Content Analysis: Techniques And Applications

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October 9, 2015

Agenda

1. Speaker Introduction
2. PDW and Website
3. CA: What is it? Who does it? Why do it?
4. CA: How do you do it?
5. Three Examples

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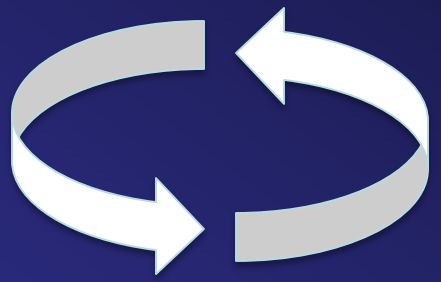
Research Overview

- Social evaluations
  - Reputation, celebrity, legitimacy, stigma
  - Impression management
  - Discourse and media accounts
- Stakeholders
  - Wrongdoing and crises
  - Reputation repair
  - Governance
- Content analysis
  - CATA and manual coding
  - Workshops
  - Website



Annual Professional Development Workshop

7th Content Analysis in Organizational Research: Techniques and Applications

Part I – Introduction to Content Analysis
Part II –Proposal Feedback

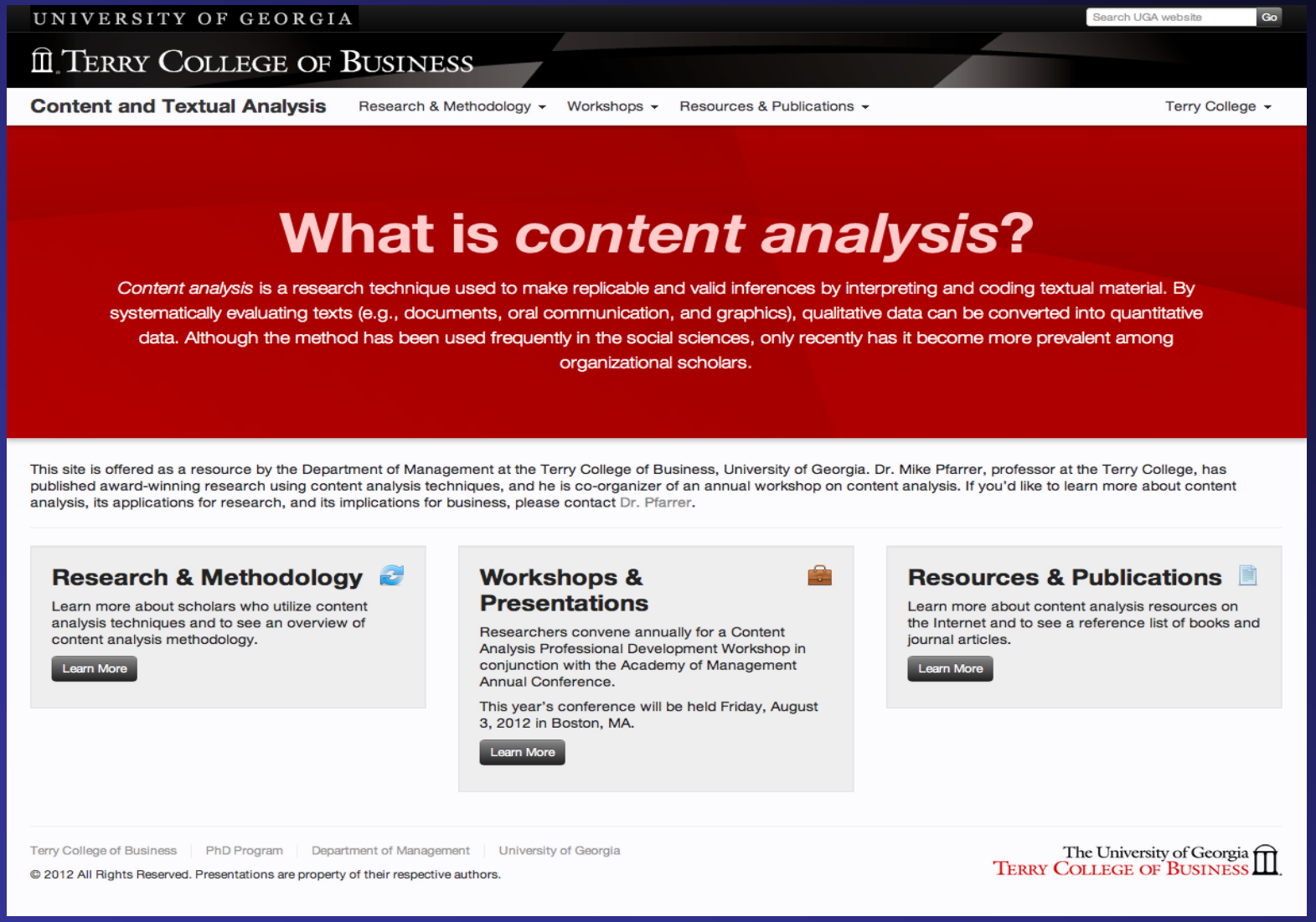
AOM – Vancouver
Friday, August 7, 2015 - 8:00 AM – 12:00 PM

