



# Use of Theories & Models in Conducting LIS Research

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# Today's Agenda

- A. Sample theories and models in my research
- B. *Why and how* did my research use these theories and models?
- C. Lessons learned

## A. Sample theories and models in my research

1. Communities of practice
2. Diffusion of innovation
3. Electronic word-of-mouth model
4. Hofstede's cultural dimensions
5. Information systems capabilities
6. Innovation management measurement framework
7. Market separation perspective
8. Message framing theory
9. Network agenda-setting theory
10. Project management
11. Service innovation lens
12. System analysis and design
13. Technology acceptance model
14. Theory of planned behavior
15. Theory of reasoned action
16. Unified theory of acceptance and use of technology
17. Porter's value chain
18. Value co-creation

## B. *Why and how* did my research use these theories and models?

1. Managing LIS research projects
2. Proposing research questions
3. Proposing and testing hypotheses in explanatory studies
4. Proposing and testing mathematical equations in exploratory studies
5. Thematic analysis
6. Conceptual content analysis
7. Open coding
8. Grounded theory analysis
9. Analyzing and comparing multiple case examples
10. Deriving hypotheses as end product
11. Answering practice-based research questions

# 1. Managing LIS research projects

- ▶ We employed the project management perspective to manage seven dimensions of our fieldwork with over 150 people earning less \$2 a day in India
- ▶ Our fieldwork consisted of 10 three-hour sessions, each including focus groups, surveys, and hands-on exercises
- ▶ Example
  - ▶ Potnis, D. & Gala, B. (2020). Managing the "backend" of LIS research projects: A project management perspective. *Library & Information Science Research*, 42(1). [AR: 20%] [IF: 2.73] [Link](#)

## 2. Proposing research questions

- ▶ A service innovation perspective for studying the value created by assistive technologies (AT)
- ▶ Research questions related to the...
  - ▶ Nature of service divide in digital libraries when serving disabled patrons using AT in academic institutes
  - ▶ Organizational challenges to benefiting disabled patrons using AT
  - ▶ Resources required for better serving disabled patrons using AT
- ▶ Example
  - ▶ Potnis, D. & Mallery, K. (2021). Proposing an information value chain to improve information services to disabled library patrons using assistive technologies. *Journal of Information Science*, ahead-of-print. [AR: 18%] [IF: 3.282] [Link](#)

### 3. Proposing & testing hypotheses

- ▶ Interdisciplinary theoretical constructs from psychology, organizational behavior, and information systems research
- ▶ Models proposed depicting the relationships among dependent and independent variables
- ▶ Models tested using structural equation modeling for explaining relationships
- ▶ Examples
  - ▶ Potnis, D., Deosthali, K., Zhu, X., & McCusker, R. (2018). Factors influencing undergraduate use of e-books: A mixed methods study. *Library & Information Science Research*, 40(2), 106-117. [AR: 20%] [IF: 2.73] [Link](#)
  - ▶ Potnis, D., Demissie, D., & Deosthali, K. (2017). Students' intention to adopt internet-based personal safety wearable devices: Extending UTAUT with trusting beliefs. *First Monday*, 22(9). [AR: 15%] [IF: 1.13] [Link](#)
  - ▶ Potnis, D. & Deosthali, K. (2014). Factors influencing adoption of Web 1.0, Web 2.0, and mobile technologies by the growth engine of the US economy. *First Monday*, 19(9), 1-20. [AR: 15%] [IF: 1.13] [Link](#)

## 4. Proposing and testing mathematical equations

- A market separation perspective for studying use of mobile money services
- Identified variables based on the theoretical lens and literature on spatial, temporal, social, information, and financial separations
- Proposed mathematical equation for exploring relationships
  - $$\text{Use\_MM} = \alpha + \beta_1 \text{ Age} + \beta_2 \text{ Area} + \beta_3 \text{ Gender} + \beta_4 \text{ Awareness\_MM} + \beta_5 \text{ NumofAdults} + \beta_6 \text{ NumofMobile} + \beta_7 \text{ Owns\_SIM} + \beta_8 \text{ Owns\_Mobile} + \beta_9 \text{ Owns\_BankAccount} + \beta_{10} \text{ Poverty\_Score} + \beta_{11} \text{ Education} + \beta_{12} \text{ Work} + \beta_{13} \text{ Eng\_Prof} + \beta_{14} \text{ Owns\_Account\_MFI} + \beta_{15} \text{ Owns\_Account\_Postoffice} + \beta_{16} \text{ Owns\_Account\_SaveLendGrp} + \beta_{17} \text{ Owns\_Account\_GovtDigCard} + \beta_{18} \text{ Owns\_Account\_MoneyLender} + \epsilon$$
- Tested this equation using the binary logistic regression and odds ratio
- Example
  - Potnis, D., Gaur, A., & Singh, J. (2019). Analysing slow growth of mobile money market in India using a market separation perspective. *Information Technology for Development*, 26(2), 369-393. [AR: 20%] [IF: 4.25] [Link](#)



