《科学研究方法》讲座[*]
Lectures on Research Methods

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Five Lectures, May 12 – 16, 2014

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Overview

Major topics to be discussed in the five lectures include research problem identification, literature review, research question formulation, major research methods in information management, development and justification of research methodology, and report of research. The focus of the lectures will be on how to select methods of data collection and analysis to form a research methodology based on the research problem one intends to explore. Tips on writing research report and getting it published will be also shared in the lectures.

Lecture 1 – May 12, 2014 - 2教313

- Topics
  - o Introduction and overview
  - o Research problem identification & statement
  - o Literature search and review
- References
  - o Boote, David N., and Beile, Penny. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational Researcher, 34(6),* 3-15.
  - o Dilevko, Juris. (2007). Guest editorial: Reading literature and literature reviews. *Library & Information Science Research, 29(4),* 451–454.
  - o Hernon, Peter, and Schwartz, Candy. (2007). Editorial: What is a problem statement? *Library & Information Science Research, 29(3),* 307-309.
  - o University of Melbourne Library. (2014). Literature reviews. http://unimelb.libguides.com/lit_reviews.

Lecture 2 – May 13, 2014 - 1教311

- Topics
  - o Research question/hypothesis formulation
  - o Levels of measurement
  - o Research scope
  - o Population and samples
  - o Major data collection techniques I – Surveys
    - Questionnaire
    - Interview
- References
  - o Ivie, Rachel, and Czujko, Roman. (2007). What's your survey telling you? *Physics Today, 60(11),* 78-79.

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[*] The lecture page is at http://myweb.cwpost.liu.edu/hchu/PKU2014/.

- Lane, David M., et al. [n.d.] <u>Online statistics education: A multimedia course of study</u>. Version 2. http://onlinestatbook.com/Online_Statistics_Education.pdf.
    - Chapter I. Introduction
  - Scheuren, Fritz. (2004). <u>What is a survey</u>. 2nd ed. Alexandria, VA: American Statistical Association. http://www.whatisasurvey.info/downloads/pamphlet_current.pdf.
- Method examples
  - Deltor, Brian, Julien, Heidi, and Willson, Rebekah. (2011). Learning outcomes of information literacy instruction at business schools. *Journal of the American Society for Information Science & Technology, 62(3),* 572-585. [Interview]
  - Hara, et al. (2003). An emerging view of scientific collaboration: Scientists' perspectives on collaboration and factors that impact collaboration. JASIST, 54(10), 952-965. [Interview]
  - Head, Alison J. (2007). <u>How Do Humanities and Social Science Majors Conduct Course-Related Research?</u> Moraga, CA: Saint Mary's College of California [Questionnaire]
  - National Research Council (NRC). (2006). 2006 assessment of research doctoral programs.
    - Faculty questionnaire (including question rationale)
    - Student questionnaire (including question rationale)
  - Niu, Xi, et al. (2010). National study of information seeking behavior of academic researchers in the United States. *Journal of the American Society for Information Science & Technology, 61(5),* 869-890. [Questionnaire]

Lecture 3 – May 14, 2014 - 1教311
- Topics
  - Major data collection techniques II – Non-survey methods
    - Bibliometrics, webometrics, and altmetrics
    - Experiment
    - Observation
    - Historical research
    - Focus groups
    - Delphi study
    - Ethnography/Fieldwork
    - Think aloud protocol
    - Other methods
      - Content analysis, secondary analysis
      - Theoretical approaches
- References
  - Almind, Tomas C., and Ingwersen, Peter. (1997). Informetric analyses on the World Wide Web: Methodological approaches to "Webometrics". *Journal of Documentation, 53(4),* 404-426.
  - Dunham, Randall B. (1996). <u>The Delphi technique.</u> Madison, WI: University of Wisconsin Medical School, Administrative Medicine Program. http://www.webcitation.org/5UYPt0OPO.
  - Fox, Nick. (1998)**.** <u>How to use observations in a research project</u>. Sheffield, UK: Trent Focus Group. http://www.webcitation.org/5ZndSmDde.
  - Genzuk, Michael. (2003). A synthesis of ethnographic Research. Occasional Papers Series. Center for Multilingual, Multicultural Research. (Eds.). Los Angeles, CA: Center

for Multilingual, Multicultural Research, Rossier School of Education, University of Southern California. Los Angeles.

