

Using Mixed-Methods Evaluation Methods Taking Into Account Gender/Class Realities: Using QCA and NVIVO

Wendy Olsen

Funded by **British Academy:**
Innovation in Global Labour
Research Using Deep Linkage and
Mixed Methods

Applications to:

- Theorising Bangladesh Indebtedness
 - Mediated by involvement in an NGO
 - All NGOs are different; and
- Indian Women's Work
 - Mediated by involvement in
either the self-help groups, an MFI,
Or an NGO, or the Employment
Guarantee Scheme

Steps for a Mixed-Methods Evaluation Approach

- Step 1: a complex theory of the ontic realities, ie the types of things
- Step 2: fieldwork
- Step 3: analysing early, & linking results
- Step 4: keyness, discourses
- Step 5: perhaps QCA analysis
- Step 6: transparency: database
- Step 7: draw conclusions

Key Sampling Themes

- **Representativeness** at some level
- Idea of the **replication of entities** across a geographic space
- **Generalisation** to known sub-populations and concrete spaces

Step 1: a complex theory of the ontic realities, ie the types of things

- The ontic reality is treated by statisticians as Structured
 - Outcome = result of structures, events.

Logic is

- Y = results arise from S, I, E, C, random error

I = institutions, local entities

C = context

A non-statistical approach.

The background features a grid of black lines forming various sized rectangles. Some rectangles are filled with solid colors: a light yellow rectangle in the upper center, a light green rectangle on the right side, a light blue rectangle at the bottom, and a light purple rectangle on the left side. The text is centered within the yellow rectangle.

Discussion of Key Sampling Themes

ADVICE

- You may **triangulate** a national dataset onto your local data
 - **Match questions on demographics**, take a random sample not non-random!
 - Randomness at some, not all levels is, overall, non-random
 - But generalisation can be made at the level-to-which randomness was applied, e.g. by geographic transect walks.
 - E.g. a village. Or all the Slums of Dhaka if the Slums were stage 1 and
 - The choice of households was stage 2
 - And the choice of individuals (KISH) was stage 3
 - So be very professional about selection of cases.
 - Multi-stage quota sampling vs. Multi-stage RANDOM sampling: The difference is in the degree of REPLACEMENT of non-response cases.

ADVICE

- You may **triangulate** a national dataset onto your local data
 - **Match questions on demographics**, take a random sample not non-random!
 - Randomness at some, not all levels is, overall, non-random
 - But generalisation can be made at the level-to-which randomness was applied, e.g. by geographic transect walks.
 - E.g. a village. Or all the slums of Dhaka if the slums were stage 1 and
 - The choice of households was stage 2
 - And the choice of individuals (KISHI) was stage 3
 - So be very professional about it
 - Multi-stage quota sampling vs. Multi-stage RANDOM sampling: The difference is in the degree of REPLACEMENT and non-response cases.

Never sample
on the outcome
variable.

For example on income levels, if you want to explain the change in income over time.

NVIVO Keyness Analysis of Discourses in Large Dataset (With Example of Matrix Results from South India)

Wendy Olsen 2016

Gender Norms Project

Acknowledging funding of ESRC DFID
Pov. Allev. Fund and British Academy

Next Steps:

- Step 2: fieldwork
- Step 3: analysing early, & linking results
- Step 4: keyness

How to conduct a Keyness Analysis for a Social Science Research Project.

1. Pool all the transcripts discourses only
2. Find out the keyness of words
3. Code up the concordances
4. Group the words into discourses
5. Interpret selected
6. Treat each one of those very carefully: **the** dominant discourse **must be discerned**, then the marginalised, deviant and innovative (intertextual) **ones**.
7. Trace key arguments through these. (Mixed Methods)

How the Keyness Analysis is Done

1. **Keyness of words**
2. **Discourses too**
3. **Interpretations:**
dominant discourse;
Marginalised &
intertextual ones.
4. **Trace key arguments
through these. (Mixed
Methods)**

Key References:

- **Touri, M., and N. Koteyko** (2014) "Using Corpus Linguistic Software", *International Journal of Social Research Methodology*
- **Fairclough, Norman** various, books on *Discourse and Power*.

