JISC

Project Document Cover Sheet

Project Information			
Project Acronym	ORM		
Project Title	Online Research Methods		
Start Date	March 2008	**End Date**	July 2009
Lead Institution	Bristol Business School, University of the West of England		
Project Director			
Project Manager & contact details	Dr Nadine Fry Tel: 0117 3283441 Email: Nadine.Fry@uwe.ac.uk		
Partner Institutions			
Project Web URL	www.uwe.ac.uk/bbs/orm		
Programme Name (and number)	RePRODUCE		
Programme Manager	Heather Williamson		

Document Name			
Document Title	Final report		
Reporting Period	N/A		
Author(s) & project role	Dr Nadine Fry, Nia Love and Debbie Sturge		
Date	18/2/09	**Filename**	ORM_Final Report
URL	www.uwe.ac.uk/bbs/orm		
Access	☐ Project and JISC internal		☑General dissemination

Document History		
Version	**Date**	**Comments**
1	30/1/09	Feedback received from Heather Williamson and Helen Beetham
2	18/2/09	

JISC Final Report

Title Page

Online Research Methods (ORM)
Final Report Authors: Dr Nadine Fry, Nia Love and Debbie Sturge
Contact person: Dr Nadine Fry

Date: January 2009

Table of Contents

1. Acknowledgements

This project was part of the RePRODUCE Programme funded by JISC. We wish to thank the following for their continued support throughout the project: the Copyright Advice and Support Project for JISC E-learning Resources (CASPER), University of the West of England E-Learning Development Unit (UWE EDU), Bristol Business School (BBS) library and Learning and Research Technical Unit (LARTU), the MSc Financial Management programme team, our critical friends PHYSCHE (RePRODUCE project), and the authors of reused/repurposed materials.

2. Executive Summary

The aim of this project was to develop a generic Online Research Methods (ORM) module using mainly reused/repurposed learning materials. This module is to be deposited in JORUM, an open access repository of resources for the UK educational community. The experiences gained and lessons learnt whilst undertaking this project provide a valuable insight into the development of open

access educational resources. Prior to undertaking the project, we felt that reusing/repurposing material would be a relatively straightforward process. However, in reality we encountered a number of unexpected difficulties. Firstly, we found it difficult to use materials from different disciplines as their context was often inappropriate and embedding large chunks of material would have resulted in an incoherent tutor-learner dialogue. Therefore, we focussed on embedding small snippets of information (including definitions, simple explanations and applets) and providing *links* to larger information resources. This compromise was successful and we have therefore been left to question the value of actually *embedding* large amounts of reused/repurposed materials into online learning objects. Secondly, we found it difficult to engage with materials developed by others due to a lack of ownership and control. We therefore found it a lot easier, and indeed less resource intensive, to develop new rather than adapt existing material. Thirdly, it is evident that there are misconceptions about copyright/intellectual property rights (IPR) that need to be addressed. However whilst we recognise the need for staff development, there is also some value in maintaining the *status quo* whereby academics are willing to share resources via informal networks. Our experiences suggest that academics' goodwill is often withdrawn when a more formal procedure is introduced, thus making it problematic to obtain open access to previously developed learning materials. This dilemma may be partly resolved if when developing new materials, academics are encouraged to establish whether it is their intent to share them and to consider the copyright/IPR implications at this stage.

3. Background

This project aimed to develop an Online Research Methods (ORM) module that is to be delivered on a new online distance learning programme, MSc Financial Management (Professional Learning and Development) offered by the University of the West of England (UWE) [1]. This programme is designed for qualified accountants from around the world who are currently teaching undergraduate, postgraduate or professional accounting students but have limited experience of designing and undertaking academic research. The module was delivered using the commercially provided virtual learning environment (VLE) Blackboard and the assessment will require students to produce a detailed dissertation research proposal. Over the last six years, Blackboard has been rolled out across all undergraduate and postgraduate campus based provisions. The MSc Financial Management is a pilot distance learning programmes that is being developed to build on this experience and to develop innovative learning and teaching environments using emerging technologies. In line with the Government's life long learning policy, such initiatives are an important means of widening participation, enhancing the quality of provisions and entering new markets.