Primary Sponsor: MOC
Co-Sponsors: BPS, OB, RM

Co-organizers: Moriah Meyskens & Mike Pfarrer

Website:

http://www.terry.uga.edu/contentanalysis



Content Analysis:
What Is It?

Content Analysis:
What Is It?

Content analysis is a research technique used to make replicable and valid inferences by interpreting and coding texts. By evaluating texts (e.g., documents, oral communication, graphics), qualitative data can be converted into quantitative data.

Content Analysis: What Is It?

- What can you analyze?
- Physical texts, digital texts, audio, websites, social media—stuff with words…
- And…photos, videos
- Fundamental belief in the importance of language, symbols, images, and perceptions in organizational behavior
- You can count words and "measure" meaning, sentiment, relationships, and perceptions

Beyond Words

- Players (Chatterjee, 2009; Ray, 2012; Smith, 2013)
- Photos of CEOs to measure narcissism—size, # of others
- What story does the photograph tell—emotions, setting, number, type, and position of objects—still need to quantify
- Videos (speeches, humor)
- Drawings, paintings, aesthetics
- Tools: NVivo, QDA Miner
- IRR and coding schemes still needed. More later…

Advanced Techniques: The New Frontier

- Players (Hannigan, 2014; Kiley, 2014, 2015; Nelson, 2015)
- Smart and slow humans versus fast and dumb computers
- Example: Sentiment—sarcasm, double negatives
- Reliability and N trade-offs: you still have to write the program
- Scripts, Python, R, archival data—free stuff!
- Firewalls + Reviewers
- Natural Language: Stanford NLP (http://nlp.stanford.edu/)
- Kiley Link: http://bit.ly/1eXylFN

Content Analysis:
Who Does It?

Content Analysis: Who Does It?

Content analysis is promising for exploration in areas as diverse as business policy and strategy, managerial and organizational cognition, organizational behavior, human resources, social-issues management, technology and innovation management, international management, and organizational theory.

~ Duriau, Reger, & Pfarrer (*ORM,* 2007)

Content Analysis: Who Does It?

- BPS: Competitive actions, TMT attributions, annual reports
- ENT: Innovation, family business, CEO-founder behavior
- MOC: Sensemaking, stakeholder perceptions, media tenor
- OMT: Impression management, press releases, social evals
- OB: Trust, leadership
- SIM: Environmental disclosures, corporate wrongdoing
- RM: Converting text to data; *ORM*
- *Content and Textual Analysis Website-Players & Resources*

Content Analysis:
Why Do It?

Content Analysis: Why Do It?

Content analysis allows researchers to recover and examine the nuances of organizational behaviors, stakeholder perceptions, and societal trends.

Content analysis allows researchers to analyze perceptual constructs that are difficult to study via quantitative archival methods. At the same time, it allows researchers to gather large samples that may be difficult to employ in qualitative studies.

Fundamental belief in the importance of language and perceptions in organizational behavior

Content Analysis: Why Do It?

Content analysis techniques bridge the gap between large-sample archival research, which may suffer from internal validity issues, and small sample research, which may suffer from external validity problems.

Analyzing the content of press releases, media coverage, or stakeholder blogs can enhance archival research (which has been criticized for failure to provide insight into cognitive processes), while maintaining the advantages of using large samples.

~ Pfarrer, Pollock, & Rindova (*AMJ,* 2010)

Content Analysis: Why Do It?

Use of advanced content analysis techniques to code affective content of articles and blog posts continues to extend research on social perceptions that recognizes the importance of opening the "black box" in strategy research.