Part One: The Keyness of Words

(Touri and Kotevko 2014)

- **Keyness is the relative prevalence of words in one corpus of material over another.**
- **Specifically, count S words in corpus, vs. N words in the British National Corpus of English Language.**
- **Use the formula provided here.**

Formula for Keyness

- *Keyness = odds ratio*
- The odds of a word appearing in the fieldwork based corpus vs. the odds of it appearing in the national corpus

- $$K = \frac{\frac{s_i}{S - s_i}}{\frac{n_i}{N - n_i}}$$
 For each word i

Counting words using NVIVO then
Matching words using STATA or SPSS
Report output as a word list, RANKED.

Word Count Query in NVIVO

IndiaSHGsBanksAnonStudyV9 (NVivo 10) (NVivo 11).nvp - NVivo Pro

FILE HOME CREATE DATA ANALYZE QUERY EXPLORE LAYOUT VIEW

Document External Memo Audio Video Framework Matrix Sources

Node Case Relationship Nodes

Create As Node Create As Cases Items

Folder Search Folder Set Collections

Source Classification Case Classification Classify Cases from Dataset Classifications

Attribute Relationship Type

Queries

Look for Search In Queries Find Now Clear Advanced Find

Queries

Name

- count all words 5 letters or more, stemmed
- count all words 5 letters or more, stemmed (2)
- word cloud query
- word freq query

Word Frequency Criteria

Search in All Sources Selected Items... Selected Folders...

Display words ☐ 0 most frequent ☒ All

With minimum length 5

Grouping

- Exact matches (e.g. "talk")
- With stemmed words (e.g. "talking")
- With synonyms (e.g. "speak")
- With specializations (e.g. "whisper")
- With generalizations (e.g. "commun")

Word	Length	Count	Weighted Percentage (%)
group	5	209	0.46
loans	5	195	0.43
credit	6	185	0.41
groups	6	179	0.39
services	8	177	0.39
financial	9	169	0.37
company	7	159	0.35
members	7	149	0.33
women	5	151	0.33
development	11	146	0.32
basix	5	138	0.30
crore	5	121	0.27

Sources

Nodes

Classifications

Collections

Queries

Reports

Maps

Folders

SKS 5528 Items

Summary Word Cloud Tree Map Cluster Analysis

Excel Spreadsheet – Highest Keyness

Delemmatised		(mention)	of mentions		BNC	BNC % of BNC	Ratio
Word	Length	Count	Percent		Prevalence		Odds
brickfields		11	2	0%	2	0%	4738.06
laws'		5	2	0%	3	0%	3158.71
purdah'		7	1	0%	2	0%	2369.03
coops		5	2	0%	11	0%	861.47
passbook		8	1	0%	6	0%	789.68
betel		5	3	0%	23	0%	618.01
mindset		7	1	0%	11	0%	430.73
parishad		8	2	0%	25	0%	379.04
stipends		8	2	0%	38	0%	249.37
negatively		10	2	0%	52	0%	182.23
sons'		5	1	0%	28	0%	169.22
educate		7	12	1%	365	0%	155.77
workloads		9	1	0%	43	0%	110.19
rears		5	1	0%	45	0%	105.29
chores		6	6	1%	275	0%	103.38
robbers		7	5	0%	244	0%	97.09
tailoring		9	3	0%	147	0%	96.70
dhaka		5	1	0%	55	0%	86.15

Illustration of Keynes by Odds Ratio.

We created a spreadsheet to

APPENDIX 1: extra tables to illustrate matt

Table a1: Entire list of 233 high keyness m

Word	Count in SSI	Count in Baby BNC
10000	10	6
15000	2	1
20000	2	1
200ft	2	5
30000	5	2
350ft	1	1
40000	2	1
50000	5	2
500ft	1	2
A acres	174	35
adjoining	3	19
agreement	67	232
A agriculture	151	121
alias ?	15	3
allah	3	1
anymore	20	10
approx	23	1
w artisan	2	5

A crusher	
A crushing	A ha
A cultivation	h hi
F daughter	h
departure	F h
Wa depth water	F h
h devotee	w F h
dignity	
disagreement*	
disrespect*	
doubts *	
F dowry	
A draught	
A drought	Wa A
F eldest	
eligible	
entrusted	
erstwhile	
expenditure	
explain	
explicit	
extras	
F family	w

In this example from South India, 39 interviews with couples.

- 39 Interviews
- 47,000 Words
- We reduced these to 233 key words.
Extremely concise summary.
- Then as an expert I examined these to group them into discourse topics.
- Next I study these discourse topics to identify discursive patterns.