3.1 Relationship to JISC e-Learning Programme

At UWE, it is recognised that Information and Communication Technologies (ICT) should be an integral part of the learning and teaching environment. This project focuses on how ICT can be implemented to support online distance learning, which is a relatively new pedagogical approach for many academics and senior management within UWE. This pilot programme will therefore act as a vehicle for developing the knowledge and skills base of those involved in the design and delivery of online programmes, which will hopefully enhance their confidence and willingness to engage with emerging technologies. The experiences gained from the project will be disseminated within UWE and the wider national and international academic community.

3.2 Relationship to JISC RePRODUCE

The RePRODUCE strand of JISC's e-learning programme funds projects aimed at developing, running and quality assuring technology enhanced courses of which 50% of learning materials are reused and repurposed from sources external to funded institutions. Of the remaining 50% of materials, 35% should be reused and repurposed from sources internal to the institution and 15% should be newly developed. Given that research methods is perceived to be a generic subject that can be taught across disciplines and international boundaries, we felt that it was appropriate to develop a module using reused/repurposed learning materials in line with the RePRODUCE programme. Further, UWE had already developed an open access, online research methods resource (Research Observatory) in partnership with Bath University, which we felt we could use to drive this project forward by linking out to other resources.

[1] The development of the ORM module will not be completed until May 2009.

3.3 Motivation for the Project

Whilst we were not aware of any open access, high quality, online research methods module that we could deliver as part of the MSc Financial Management programme, we recognised that there was an abundance of research methods material available in different places and different formats. We were interested in attempting to consolidate this existing material to develop a coherent online research methods module. In doing so, we hoped to enhance the quality of learning and prevent other academics investing resources to reinvent the wheel.

4. Aim and Objectives

4.1 Aim

To develop a generic online research methods module that can be offered in the UK and internationally to both postgraduate students and professionals.

4.2 Objectives

- To develop a Research Methods module for delivery during the academic year 2008/2009.
- To draw upon both external and institutional content to identify high quality research methods resources.
- To facilitate access to research methods resources to support both campus-based and distance learning.
- To facilitate access to research methods resources to support the learning of both students and professionals.
- To enable learners to produce a research proposal.

In addition, the need to actively disseminate the project outcomes and offer staff development opportunities was implicit in the project plan.

We have used the JISC evaluation framework to consider the extent to which the above aims and objectives have been achieved, as detailed in the 'Outputs and Results' and 'Implementation, Outcomes and Impact' sections of this report.

5. Methodology

As we had no experience of developing an online module for distance learners, we initially reviewed the pertinent e-learning literature and theoretical frameworks. We felt that it was important to develop the module through the learners' eyes and found the following three e-learning models particularly useful: Mayes' (1995) *Conceptualisation Cycle*, Laurillard's (2002) *Conversational Framework*, and Salmon's (2003) *E-tivities*. Learner interactivity, facilitated, encouraged and supported by the tutor as 'e-moderator', was central to the development of the module. The key stages of development were 'access and motivation', 'online socialisation', 'information exchange', 'knowledge construction' and 'development' (Salmon 2003). With regard to RePRODUCE, the most important consideration was how we would reuse/repurpose materials within the above framework. The project development comprised of three phases:

5.1 Phase One: Module Development (March 2008 – May 2009)

- ✓ Scoping of available resources (both hard and online materials);
- ✓ Design of module programme and schedule of work;
- ✓ Mapping exercise to evaluate if/how the identified materials could sit within the learning units;
- ✓ Identification of any gaps in the materials;
- ✓ Consider ways in which identified materials could be reused, redeveloped and enhanced;
- ✓ More detailed review of available resources;
- ✓ Identify existing materials that required copyright – we met with Liam Earney, a member of the RePRODUCE support project CASPER, who provided us with help and support and guidelines for obtaining copyright. Initially we sent informal e-mails to academics whose work we wanted to reuse/repurpose. If their response was positive, we e-mailed them a formal letter of agreement to sign. For commercially published materials (i.e. textbooks), we had to provide exact details of the

material we intended to reuse/repurpose (i.e. sections, paragraphs, sentences, and number of words);
- ✓ Identify existing materials for which copyright was already available: no further action required;
- ✓ Identify materials that needed to be newly developed - developed by module team, including links and interactive activities to contextualise the module;
- ✓ Determine materials that still needed to be identified – ongoing search for relevant materials;
- ✓ Development of learning units;
- ✓ Continual feedback from project team and other stakeholders through out the development process via regular programme and module meetings, online discussion groups and interviews with specialist stakeholders as required.