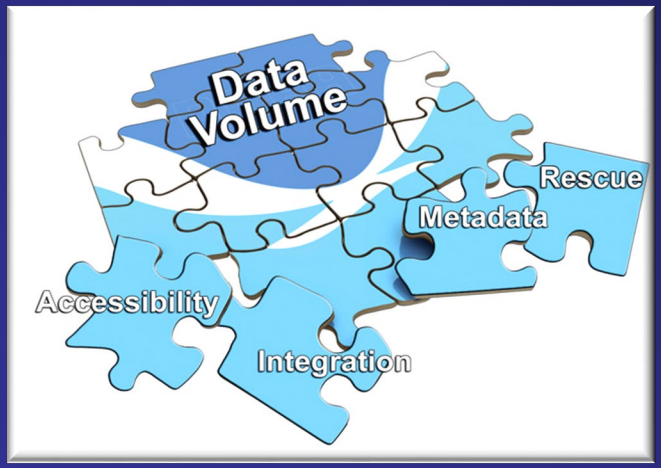
~ Zavyalova, Pfarrer, Reger, & Shapiro (*AMJ,* 2012)

Content Analysis: Advantages

- Opens up the black box of organizational research
- Allows for larger samples, generalizability
- Inductive or deductive research
- Unobtrusive
- Can be combined with other statistical tools—create constructs, run a regression. It's quantitative.
- Seemingly endless data sources and better and better ways to get them—cottage industry of "real time" analyses

Content Analysis: Challenges

Although content analysis is increasingly used to analyze text and qualitative data, challenges include finding adequate measures, developing dictionaries and coding schemes, ensuring reliability and validity, and conducting manual vs. computer-aided analysis.

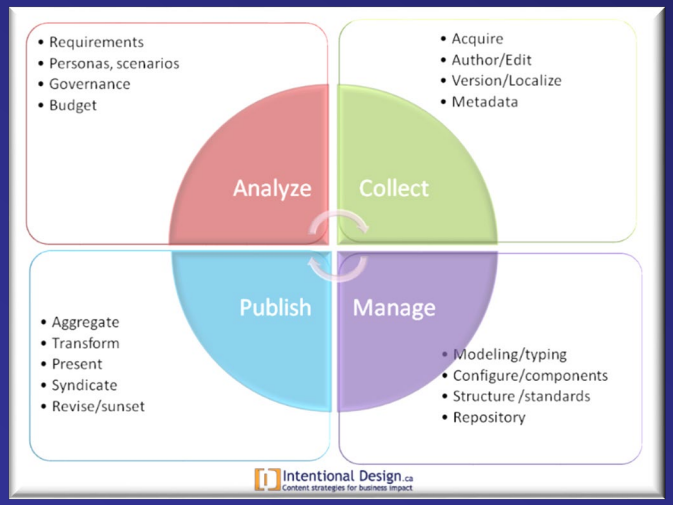


Content Analysis:
How to Do It

Content Analysis: How to Do It

KLAUS WEBER (2010) PROTOCOL

1) Data collection—go get it
2) Data organization—clean it
3) Data categorization—custom vs. standard dictionaries
4) Data coding—validity checks
5) Data presentation—descriptive stats



Data Collection & Organization
Zachary (2015)

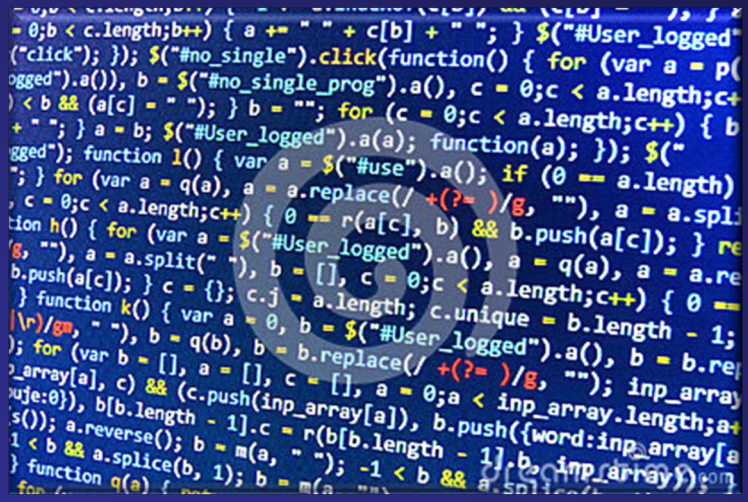
- Function of (1) theory + RQ; (2) constructs; (3) level of analysis
- What are you doing? Theory-method match (celebrity/innovation)
- Individual data: speeches, interviews, journal entries, online reviews, blog posts, e-mail
- Organizational data: actions, annual reports, letters to shareholders, prospectuses, website content, press releases, media coverage, transcripts
- "Field" data: memes, logics, discourse, social ethos or mythos
- Know your limitations—"garbage in, garbage out"

