Developing a Grounded Theory of Blended Learning in a Part Time Low Contact Participant Group

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Motivations

• Emergence of Key Web based technologies in Higher Education
  ▫ The Shift from Networked Learning Resources to the Virtual University
  ▫ The Expansion of Computing and Internet Lifestyles
  ▫ Adoption of the VLE
• Drivers for Flexible Learning and Vocationalisation of Post-Statutory Education
  ▫ Changing Demographics, Digital Literacies and the Information Society
  ▫ The rise of Lifelong Learning and the University of Industry
  ▫ Post-Statutory Education Markets and the ‘Adult Returner’
  ▫ Widening Participation and the Non-Conventional Student
  ▫ The Advantages of Learning Technologies for Flexible Learning
• Career Experiences in Web Technologies and E-Learning
  ▫ Facilitation of a VLE and Associated Technologies
  ▫ Usability, Training, Support and the Facilitation of E-Learning
  ▫ HEI Landscape and Vocational Learning Trends at Glyndŵr University
• Early Writing Projects in E-Learning and Associated Technologies
  ▫ Chandos Publications
  ▫ Sense Publication
  ▫ Articles and Commentary
Research Method

- The Chosen Methodology: Grounded Theory
- Theoretical Sensitivity
- Defence of the Literature Review Contribution in Grounded Theory
- Reconciling the Literature Review with Grounded Theory Methods Used
E-Learning - Definitions, Paradigms & Theory

- Background to E-Learning
- Definitions and Emergence of E-Learning
  - Anecdotal Definitions
  - Historical Origins of Learning Technologies
  - Legacy of Instructional Design and Computer Based Training
  - Role of Industry in Emergence of E-Learning
- Critical Perspectives on E-Learning
- Government and Policy Influences
Management and Delivery of E-Learning

E-Learning for Information Services in Higher Education, Chandos 2005

- Introduction to E-Learning
- Virtual Learning Environments
- Managing the Virtual Learning Environment
- Training and User Support
- Accessibility and Legal Issues
- Online Learning Tools
- Quality Assurance and Monitoring
- Conclusions
Developments in the Managed Learning Environment and VLE

- The VLE Model
- Hybridisation of University Platforms
- Developments in Ubiquitous-, Mobile- and On-Demand-Learning
- Growth, Corporatisation and Globalisation of E-Learning
  - E-Learning as a Global Commodity
  - Emergence of Competitive Learning Providers
  - Impact of Learning Technologies on Higher Education
- The Student Experience of E-Learning
  - Student Perceptions and Expectations of Learning Technologies
  - Student Skills Development and Challenges for Learning Technologies
  - Recent Studies and Projects
Recent Theory, Practice and Research in E-Learning and Pedagogy

Theory and Paradigms of Learning Styles and Processes for E-Learning

- Theories of Teaching and Critical Thinking
- Bloom’s Taxonomy and E-Learning
- Imitation Theory and E-Learning
- The SOLO Taxonomy and E-Learning
- Situated Learning and E-Learning
- Tacit Knowledge and E-Learning
- Transaction Theory
Theories of Learning and Student Engagement for E-Learning

- Behavioural Theories and E-Learning
- Experiential Learning Theories
- Pavlov’s Classical Conditioning Theory
- Skinner’s Operant Conditioning Theory
- Gange’s Conditions of Learning
Cognitive Theories and E-Learning

- Gestalt Theory and E-Learning
- Piaget and Assimilation/ Accommodation Theory
- Kolb’s Learning Cycle
- Cognitive Dissonance
- Constructivism and E-Learning
- Kelly's Personal Construct theory
- Laurillard’s Conversational Model
- Personal Construct Psychology (PCP)
Motivational Theories and E-Learning

- Hebb's classic formulation
- Herzberg's Motivational Hygiene Theory
- Marton and Säljö's Deep and Surface Learning
Humanistic Theories and E-Learning

- Reflective Practice Knowles’ Androgyny Theory
- Theories
- Critical Reflection Theory
Other Learning Models/ Theory

- Epistemological Theories of E-Learning
- Learning Styles
- Problem Based Learning
- Social and Informal Learning
- Self-Regulated/ Managed Learning
- Demand-Led Learning
- Digital/ Information Literacy
Theories of Learning Design

- Mergel’s Instructional Design & Learning Theory
- Blended Learning
- Instructional Design and Computer Based Learning
- Distributed Learning
- E-Moderating
- Collaborative Learning
- E-Reflection
- Component Display Theory
- Calm Computing Theory
- Distraction and Boundary Management
The Expansion of Blended Learning as a Paradigm of HEI E-Learning

- Blended Learning as a Response to UK HEI Trends
- Surveys on the Adoptions of Blended Learning Amongst UK HEIs
- E-Learning 2.0: Innovations in Distributed Learning, MOOCs, Social and Informal Learning
- Use of Synchronous and Asynchronous Models in Blended Learning
Trends Influencing Blended Learning

- HE Sector Trends
- International Comparisons
- Benchmarking
- Accessibility and Usability Issues for E-Learning
Blended learning Models

- Tools for Benchmarking and Developing Learning Environments
- Existing Approaches and Tools for Evaluating Student Experiences
Research Development and Methodology

- The Initial Research Proposal
- Development of a Blended Learning Research Focus
- Rationale for Selection of the Methodology for an Holistic Research Method
- The Glaser Seminar and Appraisal of the Methodology/Proposal
- Key Insights for Grounded Theory
- Appraisal of the Project by Barney Glaser
- Reflections on the Proposal following the Glaser Seminar
The Aid Memoire (deprecated by Grounded Theory?)