5.2 Phase Two: Module Delivery (September 2008- June 2009)
- ✓ 13 international students (1 black or black British, 1 Chinese, 1 mixed, 6 other Asian, and 4 white) were enrolled on the module in September 2008. There were 9 male and 4 female students all of whom were over the age of 25. With regard to the students' highest qualifications, 2 students had undergraduate degrees, 1 student had a postgraduate diploma, and 10 students were qualified accountants.
- ✓ Stakeholder feedback both during delivery and on completion of the module via regular meetings, student feedback questionnaires, online discussion groups and focus groups.

5.3 Phase Three: Reflection and Dissemination (ongoing)
- ✓ Reflection on and evaluation of module post delivery;
- ✓ Dissemination of our experiences and lessons learnt via workshops, reports and project website.

6. Outputs and Results

The final project output will be an open access, reusable, online research methods module designed to enable Master's level students to produce a viable, social science research proposal. Whilst the module has not been developed for delivery to undergraduate students, elements of the learning material are of an appropriate standard and could therefore be extracted and repurposed for undergraduate delivery. Furthermore, although the module has been developed for distance learners, it could also be used to provide additional support to campus-based students. This module is now being delivered to students and the learning units can be found in appendix 1.

To date, the % of reused/repurposed material required by the RePRODUCE project has not been achieved. Currently, approximately 10-20% of the module is reused/repurposed material and 80-90% is newly developed. Of the reused/repurposed material, 80% has been externally sourced and 20% internally sourced (see section *7.2.1 Reuse/Repurpose of Materials* for a more detailed discussion).

7. Implementation, Outcomes and Impact

We believe that the most important outcomes from this project are the experiences gained and the lessons learnt throughout its implementation. We have therefore split this section into two subsections: experiences and lessons.

7.1 Experiences

We have categorised our experiences under three broad headings: reuse/repurpose of materials, copyright and IPR, and stakeholders and beneficiaries.

7.1.1 Reuse/Repurpose of Materials

At the beginning of the project, reusing/repurposing materials seemed plausible given the perceived generic nature of research methods. Our review of existing online materials superficially revealed a wealth of material, however on closer inspection, much of this was replicated as many websites were simply databases of other websites. Further, much of this material was subject specific, static and disjointed, but we did initially identify several useful US websites. However, having sought permission to use this material, it was more troublesome than we expected to successfully embed it into the learning units. On a more positive note, basic written information (e.g. definitions, simple explanations and applets) were relatively easy to find and embed (see appendix 2 for examples of small-scale learning materials).

Further, there was rarely a block of material that we wanted to embed into the module without some amendments. It was far more useful to use the web to link out to additional sources (i.e. to highlight important issues in an appropriate context and then say, for example, Jones has a good website that can be used to explore these issues in greater depth, or look at Smiths website for a fuller list of examples). This was also the case for internally sourced materials which have been used as learning unit exercises to get students started on searching for dissertation topics. We didn't feel that it was right to simply cut and paste, mix and match, great chunks of material, as the 'authors voice', which students come to recognise quite quickly, is lost. Different authors adopt very different writing styles and thus the learning materials would be disjointed and confusing if students had to read chunks of different authors' writing.

In addition, we found it difficult to change the context of research methods materials to ensure that they were best suited to the needs of business students. Many of the identified materials were from the field of applied sciences or other social sciences, like psychology, that adopt very different research methodologies to those used in business education. The examples used to support this material were often not relevant to our learning units and were even less useful when extracted from their original environment. Thus, it is difficult to reuse/repurpose supporting examples even if the theoretical content of materials can be used across disciplines. For example, there were many quantitative life style choice examples (e.g. smoking and life span), but we were unable to identify suitable examples of business problems (e.g. marking expenditure and sales revenue).