Data Categorization: Dictionaries & Software

- Custom vs. out-of-the-box
- Does it match your theory?
- How nuanced is the construct? (e.g., reputation vs. tenor)
- Diction, LIWC, CAT Scanner (McKinney)
- Building your own (Bundy, McKinney, Short)—example later
- Website + http://www.amckenny.com/CATScanner/index.php
- Manual coding for the reviewers

Data Coding:
How To Start

- Start with theory: What's the story you are telling?
- Deductive definitions of construct: Be as broad as you can – multiple definitions
- Decide how you want to operationalize: Binary, scale, etc.
- Create a codebook…



Data Coding

WEBER (1990) PROTOCOL

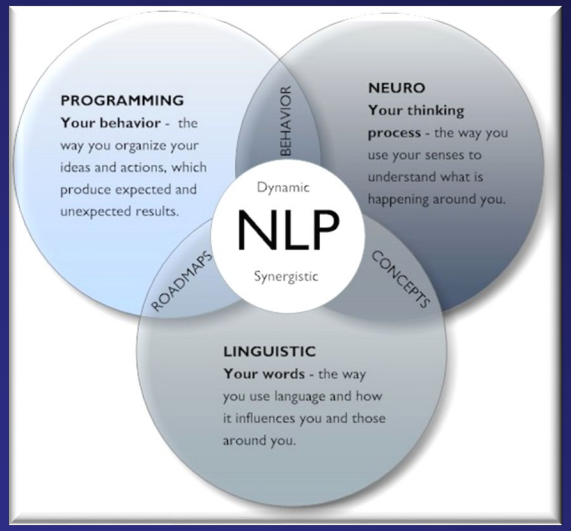
1) Definition of the recording units (e.g., word, paragraph)
2) Definition of the coding categories
3) Test of coding on a sample of text
4) Assessment of the accuracy and reliability of the coding
5) Revision of the coding rules
6) Return to step 3 until sufficient reliability is achieved
7) Coding of all the text
8) Assess the achieved reliability or accuracy

Validity & Reliability
(Bundy, 2013; Short, 2012)

- Content: match between the theory, definition, and measure—synonym finder, standard lists. Logic or sniff test
- External: appropriate samples/texts to match your RQ
- Discriminant vs. Convergent: level of distinctiveness—correlation matrix
- Predictive: Do these things predict other things—rankings
- Reliability: Manual vs. CATA; how nuanced is construct (e.g., reputation vs. sentiment)
- Manual coding for the reviewers

Coding:
Pros And Cons

- Manual coding: humans involved, contextual understanding, nuanced, but slow, unreliable
- CATA: fast, reliable, but dumb, course-grained
- Natural Language Programming: in between?



Coding: Measurement Issues

- Source of (systematic) error = Humans
  - Coder misinterpretation, poor scheme, inadequate training, inattention/fatigue, recording error, rogue coder!

- Thus, we need **reliability** – the extent to which a measuring procedure yields the same results on repeated trials

- More specifically, **interrater reliability** – the amount of agreement or correspondence among two or more coders