- o Haas, David F., and Kraft, Donald H. (1984). Experimental and quasi-experimental designs for research in information science. *Information Processing & Management, 20,* 229-237.
- o Ikpaahindi, Linus. (1985). An overview of bibliometrics: Its measurements, laws and their applications. *Libri, 35,* 163-177.
- o Jansen, Bernard J. (2006). Search log analysis: What is it, what's been done, how to do it. *Library & Information Science Research, 28(3)*, 407-432.
- o Scheuren, Fritz. (2004). What is a survey. 2nd ed. Alexandria, VA: American Statistical Association. http://www.whatisasurvey.info/downloads/pamphlet_current.pdf.
  - ▪ Chapter 5. What are focus groups (as part of preparing surveys)
- o Smith, Linda. (1981). Citation analysis. *Library Trends, 30(1),* 83-106.
- Method examples
  - o Berg, Selinda Adelle, Hoffman, Kristin, and Dawson, Diane. (2010). Not on the same page: Undergraduates' information retrieval in electronic and printed books. *The Journal of Academic Librarianship, 36(6),* 518-525. [Think aloud protocol]
  - o Chu, Heting. (2005). Taxonomy of inlinked Web entities: What does it imply for webometric research? *Library & Information Science Research: An International Journal, 27(1)*, 8-27.
  - o Chu, Heting. (2006). Curricula of LIS programs in the USA: A content analysis. *Proceedings of the Asia-Pacific Conference on Library & Information Education & Practice 2006*, (pp. 328-337), Singapore, April 3-6, 2006. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.89.1470&rep=rep1&type=pdf. [Content analysis]
  - o Chu, Heting, He, Shaoyi, and Thelwall, Mike. (2002). Library and information science schools in Canada and USA: A webometric perspective. *Journal of Education for Library and Information Science, 43(2),* 110-125. [Webometrics]
  - o Cortez, E., et al. (2009). A flexible approach for extracting metadata from bibliographic citations. *Journal of the American Society for Information Science & Technology,* 60(6), 1144-1158. [Experiment – Evaluative]
  - o Delcore, Henry D. et al. (2009). The library study at Fresno State. Fresno, CA: Institute of Public Anthropology, California State University, Fresno. [Field study, observation, & more]
  - o Hansen, Preben, and Karlgren, Jussi. (2005). Effects of foreign language and task scenario on relevance assessment, *Journal of Documentation*, *61(5),* 623 – 639. [Experiment - Classic]
  - o Hjørland, Birger. (2002). Domain analysis in information science: Eleven approaches – traditional as well as innovative. *Journal of Documentation, 58(4),* 422-462. [Theoretical approach]
  - o Hollink, Vera, Tsikrika, Theodora, and de Vries, Arjen P. (2011). Semantic search log analysis: A method and a study on professional image search. *Journal of the American Society for Information Science and Technology, 62(4),* 691-713. [Transaction log analysis]
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Computing Systems, CHI 2007 – Extended Abstracts, Work-In-Progress, April 28 – May 3, 2007. 2471-2476. [Experiment]
- Large, Andrew, Beheshti, Jamshid, and Rahman, Tarjin. (2002). Design criteria for children's web portals: The users speak out. *Journal of the American Society for Science & Technology, 53(2),* 79–94. [Focus groups]
- Leong, Ivan C.B. and Higgins, Susan. (2010). Public library services for wheelchair-bound young people in Singapore. *Public Library Quarterly, 29(3),* 210-229. [Focus groups.]
- Ludwig, Logan, and Starr Susan. (2005). Library as place: Results of a Delphi study. *Journal of Medical Library Association, 93(3),* 315–326. [Delphi study]
- St. Jean, Beth, Rieh, Soo Young, Lim, Yong–Mi, and Yang, Ji Yeon. (2012). An analysis of the information behaviors, goals, and intentions of frequent Internet users: Findings from online activity diaries. *First Monday, 17(2).* http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/viewArticle/3870/3143 [Research diary]
- Slone, Debra J. (2003). Internet search approaches: The influence of age, search goals, and experience. *Library & Information Science Research, 25(4),* 403-418. [Observation]
- Sun, Xu, Sharples, Sarah, and Makri, Stephann. (2011). A user-centred mobile diary study approach to understanding serendipity in information research. *Information Research, 16(3),* paper 492. http://InformationR.net/ir/16-3/paper492.html [Research diary]
- Walter, Vivienne. (2011). Not just information: Who searches for what on the search engine Google? *Journal of the American Society for Information Science and Technology, 62(4),* 761-775. [Transaction log analysis]
- Williams, Robert V. (2010). Hans Peter Luhn and Herbert M. Ohlman: Their roles in the origins of Keyword-in-Context/permutation automatic indexing. *Journal of the American Society for Information Science and Technology, 61(4),* 835-849. [Historical study]
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- White, Howard, & McCain, Katherine. (1998). Visualizing a discipline: An author co-citation analysis of information science, 1972-1995. *Journal of the American Society for Information Science, 49(4),* 327-355. [Citation analysis]
- Zhang, Yin, and Salaba, Athena. (2009). What is next for Functional Requirements for Bibliographic Records (FRBR)? A Delphi study. *Library Quarterly, 79(2),* 233-255. [Delphi study]

Lecture 4 – May 15, 2014 - 1教301
- Data analysis techniques
  - Quantitative techniques
  - Qualitative techniques
- Research design
  - Method selection, development & justification
  - Quantitative research vs. qualitative research
  - Evaluation
  - Research design case studies
- References

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- o Mayring, Philipp. (2000). Qualitative content analysis. *Forum: Qualitative Social Research, 1(2),* Article 20. http://www.qualitative-research.net/index.php/fqs/article/view/1089/2386.
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Lecture 5 – May 17, 2014 - 1教301

- Topics
  - o Research report and presentation
  - o Research manuscript submission
  - o Wrap-up
- References
  - o Bem, Daryl J. (2003). "Writing the empirical journal articles". In: J.M. Darley, M.P. Zanna, and H.L. Roediger III. (Eds.). The complete academic: A practical guide for the beginning social scientist. 2nd ed. Washington, DC: American Psychological Association.
  - o Creswell, John W. (2003). Research design: Qualitative, quantitative and mixed methods approaches. 2nd ed. Thousand Oaks, CA: Sage Publications.
    - Chapter 1. Framework for design
  - o Hernon, Peter, and Schwartz, Candy. (2009). Editorial: Procedures: Research design. *Library & Information Science Research, 31(1)*, 1-2.
  - o Hernon, Peter, and Schwartz, Candy. (2009). Editorial: Reliability and validity. *Library & Information Science Research, 31(2),* 73-74.
  - o Halvorsen, Katherine T. (1994). Chapter 27. The reporting format. In: Harris Cooper, and Larry V. Hedges. (Eds.). The handbook of research synthesis (pp. 425-437). New York: Russell Sage Foundation.

Relevant Websites

- They are both linked from the lecture homepage and posted at http://myweb.cwpost.liu.edu/hchu/PKU2014/RelevantSites.htm.

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