Master of Education

MEDD 6014

Methods of Research and Enquiry (2014-15)

Overview

This is a core module in the M. Ed. Master of Education specialism <u>Designing Powerful Learning Environments</u>, offered by the Faculty of Education, University of Hong Kong.

This module introduces educational research methods with emphasis on critical reading and understanding of a variety of approaches to research in education. Students will also be introduced to the various stages of the research process from the development and justification of research questions and the formulation of an appropriate research design, including methods of data-gathering and data analysis, with specific reference to the major research problems, questions and approaches in the learning sciences.

Aims

This module has two overarching aims:
- It provides students with an understanding of the different purposes and paradigms that underpin different approaches and methods in educational research so that they may become critical readers of education research and able to access and take advantage of research findings to aid understanding and problem solving in education. In particular, research design and methods related to instructional approaches informed by the learning sciences will be examined.
- It provides students interested in undertaking dissertation or independent project work with a sound foundation for framing their research.

Pre-requisites and Co-requisites

There are no pre-requisites and co-requisites for this module.

Module Facilitator

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Structure

The module is equivalent to two modules for grading, and has the following parts:
1. <u>Essentials of educational research</u> (Semester 1, Year 1): All students (FT and PT) complete this module together; there are weekly sessions that focus on concepts and research design. At the end of the semester students submit a draft research proposal for feedback from the instructor, as well as a learning portfolio. This part contributes to the equivalent of a one-semester course grade.
2. <u>Research skills development</u> is completed on a different schedule by PT and FT students, and consists of two subparts:
   a) Further development of the research proposal based on feedback from the instructor, and online presentation and discussion of the revised proposal. FT students submit the online presentation by mid-March 2015 and PT students by the end of August 2015. (Equivalent to 0.50 of one-semester course grade.)

b) Skills oriented workshops. FT students complete these in May and June of Year 1 and PT students in May and June of Year 2. (Equivalent to 0.50 of one-semester course grade.)

Module Learning Outcomes (LO)

MLO No.	MLO Statement	Assessment Task
1	Understanding of the relevance of research to educational design	1
2	Ability to evaluate a research study in light of a practical question and criteria about validity and research integrity	1
3	Ability to design a research investigation or educational design project	2
4	Ability to present a research proposal and discuss it with peers	3
5	Ability to carry out simple data analysis tasks	4

These Module Learning Outcomes integrate three Specialism Outcomes:
- Understanding the learning sciences as a field and a foundation for educational design
- Ability to locate and evaluate research relevant to a question, and design a research investigation of design study
- Ability to conceive, plan, carry out, and evaluate educational designs

The Specialism Learning Outcomes are addressed in each core module (MEDD6201, MEDD6202, MEDD6203, MEDD7108 and MEDD 6014), and the level to which students are expected to demonstrate the outcomes improves each semester. This module covers only three of them, and the Module Learning Outcomes target the ways to demonstrate them.

The specialism and modules also address the University Educational Aims and 21st century skills through the work students do in class and in professional contexts:
1. Pursuit of academic/professional excellence, critical intellectual inquiry, lifelong learning
2. Tackling novel situations and ill-defined problems
3. Critical self-reflection, greater understanding of others, and upholding personal and professional ethics
4. Intercultural understanding and global citizenship
5. Leadership and advocacy for the improvement of the human condition

	Schedule for RM1 (Semester 1)
Session 1	**September 19, 2014** **Introduction** ➔ Defining research in education ➔ The relation between research and practice in education ➔ "Grand challenges" for research in education ➔ Varieties of research output ➔ Locating research reports **Activities** - Explore major themes in published research - Workshop on literature search - Students install EndNote software after class **Resources** • Van Aalst – Chapter 1 and chapter 2 (Moodle) • EndNote software
Session 2	**September 26, 2014** **Research Questions and Research Design** ➔ What makes a question researchable? ➔ Some basic definitions: data, hypothesis, intervention, sample, participants, population, etc. ➔ Overview of types of studies: e.g. surveys, experiments, case studies, design studies, longitudinal studies, ethnographies ➔ Alignment of research problem, research questions, evidence gathering, and analysis **Activities** - Identify research problems and questions, and how researchers answer them in published studies - Formulating your own problem statement and research questions **Resources** • Hernon, P., & Schwartz, C. (2007). What is a problem statement? *Library & Information Science Research, 29*, 307-309. • Some general references on approaches: Qualitative research, Maxwell (2005); survey research, Fowler (2009); ethnography, Fetterman (2010); case studies, Yin (2003). • Online presentations on case studies, experiments, and surveys at http://dple.edu.hku.hk

October 3, 2014
Issues in Research Design and Conduct

➔ The roles of theory in research: conceptual framework and contribution to theoretical knowledge
➔ Making research good: sampling, validity, reliability, generalizability, and usability
➔ Making research ethical: risk and benefit assessment, informed consent, unacceptable practices, developing good scholarship practices

Activities
- Explore the above issues through reading and discussion
- Refine your research problem and research problem, and conduct a literature search
- Workshop: Reading research articles (anatomy of an article)

Resources
• Various online materials
• Many general books on research methodology have chapters on research design: e.g., Abrami, Cholmsky, and Gordon (2001), chap. 2, and Cohen, Manion, & Morrison (2000), chaps. 3-5.
• On research ethics: Israel and Hay (2006), and McKee and Porter (2009).

