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Longitudinal Studies in Information Systems Research: Practices, Findings, and Gaps

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ABSTRACT

The longitudinal research approach has the potential to provide rich data about the information systems life cycle and organizational and societal shifts due to information technology implementation and adoption. With this research methodology, we can discern changes in user behaviors and attitudes over time. Despite the promise of the longitudinal research approach, it has not been widely used in information systems research in the past. The aim of the current study is to inventory longitudinal research studies published during the past twenty years (1995-2015) and to provide a status report of this research method in the information systems field. The study will also identify gaps in longitudinal research in the information systems field and make recommendations to information systems researchers considering the adoption of longitudinal research methodologies in their work.

Keywords

Research methodology; Longitudinal Research; Information Systems Research; Critical Review.

INTRODUCTION

Longitudinal research methodologies are employed by scientists in many disciplines in order to develop an understanding of phenomenon over a period of time. Although young scholars are sometimes advised to avoid longitudinal methodologies because of the time pressures associated with dissertation completion, promotion, and tenure, social scientists have traditionally undertaken longitudinal research projects in order to investigate temporal changes and trends over time. In the course of a longitudinal research project on user perceptions of information quality the authors of this paper became interested in practices and findings of longitudinal research studies in the information systems discipline generally. The longitudinal research approach has the potential to paint a motion picture of the information systems life cycle, to depict organizational and societal shifts due to information technology implementation and adoption, and to discern changes in user behaviors and attitudes over time. Despite the promise of the longitudinal research approach, it has not been widely used in information systems research in the past (Venkatesh and Vitalari, 1991). The aim of the study described here is to inventory longitudinal research studies published during the past twenty years and to provide a status report of this research method in the information systems field. The study will also identify gaps in longitudinal research in the information systems field and make recommendations to information systems researchers considering the adoption of longitudinal research methodologies in their work.

LONGITUDINAL RESEARCH IN INFORMATION SYSTEMS

Many of the longitudinal research studies that have been done in the information systems field have focused on the adoption and use of information systems at the organizational level rather than at the level of the individual users. The work of Deng and Chi (2012) who conducted a longitudinal research study on the use of a business intelligence system is an exception to this generalization.

Some longitudinal studies in information systems have relied on retrospective interviews or archival data (e.g., Chowa, 2010; Muntonen-Ollila and Lyytinen, 2003, 2004; Johnson, 1998) while others have been designed using data collected at multiple points in time (e.g., McLean et al., 1996; Newman and Sabherwal, 1996; Rutner et al., 2001).

A more comprehensive review of the literature on longitudinal research in information systems will paint a fuller picture of topics addressed and methods used.

RESEARCH QUESTIONS

The research study discussed here will answer four research questions.

1. What is the state of longitudinal research in the information systems discipline?
2. What types of longitudinal research have scholars working in the information systems discipline used?
3. What are the patterns in the research methods and research topics in longitudinal research in the information systems discipline?
4. What are the gaps in longitudinal research in the information systems discipline?

RESEARCH METHODOLOGY

The study involves a review of articles published in high quality information systems journals that use a longitudinal research approach. Our initial search has included the eight journals included in the “Senior IS Scholars’ basket of journals. The “Senior IS Scholars’ basket includes the following journals:

1. European Journal of Information Systems (EJIS);
2. Information Systems Journal (ISJ);
3. Information Systems Research (ISR);
4. Journal of the Association for Information Systems (JAIS);
5. Journal of Information Technology (JIT);
6. Journal of Management Information Systems (JMIS);
7. Journal of Strategic Information Systems (JSIS);
8. Management Information Systems Quarterly (MISQ).

We began with keyword searches in databases of scholarly publications to identify longitudinal research studies in the information systems. Papers with the keyword “longitudinal” in the title, keywords, or abstract were included in the output of the searches. Articles published from 1995-2015 were included in the searches. Table 1 shows the number of articles in each journal found in the keyword searches.

| Journal | Number of Articles Found |
|--|--------------------------|
| European Journal of Information Systems | 30 |
| Information Systems Journal | 5 |
| Information Systems Research | 16 |
| Journal of the Association for Information Systems | 11 |
| Journal of Information Technology | 20 |
| Journal of Management Information Systems | 13 |
| Journal of Strategic Information Systems | 19 |
| Management Information Systems Quarterly | 41 |

Table 1. Number of Articles in Each Journal

To pilot test our coding method, we randomly selected five articles from five of the journals included in the study. The articles were numbered according to the order they appeared in the search results. Within each of the five selected journals an article was then selected through random drawing.

Articles were coded using the coding scheme shown below. Two researchers participated in the initial coding.

| | |
|---------------|--|
| Article title | |
|---------------|--|

| | |
|--|--|
| Journal | |
| Year | |
| Author | |
| Country /region | |
| Length of study | |
| Number of data collection | |
| Duration between data collection efforts | |
| Unit of analysis | |
| Sampling method | |
| Research method | |
| Research themes and area | |
| Main findings | |

Table 2. Coding Sheet

Five examples of our initial coding of journal articles will be discussed (Howard, 2005; Howcraft and Light, 2010; Ngwenyama and Norbjerg, 2010; Shaft, 2008; Venkatesh et al., 2011).

We are currently screening articles found in the initial literature search in order to eliminate studies that do not use a longitudinal research approach. For example, an initial review of the articles revealed that at least some of the article included in the output of the literature search are not truly longitudinal research studies. We are also refining the coding scheme in order to better answer the research questions posed above.

Conclusion

When completed this study will improve our understanding of the role of longitudinal research methodologies in information systems research. A summary of the findings will show the current status of this research approach in the information systems field. We will provide a critique of prior research and make suggestions for future research. We expect to have the coding of articles completed before the conference and will share preliminary results of the study at the conference.

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