There were also many issues that impacted upon our ability to engage with the identified learning materials. We felt a lack of ownership of and a loss of control over the materials that we were delivering to our students. This resulted in a rather mechanical approach to our teaching and a feeling that we were 'making do', which restricted our creativity and enthusiasm for the module. The reusing/repurposing of others' materials inhibited our individuality and freedom of expression to create inspiring materials. Finally, there was an underlying sense that reusing/repurposing material was in some way 'cheating' both ourselves and our students given their lack of originality.

7.1.2 Copyright and Intellectual Property Rights (IPR)

The first group of identified materials were online materials authored by academics from other institutions (often based in the US). In order to obtain copyright, we were advised by CASPER to implement a two stage process. The first stage was to contact authors informally via e-mail, at which point all authors were responsive and willing to grant permission under the caveat that the authorship of the materials was recognised. The second stage was to e-mail authors a formal letter of agreement, which resulted in several authors withdrawing their permission due to perhaps the following reasons. Firstly, authors may not have realised that they would be expected to sign away their copyright in order for the material to be made openly available. Secondly, there was an element of fear that they would lose control of the material and that it would be changed and yet still attributed to them. Further, some authors perceived the formal process as too onerous, possibly due to past encounters with their own institution's bureaucracy. Finally, there was a clear lack of uncertainty about copyright/IPR issues and some authors were unsure whether they owned the copyright to materials and therefore had the right to grant permission.

The second group of identified materials were contained within commercially published texts and websites (e.g. SAGE publications). We contacted CASPER for advice on how to approach publishers for copyright permission and were asked to identify the exact materials that we wished to use. This was not possible at this stage of the developmental process due to the iterative nature of designing learning materials. We have not therefore pursued this course of action to date, but will do so if commercially published materials are required throughout the continued development of the module.

7.1.3 Stakeholders and Beneficiaries

It was a positive experience that the level of stakeholder engagement was enhanced throughout the development of the project. Initially, only the three members of the project team really understood the aims and objectives of RePRODUCE. However, we were soon able to inform other stakeholders within UWE (including programme team, students enrolled on the module, department of accounting and finance, other BBS colleagues, library, ICT support, and senior management) about the nature of

our work via a number of formal and informal meetings. Given that the ORM module is part of a pilot distance learning programme, its outcomes have important implications for UWE's e-learning strategy. Positive outcomes could potentially result in significant future investment in distance learning initiatives. The MSc Financial Management programme is to be the subject of an internal academic review during 2008/09. Our experiences and lessons discussed in this report will inform the evaluation process, as will student feedback which has thus far been positive with regard to the programme in general and the ORM module specifically. Further, we have and will continue to disseminate the knowledge and experience gained from undertaking this project. One of the key development areas is academics' understanding and appropriate use of copyright.

Further, the nature of the project meant that we needed to directly involve a number of external stakeholders (including the JISC community and academics from other institutions). This was our first JISC project and initially we found the language used within JISC very different to that encountered within academia. However having invested much time reading through relevant documentation and attending JISC-led sessions, we now feel comfortable in the JISC world and confident in supporting other newcomers to the community. The project has facilitated networking opportunities both with other project teams and the wider academic community. A valuable source of support and motivation was provided by the critical friendship that we established with another project team in a similar academic field. We were able to meet, discuss issues and share experiences on an ad-hoc basis in an open and collegiate environment. The process of searching for relevant learning materials presented us with the opportunity to develop beneficial links with other academics in the field, irrespective of whether or not they granted copyright permission.

7.2 Lessons

We have categorised the lessons that we learnt under the same three headings: reuse/repurpose of materials, copyright and IPR, and stakeholders and beneficiaries.

7.2.1 Reuse/Repurpose of Materials

Contrary to our initial perceptions, we do not now believe that it is possible to develop a generic research methods module due to problems with contextualisation. Indeed, we feel that it is probably easier and less resource intensive to produce materials from scratch. Whilst existing materials were useful and of an appropriate quality, in fact there were some excellent websites, it was frustrating that the context was not quite right or the examples were not appropriate for the intended audience. The existing materials would therefore require quite a lot of 'tweaking' to fit in with the style and direction of our delivery. A 'patched together' module full of different styles that had been 'tweaked' would be transparently obvious to the reader and probably quite difficult to read with any fluency. However, paraphrasing short sections with references and providing links was extremely useful and allowed the students to browse alternative styles of presentation. In this regard, we were able to capture the best of both worlds.