Session 3

October 10, 2014
Design Research

➔ The goals of design research
➔ Examples of design research
➔ Doing design research

Activities
- Formative assessment 1 (Collaborative activity to design a case study, experiment, or survey to consolidate material in previous sessions).

Resources
• Hernon, P., & Schwartz, C. (2007). What is a problem statement? *Library and Information Science Research, 29*, 307-309.
• Design-based research: A methodological toolkit for the learning scientist (CHLS2, chap. 8).
• A good general reference for *doing* design research is McKenney and Reeves (2012).

Session 4

October 24, 2014
Measuring Learning

➔ Theories of learning
➔ Gathering evidence of learning
➔ Units of analysis
➔ Techniques
➔ Examples

Activities
- Briefing on APA style (6th edition)
- Discussion of how we can measure learning (transfer) and factors that influence learning
- Looking at some examples from literature
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- Formative assessment 2 (Peer feedback on your own research problem and approach)

Resources
• Examples of conceptual evaluations
• Examples of questionnaires on epistemic beliefs, learning environments, approaches to learning, motivation, etc., from the literature
• On efficiency in measurement: Schwartz, Chang, and Martin (2006)
• Instructions on doing a literature review: in Moodle, and Machi and McEvoy (2009)

October 31, 2014
Interviewing

➔ The purposes of interviewing
➔ From research questions to interview questions
➔ Types of interviews
➔ Conducting interviews
➔ Processing interview data
➔ Member checks

Activities
- Workshop on interviewing

Resources
• Many good guides on interviewing: E.g., Kvale and Brinkmann (2009); Seidman (2006), Rubin and Rubin (2005)

November 7, 2014
Qualitative and Quantitative Approaches to Coding

→ The purposes of coding
→ Quantifying qualitative data
→ Coding frameworks for quantitative coding
→ Qualitative approaches
→ Software for coding
→ Automatic coding
→ Validity, reliability, and trustworthiness

Activities
- Workshop on coding, using data from online discussions
- Presentation 1 and Presentation 2

Resources
- General reference on coding: Saldana (2009)
- Coding with Atlas-ti: Friese (2012)

November 14, 2014
Data Analysis I

→ From data back to research questions
→ Describing and summarizing quantitative data
→ Making inferences from quantitative data

Activities
- Discussion of examples from the literature
- Workshop on quantitative analysis
- Presentation 3 and Presentation 4

November 21, 2014
Data Analysis II

→ From coding to queries, "near" inferences, and research questions
→ Combining qualitative and quantitative analyses in the same study
→ Creating a narrative from data analysis: inferences to data processing to data gathering, to research design, to research questions, to research problem

Activities
- Workshop on interpreting qualitative and quantitative data analyses to answer research questions

Resources
- Saldana (2009) and Friese (2012)

Session 7

Session 8

Session 9

December 5, 2014
Developing a Research Proposal

➜ The purpose of a research proposal
➜ The components of a research proposal

Activities
- Review of the module
- Briefing on developing a research proposal

Resources
• On developing research proposals: Punch (2006)

Assessment Components

There are three assessments in this course. For full-time students the whole course is completed in the first year; for PT students the course is completed in two years. PT and FT students both complete RM1 during the first semester.

Assessment Component 1

Component	Title	Format	Score	Due Date
1	**Electronic Portfolio**	Individual	20	December 15, 2014

In this specialism we will use an electronic portfolio in the DPLE domain on Google to reflect on and showcase learning in each of the four core modules and MEDD 6014, using the four Specialism Learning Outcomes as a guide. In this module, students are expected to <u>write a 2-3 entries to self-assess their emerging understanding of the Specialism Learning Outcomes</u> relevant to research methods. These outcomes are further articulated for this module by means of the Module Learning Outcomes.

Assessment Component 2

Component	Title	Format	Score	Due Date
2	**Draft Proposal**	Individual	30	January 12, 2014

Students are required to submit a preliminary research proposal (2000 to 25000 words) for a research project. The proposal should include a clear description of the following: 1) research problem; 2) summary of literature; 3) research questions; and 4) the proposed methods.