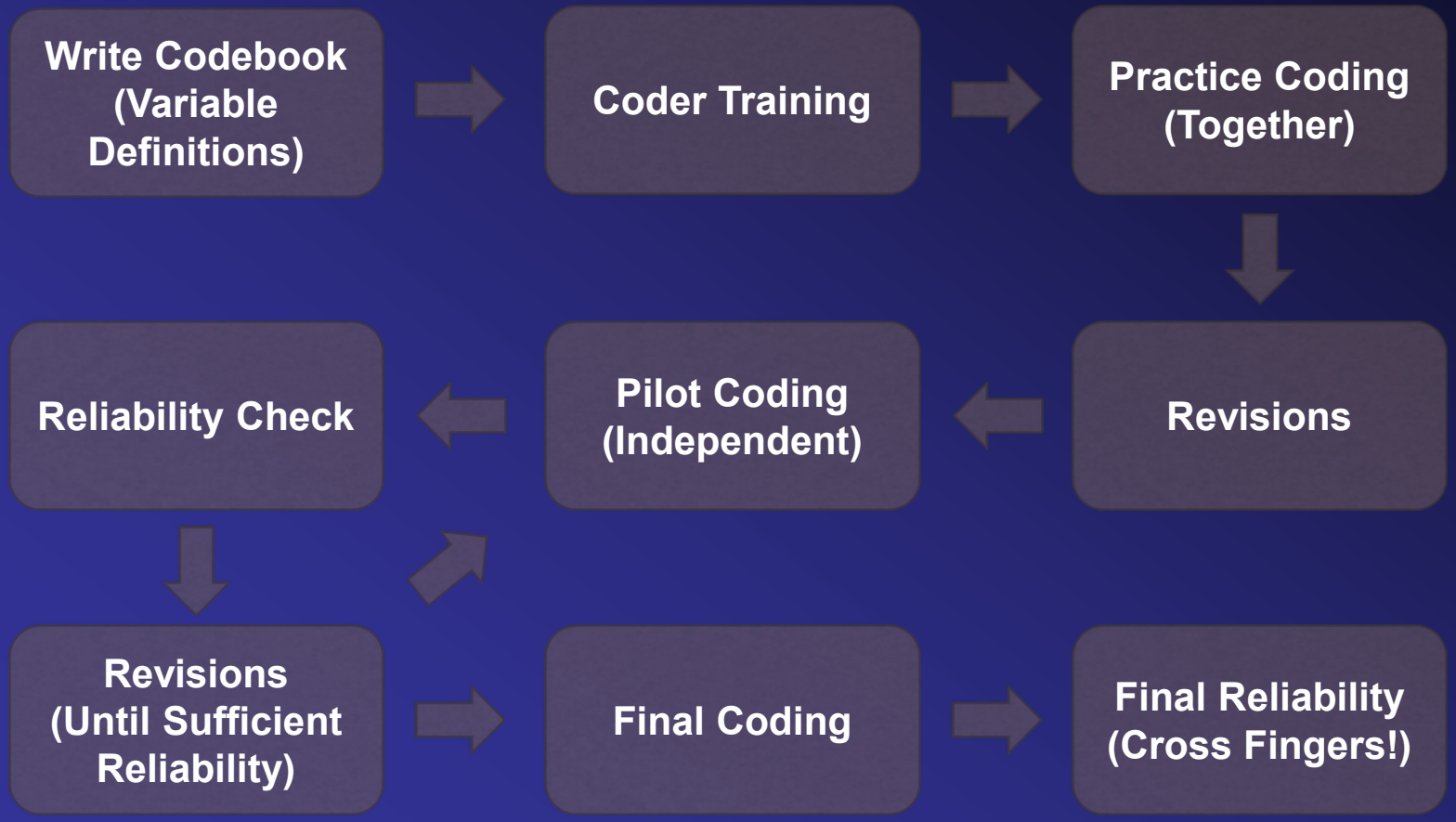
Why Reliability?

- Validity of coding scheme
- Results are not idiosyncratic to rater subjectivity
- Allows for the use of multiple coders
- Replication over time

***Reviewers** are going to ask for it!*

Reliability Flowchart

(Neuendorf, 2002; Weber, 1990)



Reliability Measures

http://dfreelon.org/utils/recalfront/

Measure	Type	Best for	More than 2 coders?
Percent Agreement	Agreement	Nominal	No
Holsti's Method	Agreement	Nominal	No
Scott's Pi	Agreement (w/ chance)	Nominal	No
Cohen's Kappa	Agreement (w/ chance)	Nominal	Yes
Krippendorff's Alpha	*Agreement (w/ chance)*	*Any*	*Yes*
Spearman Rho	Covariation	Ordinal	No
Pearson Correlation	Covariation	Interval/ratio	No
Lin's Concordance	Covariation	Interval/ratio	No

Other Thoughts

- Codebook and form - make the set complete and unambiguous so as to minimize individual coder differences
- At least 2 coders; 10% overlap ranging between 50-300 observations depending on sample size
- Reliability can be low when coding subjective into objective, thus cut-offs can be lower (.67-.80)...if reviewers allow it…
- Blind coding is preferable
- What to do with variables that are not reliable?
- Redefine variable, split variable, re-train coders, drop variable, drop coder, integrate non-content analytic data
- Need separate reliability for each measure

Final Coding Tips

- Develop habits and routines
- Code daily, but avoid fatigue. 2 hours max?
- Spend time up front
- Familiarize yourself with content texts and theory
- Invest in training
- Write a script or program?