Whilst we did embed numerous definitions, simple explanations and applets into the module, these alone did not constitute anywhere near 50% of the learning material. Whilst it would have been possible to embed other materials into the module, we felt that it was easier to link out to relevant webpages from the learning units. This raises the question of whether reusing/repurposing material actually adds value to the development of new modules. Throughout the process, we kept asking ourselves the question, 'why would we want to go to the trouble of reusing/repurposing material when linking works effectively?'. This question is particularly important given that links are often regularly updated by their owner, whereas embedded materials become static unless changed by the module leader. It is important that developers consider both the resource implications and perceived benefits of reusing/repurposing materials.

In some ways, reusing/repurposing materials may be considered an attempt to 'fill the gap' between resource repositories and online textbooks. On refection, we question whether there is a 'gap to fill' given that both already exist in the marketplace, 'if we could just give the students an e-book and some time management and tutorial exercises the job would be well done!'.

Further, we believe that it is important to consider the motivational consequences of reusing/repurposing a significant proportion of externally sourced materials on any one module or

learning unit. We found it much easier to write our own rather than adapt other people's materials. Initially, we didn't realise how much writing your own materials gives you a sense of ownership that impacts positively upon your engagement with and delivery of a module. This sense of ownership is lost when reusing/repurposing materials.

7.2.2 Copyright and Intellectual Property Rights (IPR)
Our experiences suggest that copyright permission is more likely to be granted via informal networks amongst academics due to the reciprocal level of trust and respect inherent within the community. Further, internal institutional and external legal copyright procedures need to be made as simple as possible to ensure that academics buy into them. There is also the need for continued academic development to clarify many of the misconceptions that individuals hold around copyright and IPR.

7.2.3 Stakeholders and Beneficiaries
We found that building in time for regular reflection as part of the project's reporting process was beneficial to the quality of the final output and outcomes and naturally feeds into formal, institutional quality assurance processes. However, institutions need to raise academics' awareness of how copyright issues relate to all aspects of learning and teaching. Further, our experiences reconfirm the importance of networking within the academic community.

8. Conclusions, Recommendations and Implications for the Future

At the outset of the project, we felt that we clearly understood the meaning of the terms 'reuse' and 'repurpose' in the context of learning materials. However throughout the project, the terms became increasingly confused and were used interchangeably. We would therefore recommend that the terms are more clearly defined to ensure that they are interpreted correctly in any future initiatives. Further, academics are always building on others' work when developing materials and very little is unique. Therefore, almost everything academics produce is reused/repurposed and appropriately referenced to the original author(s). For example in research methods, one would reference Glaser and Strauss (1967) when referring to 'grounded theory'. This raises the question, 'what is the difference between reused/repurposed and newly developed material?. For the purposes of this project, we assumed that 'reusing/repurposing' referred to the process of embedding large chunks of existing material into a new context. Based upon this assumption, it was very difficult to ensure that 50% of the learning material was externally sourced. We would therefore recommend a review of the viability of reusing/repurposing such a high proportion of learning materials.

Our experiences highlighted the fact that there are misconceptions about the role of and responsibility for copyright/IPR at almost every level of academic life (i.e. individual academics, faculty and institutional level). There is therefore the need for staff development to inform stakeholders and ensure that such issues are dealt with in 'the' appropriate fashion. Currently, there appears to be a tacit agreement that academic resources can be shared freely within the community. Academics may not therefore have felt the need to consider copyright/IPR issues when developing materials providing that they are referenced in the appropriate fashion. However, whilst academics are accepting of reusing/repurposing materials in this regard, many are unwilling to engage with the formal agreement process. Perhaps, therefore, we should question how far down the road we want to go in relation to obtaining formal copyright agreement. Do we really want to open up this Pandora's box?

To conclude, whilst it is difficult to gain copyright retrospectively, educators could facilitate open access to learning materials in the future by being clear about their intended use and addressing copyright/IPR issues when they are first published. This would make reusing/repurposing materials a far more desirable option that would be of great benefit to the academic community. Whilst it is difficult to rewrite the past, we believe that changing our practices now will enhance the future of open educational resources. After all, hope was found at the bottom of Pandora's box!