Interim Product Conforms to Miles & Huberman's Advised "one-page summary"

APPENDIX 1: extra tables to illustrate material

Table a1: Entire list of 233 high keyness material

Word	Count in SSI	Count in Baby BNC
10000	10	6
15000	2	1
20000	2	1
2000	2	5
30000	5	2
3500	1	1
40000	2	1
50000	5	2
5000	1	2
A acres	174	35
adjoining	3	19
agreement	67	232
A agriculture	161	121
alias	15	3
allah	3	1
anymore	20	10
approx	23	1
W artisan	2	5
attend	142	324
auspicious	1	5
bangalore	39	6
bangles	1	1
A barren	3	8
bashier	1	1
beetroot	2	2
behavior	2	2
bengal	4	5
F boyhood	1	6
R bribe	7	16
A bullock	24	6
A calves	8	16
camphor	1	2
campus	1	4
canals	10	65
A cattle	63	116
cauliflower	1	6
causal	31	56
cents	11	5
R chits	2	1
clitbank	1	3
colony	42	156

A crusher	172
A crushing	1
A cultivation	1
F daughter	2
departure	64
depth	3
devotee	3
W dignity	7
disagreement	35
disrespect	2
doubts	9
F dowry	36
A draught	11
A drought	12
F eldest	2
eligible	1
entrusted	5
erstwhile	1
expenditure	35
explain	1
explicit	9
extras	18
F family	143
famine	2
A fertilizers	3
festival	4
fetch	422
W A fieldwork	52
bangles	1
A firewood	23
fluency	3
fluently	18
fodder	1
folder	2
F forefathers	2
W A ganga	25
gastric	2
A goats	28
grams	167
granary	1
F grandchild	1
C grandchildren	6
C granddaughter	1
F grandson	280
A grassland	1
gratitude	10
grazing	2
groove	19

harvest	172
hindus	1
homesick	2
household	64
housewife	3
housework	3
illiterate	7
income	35
indecisive	2
intermediate	9
irregular	36
irrespective	11
W A irrigation	12
josef	2
jovial	1
kerosene	5
kilos	1
kinds	35
kolar	1
krishna	9
kumar	18
labour	143
lagging	2
T landlady	3
T landless	4
T landlord	422
T A lands	52
W A leakage	1
leisure	23
liquor	3
loans	18
loopholes	1
loran	2
mahesh	2
mango	25
mankind	2
A manure	28
members	167
merriment	1
middlemen	1
milking	6
R money	280
mulberry	1
muslim	10
mutton	2
mutual	19

outstanding	17
paddy	53
panga	4
pending	8
A pesticides	25
pesta	12
pilot	1
W pipes	2
plaid	32
postmaster	2
pradesh	5
proverb	1
punjab	53
quarrel	1
rabbi	5
W rainfall	2
W rains	4
W rainy	2
rasool	9
rearing	260
W reddy	1
remuneration	2
T rental	5
T rents	34
R repaid	44
R repay	36
W routine	3
R rupees	4
W A sandy	1
sanskrit	1
satish	1
scanty	93
scarcity	
scolding	
seeds	
shandy	
sheep	
sheik	
slate	
W stamina	
standstill	
W stoppage	
W submersible	
subsidy	
sunflower	

h temple	17
T tenancy	53
tiffin	4
tilis	8
A towns	25
A tractor	12
trustworthy	1
tuition	2
unable	32
uncooperative	2
uncultivated	5
underprivileged	1
W unpaid	53
untie	5
unwell	2
A upland	4
utmost	2
vacant	9
A village	260
waived	1
wastage	2
W watchmen	5
W wells	34
Wendy	44
W wetland	36
A wheat	3
wishers	4
womanhood	1
workout	1
xerox	1
yield	93

Here's an example (a small South Indian project)

APPENDIX 1: extra tables to illustrate matters from South Indian Mixed Methods Tenancy Project

Table a1: Entire list of 233 high keyness matched words from the SSIs (Alphabetical)

