ratio</th>
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<td>3:</td>
<td>7.4</td>
<td></td>
</tr>
</tbody>
</table>

Mean 1st factor = 0.761 with 7 negative, or 2.0% of sample

**STRONG consensus**
## Consensus Analysis: Form A vs. Form B

<table>
<thead>
<tr>
<th>FORM A (N=343)</th>
<th>FORM B (N=115)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 “counter-balanced” items</td>
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</tbody>
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<thead>
<tr>
<th>1-to-6 response scale</th>
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Mean 1st factor = 0.782 with 4 negative, or 1.2% of sample
Mean 1st factor = 0.785 with 0 negative, or 0.0% of sample

STRONG consensus
LESSONS from the Two 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)
   
   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

... CONJOINING the cultural model and consensus approaches is the way to go
KEY FINDINGS … FROM CLIENT’S VIEWPOINT
The Big Picture

• The PROBLEM:
  • Credit unions explicitly position themselves as a different sort of financial institution – one with “members” not customers
  • Positioning is achieved primarily through face-to-face interaction
  • Employee-member interaction is critical
  => Employees need to have a coherent understanding of what a credit union is and is not

• Ethnographic reality:
  • Employees have such an understanding but it is implicit not explicit
  • Most employees could pass a multiple choice test on CU’s but most would fail an essay test
Key Finding #1

- By any imaginable metric, employees had a very high consensus with respect to the cultural model.
- Pronounced expertise gradient.
Key Finding #2

Correlations with cultural model competence

- Commitment: $R = 0.568^{***}$
- Competitive advantage of credit unions: $R = 0.484^{***}$
- How much they want to know about credit unions: $R = 0.438^{***}$
- Job satisfaction
  - Personal satisfaction: $R = 0.386^{***}$
  - Job has gotten worse: $R = -0.320^{***}$
  - Just as soon work somewhere else: $R = -0.441^{**}$

(*** = $p < .001$)

- It seems competence impacts positively on
  - Commitment to the idea of a credit union
  - The perceived competitive advantage of credit unions
  - Job satisfaction
Key Finding  #3

- NOT a typical regression relation:  \( y_i = a x_i + b + e_i \)
- Knowledge acts a constraint on employee retention.
Key Finding #4

- Employee consensus score increases with hierarchical position.
  - People at the top have a better idea what a credit union is – what you want in an institution.

=> If you want to get ahead, you might want to “drink the kool-aid.”
Key Finding  #5

- Effect of education on cultural competence was significant but unexpected.

- Gap between how much employees think they know and their actual competence score was markedly negative among employees with the highest education.
“Cultural Models” come in many sizes and flavors. When the focus is a complex CM, it’s easy and wise to conjoin cultural model and consensus analysis approaches. Just plan ahead, and use a two-phase research design.

This sort of multi-method research, combining qualitative and quantitative evidence, produces credible findings (as well as interesting ones) from your client’s viewpoint.
THANK YOU!