References

Glaser, B.G. and Strauss, A.L. (1967), *The Discovery of Grounded Theory: Strategies for Qualitative Research*, New York: Aldine Publishing Company.

Laurillard, D. (2002), *Rethinking University Teaching: A Conversational Framework for the Effective Use of Learning Technologies* (2nd edition), London: RoutledgeFalmer.

Mayes, T. (1995), 'Learning Technology and Groundhog Day', in Strang, W., Simpson, V.B. and Slater, D. (eds), *Hypermedia at Work: Practice and Theory in Higher Education*, Canterbury, UK: University of Kent Press.

Salmon, G. (2003), *E-tivities – The key to Online Learning*, Abingdon: Kogan Page.

www.uwe.ac.uk/bbs/orm

Appendix 1: Learning Units

Unit 1: Introduction to Research

- Finding the right topic – What, why and how?
    - What is research
    - Why do we research
    - How do we research
- Research design
    - What - Questions and Objectives
    - Why – are you able to justify your enquiry
    - How – how will you go about meeting your objectives
- The nature of knowledge
    - Ontology
    - Epistemology

Unit 2 Part 1: Approaches to Research

- Ontological and Epistemological Context
    - Seeing reality
    - Research paradigms
    - Epistemological paradigms
        - Positivism
        - Realism
        - Critical Realism
        - Interpretivism
        - Post Modernism
- Paradigm Polarity or Partnership?

Unit 2 Part 2: Approaches to Research Strategies

- Making choices
- Experiments, surveys, case studies, grounded theory, ethnography, action research
- Longitudinal and cross sectional studies

- Reliability and Validity
    - Reliability
    - Validity
    - Generalisability
- Know your topic
    - A dozen methodological clichés.
- Research Ethics
    - Confidentiality and anonymity
    - Voluntary participation
    - No harm to participants

Unit 3 Part 1: Quantitative Data Collection

- Identifying samples
- Designing questionnaires/surveys
- Structured Interviews
- Structured Observation
- Content Analysis

Unit 3 Part 2: Qualitative Analysis

- Sampling in qualitative research
- Contrasts with quantitative data collection
- Ethnographic /participant observation
- Interview design and execution
- Focus groups
- Documentary analysis

Unit 4: Proposal Guidance

- Presenting your ideas with conviction
- Top tips for a professional proposal

Unit 5 Part 1: Data Analysis - Qualitative Analysis

- Strategies
- Coding
- Thematic and Narrative analysis
- Using NVivo

Unit 5 Part 2: Quantitative Analysis

- Data analysis (univariate, bivariate, multivariate)
- Statistical significance
- Using SPSS

Unit 6: Writing Up Research

- Structural requirements
- Tutor relationships
- Closing the circle – linking the thinking
- Referencing

Appendix 2: Small-Scale Learning Materials

UNIT 1 TOPIC 2

Essentially what all good proposals and studies need is a foundation in the 'already known' and a clear message to the reader about how ideas have been formed – what are the key influences which led you to your research questions? How did you identify the problem that you are studying? How can you justify the research approach you are undertaking? For a nice succinct illustration of the purpose and approach to creating a theoretical framework, look at:
http://www.coedu.usf.edu/jwhite/secedseminar/theoryframe.pdf

UNIT 2 PART 2 TOPIC 7

KNOW YOUR TOPIC

Advice from Susan Losh , Florida State University

See http://garnet.acns.fsu.edu/~slosh//Index.htm

If you want to read more of Susan's site, scroll down to the Teaching section – click on the 'Methods of Educational Research' module. The presentation is lively and stimulating, you will enjoy reading it. The key points I would like you to concentrate on just now are those below, which I include with Susan's permission.

Susan says:

There is no substitute for knowing your topic well. Your textbooks have excellent chapters that describe literature searches. Online search engines and journal or abstract services cut the time involved tremendously and alert you to new source of information. Check out the links to various organizations (many of them sponsor journals) in the RESOURCES section of our Blackboard course.

Collect as many relevant study designs as you can. Talk with your peers, speak with members of your proposed subject pool. Find out which aspects of your research problem are the most important to them.