Word	Count in SSI	Count in Baby BNC	<i>B</i> oddsbnc	<i>A</i> oddsSSI	<i>A/B</i> oddsratio	Size of Baby BNC	Size of SSI Data
10000	10	6	0.0002	0.0037	24.22	39701	2741
15000	2	1	0.0000	0.0007	28.99	39701	2741
20000	2	1	0.0000	0.0007	28.99	39701	2741
200ft	2	5	0.0001	0.0007	5.80	39701	2741
30000	5	2	0.0001	0.0018	36.27	39701	2741
350ft	1	1	0.0000	0.0004	14.49	39701	2741
40000	2	1	0.0000	0.0007	28.99	39701	2741
50000	5	2	0.0001	0.0018	36.27	39701	2741
500ft	1	2	0.0001	0.0004	7.24	39701	2741
A acres	174	35	0.0009	0.0678	76.82	39701	2741
adjoining	3	19	0.0005	0.0011	2.29	39701	2741
agreement	67	232	0.0059	0.0251	4.26	39701	2741
A agriculture	151	121	0.0031	0.0583	19.07	39701	2741
alias ?	15	3	0.0001	0.0055	72.81	39701	2741
allah	3	1	0.0000	0.0011	43.50	39701	2741
anymore	20	10	0.0003	0.0074	29.17	39701	2741
approx	23	1	0.0000	0.0085	335.95	39701	2741

- Annotate and summarise the Key Terms.
- Group them into dominant discourses.
- This is also like thematic analysis, initially.
 - **Discourses are sets of rules which are coherent but which are held to only via normed practices, and which can be broken, at a certain price.**
- Example of patriarchal talk about **marriage as an exchange of assets.**
- Next: **Locate the marginalised discourses**

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Discourses we found (South India; North India)

□ Dominant ones:

- Agriculture as production
- Family as duty, obligations (disciplining)
- Moneylending **as a solution**

□ Marginal ones:

- Agriculture as a burden the older generation carry, disliked
- Family as conflict
- Moneylending and debt **as a problem**

SCALE of the DATABASE: A Small Research Project in Bangladesh

1 interview	673 raw words of 5+ letters	396 “words” i.e. word-roots, in one interview, if you stem the words	By hand
11 interviews	1666 words	1249 after stemming	By NVIVO
32 interviews	2798 words	2066 word-roots, after stemming	By NVIVO

Using the Words with Highest Keyness

- We set a cutoff level for keyness (the odds ratio) e.g. 4, or 9.
- Collect the concordances using NVIVO
- You now have extensive quotations to compare and contrast.
- **Link the survey data to this database.**

REMINDER: My Keynes Method

1. Pool all the transcripts using NVIVO.
1. Find out the keyness of words
2. Code up the concordances
3. Group the words into discourses
4. Interpret selected discourses only
5. **Treat each one of those** **very carefully**
6. **Trace key arguments through them.**

COMPARATIVE NVIVO

Results for two discourses (family talk and money talk)
[india 1 and bangla 1 combined] Mentioned within
30 words of each other, in combination.

	A : Tightness node	B : money	C : problems	D : spend	E : works
1 : Family	20	18	11	9	22
2 : children	12	10	6	5	11
3 : daughter	15	6	3	0	13
4 : husband	10	6	8	1	11
5 : mother	11	6	1	4	11

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Qualitative Comparative Analysis

Logic is

□ Y = results arise from S, I, E, C, random error

I = institutions, local entities

C = context

A non-statistical approach.

Is event E necessary, or sufficient for Y?

Aims and Means of QCA

Aims

- ❑ To focus on one outcome.
- ❑ How does the effect of X or T or E on that outcome change depending upon the contexts?
- ❑ Circumstances matter
- ❑ Measure to what extent it was the case.

Means

- ❑ Insert a survey matrix into fsQCA freeware
- ❑ **Produce tests of necessity of EACH condition for Y**
- ❑ **Then test for sufficient PATHWAYS.**
- ❑ **Test the results using a measure, or an F Test**
- ❑ **See my GITHUB freeware.**

Details of the QCA F-Tests

1 We first define our terms and conceptual framework (S, I, E, X, Y, C)

2 Empirical measure of Csuff
(consistency for sufficiency of X for Y)

3 Empirical measure of Goodness-of-fit
(F-tests) for each pathway to Y

See

<https://github.com/WendyOlsen/fsgof>

Amending the QCA for treatments, impacts of interventions

- In logic add 'T' as a new event
- Allow it to work as a 'necessary' cause (test) of higher levels of Y
- Allow it to be considered as a sufficient pathway for higher levels of Y
- Allow it to be considered as part of sufficient combination pathways for higher levels of Y