Revise early and revise often!

In Summary…
(Reger, 2013)

- Theory first
- Be clear on research questions before collecting data
- Match methods to research questions
- Large N isn't necessarily better than small N
- Software is a tool
- Use validated dictionaries where possible
- Follow rigorous protocols when creating custom dictionaries

Content Analysis: Three Examples

- Pfarrer et al. (*AMJ*, 2010)
- Zavyalova et al. (*AMJ*, 2012)
- Bundy & Pfarrer (WP)

Using CA to Study Affect in Social Evaluations

"A behavioral approach to strategy… eye-of-the-beholder research"

"Bridge the gap between large-sample archival research (external validity) and small-sample, primary research (internal validity)"

"Open the black box…"

Social evaluations and affect

- **Tenor of media texts**
- **Reputation, celebrity, legitimacy, stigma**
- **Impression and crisis management**

Who Started It?

Political Science and Communication

- *Lippman (1922)*: *Public Opinion*
- *Janis and Fadner (1943): propaganda*
- *McCombs & Shaw (1972): agenda setting*

Organization and Management Studies

- *Deephouse (2000): Media tenor*
- *Pollock and Rindova (2003): volume, legitimacy*

And Now?

How Can You Measure Affect?

LIWC is a text analysis software program that measures the rate at which authors use positive or negative emotion words (Pennebaker et al., 2007).

Category	Examples	Words	IRR
Positive affect	success, value	406	.97
Negative affect	hurt, loss	499	.97

LIWC's dictionary has over 900 affective words

Example 1: Power of Love

Pfarrer, Pollock, & Rindova. 2010. *Academy of Management Journal.*

Examine the effects of reputation and celebrity on:

1. The likelihood of an earnings surprise
2. How investors react to these surprises

Contributions:

1. High positive affect distinguishes celebrity from reputation
2. Visibility alone is not sufficient
3. The simultaneous possession of both is rare

Firm Celebrity: What Is It?

Celebrity as a "Social Approval" Asset

"High level of public attention" combined with "positive emotional responses from stakeholder audiences" (Rindova et al., 2006: 51)

- "Eye of the beholder" social evaluation
- Derived from non-conforming ("deviant") behavior
- Accrues benefits to the firm: it's an *asset*
- So, fame/popularity still important, but there's more!

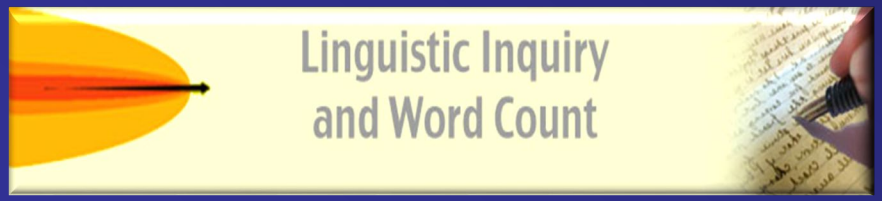
How Did We Measure It?

LIWC

- Celebrity = high visibility and high positive affect
- "Dramatic narratives" in *BusinessWeek*
- 42,000+ articles
- Positive/total affect measure

*"There's a new generation of brands, including Amazon.com, eBay, and Starbucks, that have amassed huge global **value** with little traditional advertising."*

*"But risks remain. Starbucks Corp. Chairman Howard Schultz is bracing for a boycott that could **hurt** his European expansion."*



Example 2: Managing the Message

Zavyalova, Pfarrer, Reger, & Shapiro. 2012. *AMJ.*

What we did…

1. Toy recalls; CPSC press releases
2. IM: 5,500 press releases – Newswires, hand-coded
3. Tenor: 38k articles & web blogs – Lexis-Nexis, LIWC
4. What about Janis-Fadner?

How Did We Measure Affect?