TYPES OF VARIABLES

One way to continue working on your research project is to start a flow chart. Diagram your key variables and the types of relationships among variables that you expect to find. Such a chart will alert you to the concepts you need to measure.

Each global concept, such as "reading assessment" or "instructional design plan" has a number of variable components and alternative definitions. Be alert to this multiplicity of definitions and make clear what your definition is, what your key variables are, and what is or is not an instance of your definition.

A variable is a characteristic or factor that has values that vary, for example, levels of education, intelligence, or physical endurance.

A variable has at least two different categories or values. If all cases have the same score or value, we call that characteristic a constant, not a variable.

CONCEPTUAL VARIABLES are what you think the entity really is or what it means. YOU DO NOT DISCUSS MEASUREMENT AT THIS STAGE! Examples include "achievement motivation" or "endurance" or "group cohesion". You are describing a concept.

On the other hand, OPERATIONAL VARIABLES (sometimes called "operational definitions") are how you actually measure this entity, or the concrete operations, measures or procedures that you use to measure the variable.

You usually begin your research problem with CONCEPTUAL VARIABLES and the relationships among them. One of the few exceptions is if your actual purpose is to study a particular operational variable, for example, perhaps you want to study the validity of the FCAT test, the achievement assessment test that kindergarten through twelve grade students in Florida must take each year.

 **Causes are called INDEPENDENT VARIABLES.**

If one variable truly causes a second, the *cause is the independent variable*. Speaking more statistically, variation in the independent variables comes from sources outside our causal system or is "explained" by these sources.

Independent variables are often also called *explanatory variables* or *predictors*.

 **Effects are called DEPENDENT VARIABLES.**

Statistically speaking, we "explain" the variation in our dependent variable.

Dependent variables are also sometimes called outcome or criterion variables.

A research problem will describe the causal relationships between independent and dependent variables and explain how these relationships come to be.

A DOZEN METHODOLOGICAL CLICHÉS TO GET US STARTED

- **1. Good research takes time.** "Overnight polls" have terrible response rates and dubious generalizability. Experiments must be pilot tested, for example, to see if subjects even noticed your treatment manipulations **(manipulation checks).** Ethnographies can take months, or even years. No method can be done in a hurry. Even if you are only in the field a short time, allow enough time for planning and pilot testing in your research.

- **2. No one study disproves (or worse yet, "proves") anything.** While we like to think of the "definitive experiment," each study has strengths and weaknesses. Perhaps one cannot generalize well to a known population of individuals (groups) or situations **(NOTE: this is EXTERNAL VALIDITY).** Perhaps there are alternative causal explanations about what caused the outcomes **(NOTE: this addresses INTERNAL VALIDITY).** An aggregate of studies are usually needed to make strong assertions about the phenomena under study.

- **3. Always, ALWAYS pilot test before you go into the field.** This way you will catch problems with the experimental manipulations, difficulties with field observational categories, strange ways that respondents interpret your survey research questions and

much more. If you are using any type of questionnaire, be sure that you pilot test at least once by reading questions aloud (even if the questionnaire will be self administered).

- **4. Try to measure your variables as many ways as practicably possible.** You want to rule out alternative explanations for your results. Do you want your survey results to represent acquiescence response set instead of substance? Of course not! Do you want your experimental findings to reflect experimenter demand effects instead of treatment effects? Of course not!
  The process of measuring the same concept in different ways is sometimes called "TRIANGULATION." It is one way to try to ascertain CONSTRUCT VALIDITY (i.e., whether your operationalized variables really measure the construct you envisioned--or something else entirely).

- **5. Trust subjects and respondents.** Listen to what they are trying to tell you. Your respondents may be trying to tell you (subtly, nicely) that they can't understand your questions (your colleagues had no trouble with the professional jargon). Your subjects may see the experimental task as ridiculous although they will try to "help out" by completing it anyway. Debrief. You are bound by ethics to do so anyway. Ask your subjects what they thought was the purpose of your experiment. Ask a random subsample of respondents to answer the question in their own words or why they answered the way they did **(Schuman's "RANDOM PROBE" technique).**

- **6. Watch your defined population.** Who does it represent? Undergraduate educational psychology students only? All undergraduate college students? High school Spanish students at an upper income facility? Football coaches at AA universities? Graduate students enrolled in distance learning courses? You almost certainly will want to make generalizations later on.