Component	Title	Format	Score	Due Date
3	**Presentation of Revised Research Proposal**	Group	50	March 14, 2015 (FT) August 31, 2015 (PT)

Finally, students create an online presentation of their proposal, in which they respond to feedback from the lecturer; the proposal is discussed online and students also respond to feedback from peers. The relatively heavy weight on this presentation reflects that by this time the proposal is more development, and hence of better quality than the preliminary version. It does not necessarily reflect the amount of work that goes into preparing the presentation. If a student's draft proposal is below a "B", the lecturer may request a revised draft proposal before the online presentation.

Selected References

Survival as M. Ed. student

Wilson, E., & Bedford, D. (2009). *Study skills for prat-time students*. Hong Kong: Pearson.

General textboooks

Abrami, P. C., Cholmsky, P., & Gordon, R. (2001). *Statistical analysis for the social sciences: An interactive approach*. Needham Heights, MA: Allyn and Bacon.
Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education* (5th ed.). London, UK: RoutledgeFalmer.
Cresswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed-methods approaches*. Thounsand Oaks, CA: Sage Publications.
Hinkle, D. E., Wiersma, W., & Jurs, S. G. (2003). *Applied statistics for the behavioral sciences*. New York, NY: Houghton Mifflin Company.
Johnson, B., & Christensen, L. (2012). *Educational research: Quantitative, qualitative, and mxied approaches*. Singapore: SAGE.
Tobin, K., & Kincheloe, J. (Eds.). (2006). *Doing educational research: A handbook*. Rottredam, the Netherlands: SensePublishers.

Using research findings

McEwan, E. K., & McEwan, P. J. (2003). *Making sense of research: What's good, what's not, and how to tell the difference*. Thousand Oaks, CA: Corwin Press.

Design ressearch

Dai, D. Y. (Ed.). (2012). *Design research on learning and thining in educational settings: Enhancing intellectual growth and functioning*. New York, NY: Routledge.
McKenney, S., & Reeves, T. C. (2012). *Conducting educational desing research*. Bew York, NY: Routledge.
Kelly, A. E., Lesh, R. A., & Baek, J. Y. (2008). *Handbook of design research methods in education*. New York, NY: Routledge.
Reinking, D., & Bradley, B. A. (2008). *On formative and design experiments: Approaches to language and literacy research*. New York, NY: Teachers College Press.
Schwartz, D. L., Chang, J., & Martin, L. (2008). Instrumentation and innovation in design experiments: Taking the turn towards efficiency. In A. E. Kelly, R. A. Lesh & J. Y. Baek (Eds.), *Handbook of*

design research methods in education: Innovations in science, technology, engineering, and mathematics learning and teaching (pp. 47-65). New York: Routledge.

van den Akker, J., Gravemeijer, K., McKenney, S., & Nieveen, N. (Eds.). (2006). *Educational design research*. New York, NY: Routledge.

Other approaches

Fetterman, D. (2009). *Ethnography: Step-by-step*. Thousand Oaks, CA: Sage Publications.

Fowler, F. (2008). *Survey research methods*. Thousand Oaks, CA: Sage Publications.

Maxwell, J. (2004). *Qualitative research design: An interactive approach*. Thousand Oaks, CA: Sage Publications.

Ritchie, J., & Lewis, J. (2003). *Qualitative research practice: A guide for social science students and researchers*. Thousand Oaks, CA: SAGE.

Roth, W. M. (2005). *Doing qualitative research: Praix of method*. Rotterdam, the Netherlands: SensePublishing.

Yin, R. K. (2003). *Case study research: Design and methods (third edition)*. Thousand Oaks, CA: Sage Publications.

Interviewing

Kvale, S., & Brinkmann, S. (2008). *InterViews: Learning the craft of qualitative research interviewing*. Thousand Oaks, CA: Sage Publications.

Rubin, H., & Rubin, I. (2005). *Qualitative interviewing: The art of hearing data*. Thousand Oaks, CA: Sage Publications.

Seidman, I. (2006). *Interviewing as qualitative research* (3rd ed.). New York, NY: Teachers College Press.

Coding

Friese, S. (2012). *Qualitative data analysis with Atlas-ti*. Los Angeles, CA: SAGE.

Saldana, J. (2009). *The coding manual for qualitative researchers*. Singapore: SAGE.

Research ethics

Israel, M., & Hay, I. (2006). *Research ethics for social scientists*. Los Angeles, CA: Sage.

McKee, H. A., & Porter, J. E. (2009). *The ethics of internet research: A rhetorical, case-based process*. New York, NY: Peter Lang.

Writing

Machi, L., & McEvoy, B. (2008). *The literature review: six steps to success*. Thousand Oaks: Corwin Press.

Morgan, S., Reichert, T., & Harrison, T. (2002). *From numbers to words: Reporting statistical results for the social sciences*. Boston, MA: Allyn & Bacon.

Punch, K. (2006). *Developing effective research proposals* (2nd ed.). Thousand Oaks, CA: Sage Publications.