Coding Texts with LIWC

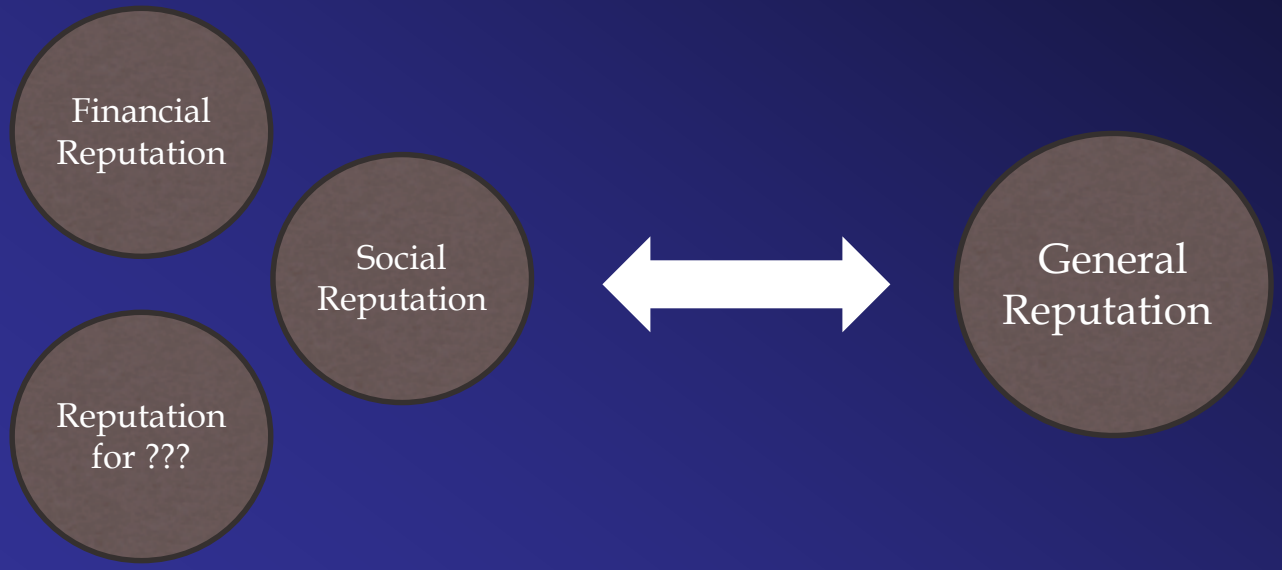
- Positive = affective content was at least 66% positive
- Negative = affective content was at least 66% negative
- Alternative measures
- Multiple firms: Manual coding (10%); law of large numbers
- Negative diagnosticity

Janis-Fadner vs. new developments

- Equal weighting of positive and negative articles
- High variance in coverage; loss of sample size
- Weighting of negative articles
- Overall positivity of business press

Example 3: Reputations in Flux

Bundy & Pfarrer (Working Paper)



RQ: Do response strategies differentially influence a firm's multiple reputations?

Recall This:
Validity & Reliability

- Content: match between the theory, definition, and measure—synonym finder, standard lists. Logic or sniff test
- External: appropriate samples/texts to match your RQ
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- Reliability: Manual vs. CATA; how nuanced is construct (e.g., reputation vs. sentiment)
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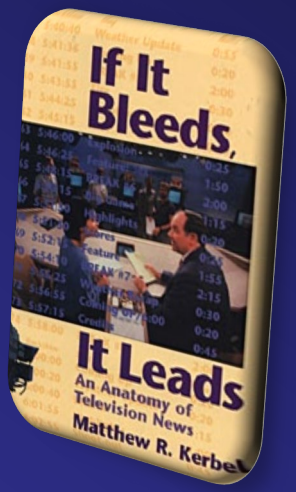
Reputation Measures

- The media's role in underscoring the reputation of the firm or industry (Deephouse, 2000; Mahon, 2002: 431)

- Computer-aided textual analysis (CATA)
  - Media tenor for general reputation (Deephouse, 2000)
  - Unique word count dictionaries for specific reputations-thesaurus (McKenny et al., 2013; Short et al., 2010)
  - 50 largest U.S. newspapers



Validation

- Content validity
  - Deductive dictionary and experts: ability + integrity
  - 269 and 277 words reduced to 67 and 143
  - Interrater reliability (Holsti's method): .72-.75
  - Random spot check to confirm context