- **7. Try to avoid dichotomies in your measurements whenever possible.** Likewise, don't collapse an interval level variable (e.g., years of education) into an ordinal one (unequal educational categories) if at all possible. The computer can aggregate several categories into one category in a matter of seconds (e.g., 9 through 11 years of formal education can be recoded as "some high school"). However, you cannot go the other way: "some high school" cannot be turned into a definitive number.

  Try learning to think in conceptual continuums, degrees of "more" or "less" rather than "either" "or." Although your manipulated treatments in an experiment may be categorical, even the manipulations can be "levels" or degrees of a treatment.

- **8. Consider how you will analyze your data once you have collected it.** I know that some of you have not yet taken a course in statistics. Therefore--consult a statistician or a friend/student who has elected several statistics courses. If you do an experiment and want to use analysis of variance, you will need interval level (or "sort of numeric" anyway) measures for your dependent variables. Regression also typically requires interval dependent variables (see your statistics instructor for variations on this theme). If all your variables are nominal you will be very limited in the analytic methods you can use.

- **9. It is very difficult, and sometimes impossible, for sophisticated means of data analysis to compensate for poor data collection.** If your response rate is poor, your results probably cannot be generalized to any known population. Some behavioral scientists engage in elaborate weighting schemes so their data appear to be "representative" but the problem is that we seldom know how those who responded differed from those who refused or could not be

located. If your measures are contaminated by response bias, you will not be able to disentangle effects without gathering more data. If you find out later that you neglected to measure important variables, you may no longer have access to your population to collect more information.

- **10. There is no such thing as "value free" research.** Researchers are human beings who are the captives of their culture. This includes considering only research that produces "statistically significant" differences as "important" (consider for a moment what this perspective did t**o the field of "sex differences" if ONLY research finding differences got published).**

  So what is there to do? Try to understand your own values and how they might introduce biases into your research. Safeguard against your own biases. Don't do your own interviewing, open code your own data, or serve as your own experimenter. Trade off with another graduate student or seek funding to hire people for these positions.

  Talk with men (if you are female) or women (if you are male). Show your research design to friends from other cultural backgrounds to see if your ideas--or your treatments--or your questionnaire items--might be misconstrued.

- **11. Your research will take at least twice as long and be at least three times as much trouble as you ever thought it would before you got started. Trust me on this one!** Subjects don't show up and must be rescheduled. The survey lab goes broke while you are in the field (this one really happened to me). You must locate someone who speaks the language fluently. Allow time for the Human Subjects Committee to examine your design. You had to go out of town and the client pilot-tested on the wrong population (I had this one happen too.) MORAL: try to trouble shoot as much as you can at the very beginning!

- **12. Do the best you can with what you got.**
  No study (including mine or yours) will be perfect. You almost certainly will have a less than ideal level of funding (bake sale level, maybe?). You will have less than ideal assistance and your time will be constrained. If we all waited for perfection, we would never study anything. So, relax and enjoy!

UNIT 3 PART 2 TOPIC 10

EXERCISE AND ADDITIONAL RESOURCES

Go to the Trent RDSU site at
http://www.trentrdsu.org.uk/uploads/File/Qualitative_Data_Analysis_Revision_2007.pdf

On page 21 there is an exercise (Exercise 3) relating to interviews which highlights the challenges of devising and delivering questions and creating a transcript.

On page 22 there is an exercise in coding that takes you through an interview about a man's experience of having a heart attack.

Although this resource is prepared from the perspective of healthcare research, much of the information is relevant to qualitative research in general.

See also Colorado States guide on conducting field research at
http://writing.colostate.edu/guides/researchsources/fieldresearch/index.cfm

And,

Don Ratcliffs online research text, at http://qualitativeresearch.ratcliffs.net/
Which has good advice on data collection practice in chapter 4.

There is also the UWE Research Observatory which has a great deal of good advice.

UNIT 3 PART 2 TOPIC 10

For further guidance on focus groups, see http://www-tcall.tamu.edu/orp/orp1.htm or http://www.informat.org/researchmethods/index.html and the research observatory. There is also an excellent article by Wilson (1994) which discusses the use of focus groups in educational research.