## 5. Thematic analysis

- “Vaginal Birth After Cesarean” group on Facebook with over 500 pregnant women in rural America
- We identified multiple sets of themes
  - E.g., information control mechanisms, outcomes of information exchanges on Facebook
- Examples
  - Potnis, D., & Halladay, M. (2022). Information practices of administrators for controlling information in an online community of new mothers in rural America. *Journal of the Association for Information Science and Technology*, 1-20. [AR: 34%] [IF: 3.275] [Link](#)
  - Potnis, D., Halladay, M., Jones, S. (2022) Consequences of information exchanges of vulnerable women on Facebook: An "information grounds" study informing value co-creation and ICT4D research. *Journal of the Association for Information Science and Technology*. [AR: 34%] [IF: 3.275] [Link](#)

## 6. Conceptual content analysis

- Innovation management measurement framework for measuring the degree of innovation in e-government initiatives
- Defined pick list for each of the seven constructs in the framework; Frequency count of pick list concepts in the corpus of data
- Example
  - Potnis, D. (2010). *Measuring e-governance as an innovation in the public sector. Government Information Quarterly, 27(1), 41-48.* [AR: 15%] [IF: 7.279] [Link](#)
- Identified occurrences of six gatekeeping mechanisms in 77 artifacts
- Example
  - Potnis, D., & Tahamtan, I. (2021). *Hashtags for gatekeeping of information on social media. Journal of the Association for Information Science and Technology, 72(10), 1234-1246.* [AR: 34%] [IF: 3.275] [Link](#)

## 7. Open coding

- System analysis and design perspective to examine the experience and advice shared by librarians and IT professionals for
  - identifying the key steps and precautions to be taken when developing mobile apps and mobile websites for libraries
- Example
  - Potnis, D., Regenstreif-Harms, R., & Cortez, E. (2016). Identifying key steps for developing mobile applications & mobile websites for libraries. *Information Technology and Libraries*, 35(3), 43-62. [AR: 40%] [IF: 0.832] [Link](#)

## 8. Grounded theory analysis

- Theories inform data analysis
- Examples
  - Chengalur-Smith, I., Potnis, D., & Mishra, G. (2021). Developing voice-based information-sharing services to bridge the information divide in marginalized communities: A study of farmers using IBM's Spoken Web in rural India. *International Journal of Information Management*, 57 (1), 102283. [AR: 20%] [IF: 14.098] [Link](#)
  - Potnis, D. (2015). Addressing data collection challenges in ICT for development projects. *International Journal of ICT and Human Development*, 7(3), 36-55. [AR: 30%] [Link](#)
  - Potnis, D. (2015). Beyond access to information: Understanding the use of information by poor female mobile users in rural India. *The Information Society*, 31(1), 83-93. [AR: 6%] [IF: 4.571] [Link](#)

## 9. Analyzing and comparing multiple case examples

- ▶ Five core information systems capabilities
  - ▶ Leadership, business systems thinking, architecture planning, making technology work, and vendor development
- ▶ Three microfinance case examples: SKS, Equitas, and IBM's GK
- ▶ Analyzed data collected using multiple sources
- ▶ Compared findings for teaching case studies
- ▶ Example
  - ▶ Mohan, L., Potnis, D., & Alter, S. (2013). Information systems to support "door-step banking": Enabling scalability of microfinance to serve more of the poor at the bottom of the pyramid. *Communications of the Association for Information Systems*, 33(1), 423-442. [AR: 13%] [Link](#)

## 10. Deriving hypotheses as end product

- Information science theory on information behavior
- Percentage normalized scores
- Qualitative and quantitative study
- Example
  - Potnis, D. (2015). Applying information science lens for advancing critical research on IT adoption: Insights from continued usage of mobile phones by poor women in rural India. *International Journal of Technology Diffusion*, 6(1), 76-99. [AR: 20%] [Link](#)

# 11. Answering practice-based research questions

- Proposed research questions based on practice
- Selected appropriate theory for answering research questions
- Hofstede's cultural dimensions to study the role of culture in creating economic barriers to owning mobile phones
- Development of summary sheets for each survey response
- Example
  - Potnis, D. (2016). Culture's consequences: Economic barriers to owning mobile phones experienced by women in India. *Telematics and Informatics*, 33(2), 356-369. [IF: 6.182] [Link](#)

## C. Lessons learned

- ▶ Do not shy away from theories and models
- ▶ If you wish to publish research in high-quality journals, you will have to focus on and cover theoretical gaps and theoretical contributions in your manuscripts
- ▶ Theories and models can inform different phases of your research project
  - ▶ Designing research study, Data collection (measures, instruments), Data analysis, New theory development
- ▶ Do not limit yourself to LIS research when searching for an appropriate theory or a model for your research study
  - ▶ Search for key terms on Google scholar and collect relevant articles
- ▶ Be creative when employing theories or models
  - ▶ See 11 examples
- ▶ Form and take advantage of interdisciplinary research teams
  - ▶ Example: <https://sis.utk.edu/dp/collaborators>



Questions?

Comments?

Interested in research collaboration?

Interested in pursuing PhD?

- Email me at [dpotnis@utk.edu](mailto:dpotnis@utk.edu)
- Website <https://sis.utk.edu/dp>