- Predictive validity
  - Financial → *Fortune's* Most Admired (not others)
  - Social → CRO Best Corporate Citizen (not others)
  - General → Reputation Quotient (not others)

Measures, continued

- Response strategy - content analysis of press release announcing restatement
- Scaled measure of accommodativeness (1-7)
- Krippendorff's Alpha: .92

A gentle reminder…

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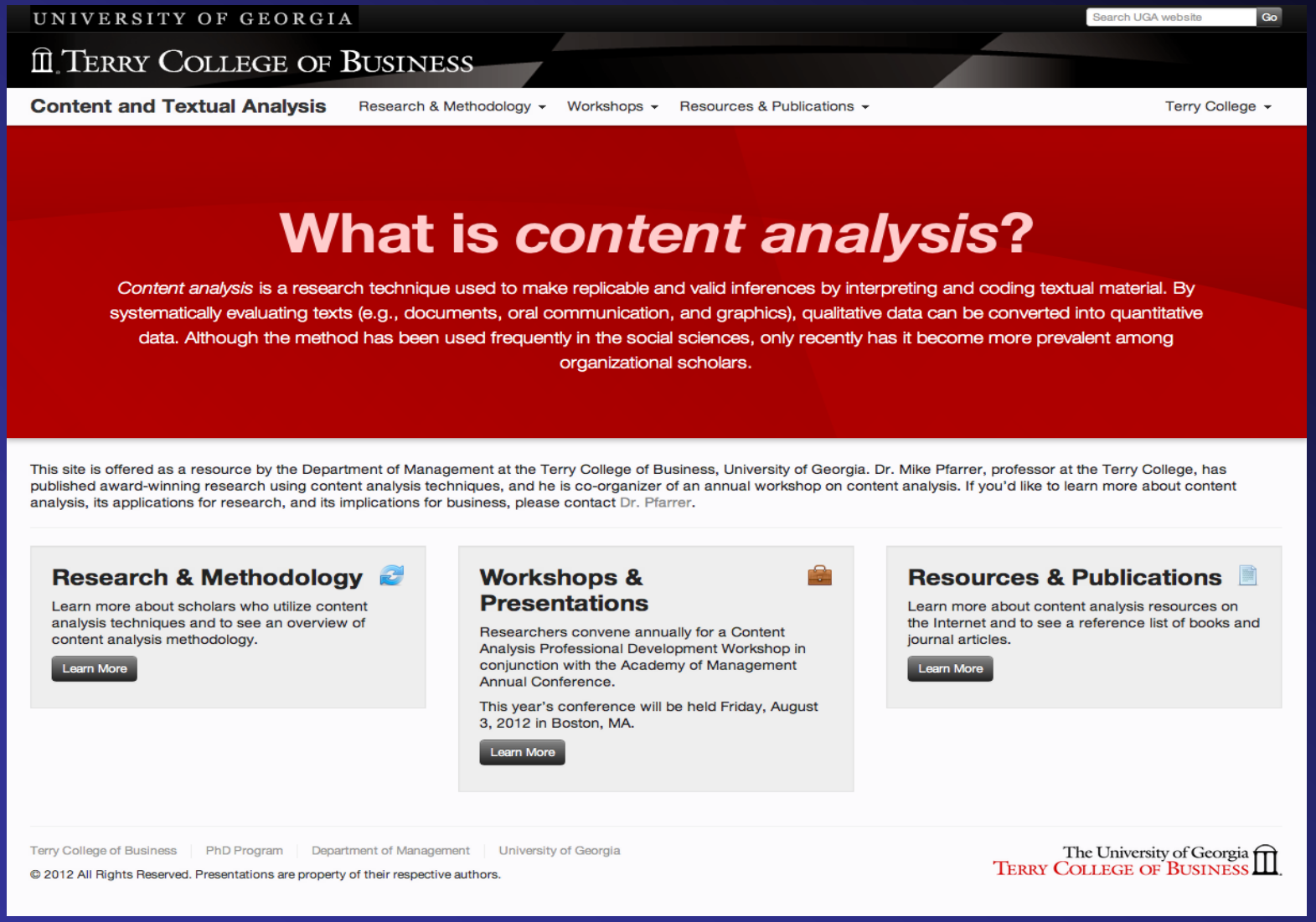

Thank you.

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