

# More Than Words?

## Computer-Aided Text Analysis in Organizational Research

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# What they are saying...

*Words are the voice of the heart.*

-Confucius

*I was reading the dictionary. I thought it was a poem.*

-Stephen Wright



# Setting the Stage

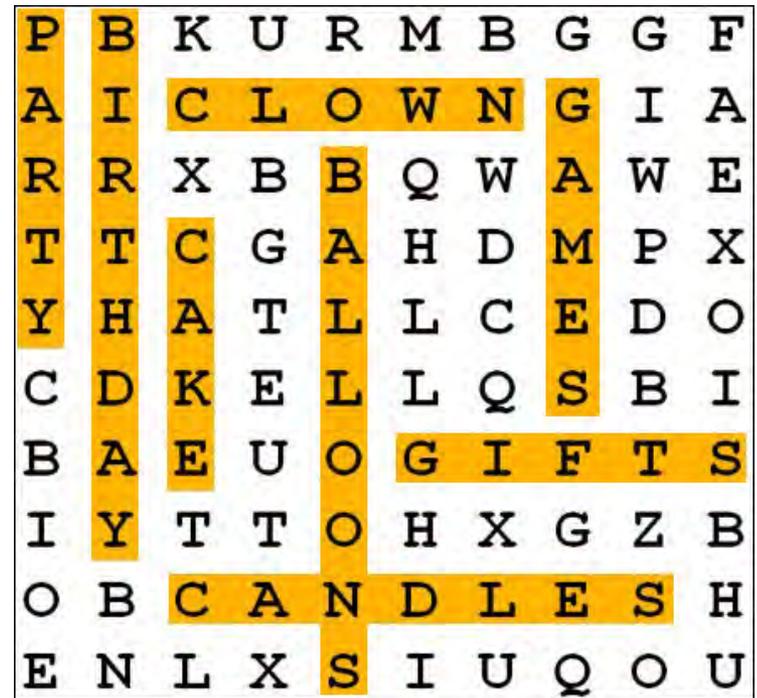
1. What exactly is CATA?
2. Demystifying CATA
  - Key Approaches
  - Software Packages
3. Current State of the Research
4. Where to next?



# What is CATA?

**Computer-Aided Text Analysis (CATA)** is a computerized form of content analysis where dictionaries – lists of words thought to be associated with a construct – are used to convert texts into a series of word frequency counts associated with constructs.

Similar to a word search, CATA scans text and identifies when certain words are used.



# Why use CATA?

Challenges associated with traditional research methods can make collecting good data difficult.

1. Response biases and demand characteristics
2. Restricted access to key samples of interest
3. Low (or NO!) response rates

But have no fear, CATA can help overcome these challenges and potential problems!



# Why use CATA?

Research using CATA can:

- ✓ Leverage rich sources of textual data collected unobtrusively
- ✓ Access insights from traditionally hard to capture samples such as top management
- ✓ Provide a stable coding scheme that minimizes intercoder disagreement and coder fatigue
- ✓ Draw from multiple data sources that reduces threat of endogeneity and common method variance



# Demystifying CATA: Key Approaches

Research leveraging the power of CATA typically follow one of two approaches:

- 1. Inductive Analysis** – explores existing texts to code emergent themes and trends for further analysis.
  - Typically follows the Grounded Theory approach common to qualitative research
- 2. Deductive Analysis** – utilizes pre-defined dictionaries to measure the salience of theoretical constructs in organizational texts
  - Turns qualitative data into quantitative measures for further analysis
  - Most common approach in CATA research



# Demystifying CATA: Software Packages

- 1. ATLAS.ti and NVIVO** – designed to facilitate qualitative content analysis
  - Most commonly used for manual coding and grounded theory research
  - Can be used for dictionary-based CATA
- 2. LIWC and DICTION** – designed almost strictly for dictionary-based analysis
  - Can quickly compute word counts and frequencies
  - Each come with predefined and validated dictionaries including those related to aspects of tone and word choice (DICTION), dimensions of grammar (LIWC), and various psychological processes (LIWC)
- 3. CAT Scanner** – free CATA tool designed to facilitate several key CATA processes
  - Can remove special characters from text files
  - Able to generate an inductive word list required for CATA measure development



# Demystifying CATA: Software Packages

Software Package	# of Studies	% of Studies
Nvivo	51	35%
LIWC	30	21%
ATLAS.ti	27	19%
Other	13	9%
Diction	10	7%
General Inquirer	5	3%
MonoConc Pro	5	3%
VBPro	3	2%



# Current State of the Research

<b>Journal</b>	<b># of Studies</b>
Academy of Management Journal	46
Journal of Organizational Behavior	18
Organization Science	17
Strategic Management Journal	13
Journal of Applied Psychology	12
Journal of Management	12
Administrative Science Quarterly	9
Journal of International Business Studies	8
Organizational Behavior and Human Decision Processes	6
Organizational Research Methods	3



# Current State of the Research

Sample Type	# of Studies	% of Studies
Transcribed Interviews	47	33%
Multiple Narratives	27	19%
Media Articles	18	13%
Annual Reports	12	8%
Shareholder Letters	10	7%
Experiment Transcripts	7	5%
Organizational Narratives	7	5%
Questionnaires	4	3%
Field Observations	3	2%
Online Content	3	2%
Other	3	2%
Transcripts (Speeches, Call Logs)	3	2%



# Research Trends and Themes

- Individual Cognition and Behavior
- Leader Behaviors
- Team Cognition and Performance
- Impact of Tone



# Where to Next?

Construct	Text	Research Question
Gratitude (Fehr et al., 2016)	Transcripts of team meetings	Do expressions of gratitude influence the team commitment among third party observers?
Psychological Empowerment (Spreitzer, 1995)	Open-ended survey responses regarding the respondent's job.	How does the quality of leader-member exchange relationships influence the relationship between psychological empowerment and organizational citizenship behaviors?
Workplace Ostracism (Ferris et al., 2008)	Critical Incident Technique texts	Does workplace ostracism influence preferences for communal sharing and generalized vs. balanced exchange relationships?
Training Satisfaction and Utility (Alliger et al., 1997)	Training evaluation texts	Do trainee perceptions of satisfaction and utility influence their ability to transfer training content into on-the-job use?
Entrepreneurial Orientation (Lumpkin & Dess, 1996)	Résumés and cover letters	While companies think they want entrepreneurial employees, do they actually make selection decisions based on these characteristics?

# Where to Next?

- Explore how to handle overlapping words in dictionaries where words might reflect multiple constructs that do not have similar theoretical definitions
- Consider how to create countervailing word lists (opposite poles of the same construct, e.g., *negative and positive affect*) and whether or how the data should be combined
- Adapt advancements in natural language processing research and other linguistic measurement methods
- Consider how assigning weights to words based on their salience to the construct might provide more accurate measurements



# I Tell You All That to Tell You This

- CATA allows scholars to draw meaning from organizational texts that potentially contain aspects of work life impossible to otherwise capture
- Though advancements in CATA have been significant, there continues to be great potential for further refining and applying CATA techniques
- Many questions related to various organizational phenomena are waiting to be answer through CATA



# Assigned Reading

Short, J. C., McKenny, A. F., & Reid, S. W. (2018). More than words? Computer-aided text analysis in organizational behavior and psychology research. *Annual Review of Organizational Psychology and Organizational Behavior*, 5, 415-435.



Q&A

You Have  
Questions  
We Have  
Answers