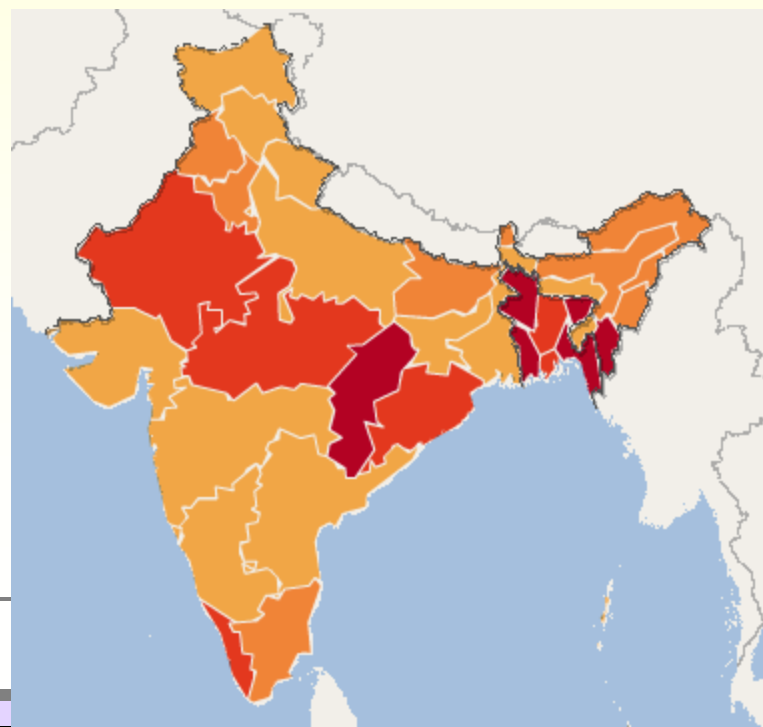
A decorative border surrounds the central text. It consists of various colored rectangles and lines: a green rectangle at the top left, a brown rectangle at the top right, a light green rectangle on the left side, a dark green rectangle on the right side, a blue rectangle at the bottom left, and a purple rectangle at the bottom center. A thick grey line runs vertically on the left, and a thick grey line runs horizontally at the bottom.

Practical Example

Applications to:

- Theorising Bangladesh Indebtedness
 - Mediated by involvement in an NGO
 - All NGOs are different; and
- **Indian Women's Work**
 - **Mediated by involvement in**
either the self-help groups, an MFI,
Or an NGO, or the Employment
Guarantee Scheme

Sample of Raw Debt Data – Bangladesh



Household
Response Rates:

- Up to 97.8
- 97.9 to 98.8
- 98.9 to 99.3
- 99.4 and higher

Results from QCA Part for India

Reminder: **Mixed Mode Data**

- **Step 1: ontic exploration, list the types of things, name the key processes,**
 - **SAMPLING: Get samples which have CONTRASTS on BOTH X and Y**
 - **AND ON T, the treatment event (low/high!) or (Yes/No)**
 - **And on contextual factors (see leaflet)**
 - **Make sure the qualitative cases are chosen from among the pre- and post-intervention sample cases.**
- Step 2: fieldwork
- Step 3: analysing early, & linking results
- Step 4: keyness, discourses
- Step 5: perhaps QCA analysis
- Step 6: transparency: database
- **Step 7: draw conclusions**

Discussion

Critiques and Responses

- RCT critique
- Unobserved heterogeneity critique
- Responses: **Complex differentiation of how causal mechanisms work**

Critique 2

- Endogeneity critique
 - (it says that the key factors in your model can't be distinguished from the irrelevant ones you have included because you've included too many factors)
- Responses:
 - Complex interactions → do not ignore possible pathway reversal phenomena!
 - That's why statistics is weaker.
 - Furthermore, be parsimonious in setting up the QCA explanatory model.

Conclusions

- ❑ Ontic complexity
- ❑ Teamwork
- ❑ Combining the keyness stage with a selective interpretation stage; and
- ❑ Add A QCA or Fuzzy Set QCA Stage.
- ❑ Models and results are debated in an ongoing, open-ended way.
- ❑ We try to make the interpretation match, complement or contradict the original **Research Question.**
- ❑ **Be rigorous and transparent.**

Acknowledgements-
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- John has programmed in Python to break up the British National Corpus into parts and put them into NVIVO. Counting the word frequencies in Baby BNC in NVIVO, he then compared these with the word frequencies in each qualitative data set.
- See GITHUB for the programme, searching on either John McLoughlin or Wendy Olsen.

See Also:

- See also a calibration example at:
<https://www.facebook.com/groups/mixednetwork/>
- Integrated Mixed Methods Network
- And many examples of QCA and Fuzzy Set Analysis of Cases at
www.compass.org (*sic*)
- And JISCMAIL QUAL-COMPARE (190 members) email list. Free to join.

Key References

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