AIDE MEMOIRE

Informal interview carried out by Paul Catherall (NEWI staff member, Information and Student Services / Technical Services.)

The following aide memoire attempts to gauge student perceptions of skills requirements for distributed learning, i.e. the gap between the requirements for computer-based learning and the student perception of these requirements in relation to their experience. This is a guide only and not necessarily used in the following order. The interview will run as an open discussion, with feedback recorded using a memo technique.

General Status

1. Is the student an undergraduate or postgraduate student, Part time or Full Time, what is their subject and year of study?
2. Approximately how many hours a week do they spend at lectures?
3. Approximately how many hours a week do they spend studying? How much of this time is spent using computers? How much of this time is spent on the Internet/World Wide Web? What system(s) or applications do they use most?

General Study Behaviour

1. Does the student study mostly at NEWI, at home or at work? What are the reasons for this?
2. Does the student use the NEWI house or other IT facilities? What if?
Grounded theory concepts and approaches

- Key Grounded Theory Concepts
- The Substantive Area and Emergence Vs. Forcing
- Wider Application of Grounded Theory
- Description Vs. Conceptualisation
- Memoing for Open/Selective Coding and Insight Recording
- Descriptive and Substantive Coding
- Theoretical Coding
- Categorisation/Sorting of Codes
- Delimiting (or Refining Existing) Codes
- Emergence of the Core Category
The Constant Comparative Method

- Overview of Constant Comparative Method
- Selective Coding
- Theoretical Sampling
- Interchangability of Indicators
- Theoretical Saturation
- Theoretical Sensitivity - Approach to the Literature Review as Data
Research aims and participant group

- Identification of Participant Groups
- Other Implementation of the Research Proposal Methods
- Ethical Approval Process
Pilot Study

- Research Pilot Study Interviews (2007)
- Pilot Study Rationale/ Preparation
- Aid Memoire Experiment and Discussions
- Interview Style and Approach
- Memoing Process and Associated Literature
- Table of Early Substantive Codes
- Early Substantive Codes
- Early Theoretical Codes
- Early Developed Theoretical Codes
- Development and Analysis of Tentative Core Category (2007): Information Systems Traversing
# Pilot Study Sorting

<table>
<thead>
<tr>
<th>Descriptive Codes (derived from handwritten Memos)</th>
<th>Descriptive Code Properties (derived from handwritten Memos)</th>
<th>Open / Substantive Codes (theory bits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using information sources</td>
<td>Using ICT to access information sources,</td>
<td>Digital resource discovery</td>
</tr>
<tr>
<td></td>
<td>Using hardcopy systems such as library indexes,</td>
<td>Assimilation of online sources (of information)</td>
</tr>
<tr>
<td></td>
<td>Using software and Web-based resources such as search</td>
<td>Credentialising, labelling, storing</td>
</tr>
<tr>
<td></td>
<td>engines and portals, Evaluating information sources,</td>
<td>and retrieving information sources</td>
</tr>
<tr>
<td></td>
<td>Dealing with web-based plagiarism issues. Ensuring citation</td>
<td>Plagiarism avoiding</td>
</tr>
<tr>
<td></td>
<td>and quotation of sources is appropriate. Some students</td>
<td>Introducing professional and study</td>
</tr>
<tr>
<td></td>
<td>already had a professional or work-related knowledge of</td>
<td>sources (of information)</td>
</tr>
<tr>
<td></td>
<td>Web-based resources. Some students reported using e-books</td>
<td>Accommodating/reconciling digital</td>
</tr>
<tr>
<td></td>
<td>delivered via the VLE, indicating use of full-text journals</td>
<td>documents</td>
</tr>
<tr>
<td></td>
<td>and books in lieu of hardcopy resources, these students</td>
<td>Transfoming digital to hardcopy</td>
</tr>
<tr>
<td></td>
<td>commented that whilst the availability of e-books ensured</td>
<td>resources</td>
</tr>
<tr>
<td></td>
<td>all students had access to reading material, this also</td>
<td>Integrating information sources</td>
</tr>
<tr>
<td></td>
<td>posed problems for printing material off (where this was</td>
<td>Awareness acquiring of</td>
</tr>
<tr>
<td></td>
<td>the</td>
<td>VLE course resource dependence (as</td>
</tr>
<tr>
<td></td>
<td></td>
<td>information portal)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Search engine digital</td>
</tr>
</tbody>
</table>
Full Phase Study

- Full Phase Study Interviews (2008)
- Interview Constraints and Strategies
- Expansion of the Participant Group (Professional Vs. Vocational/ Postgraduate)
- Selective Coding and Theoretical Sampling (use of Developing Substantive Codes, Theory Bits from the Pilot etc.)
- Break from Studies, constraints on Data Analysis of the Full Phase
Approaches/ tools for full data coding/analysis

- Rationale for Re-Analysis of Data, Methodology Appraisal, Assimilation of Pilot
- Rationale for Re-Analysis of Data
- Methodology Appraisal – Data Analysis Process Strategies
  - Adjustments of Grounded Theory Process/Interpretation/Analysis since the Pilot Stage Analysis
- Assimilation of Pilot Data
Grounded Theory Re-Analysis

- Input of Data into a Qualitative-Compatible Data Package
- Memo Indicator Sorting as Control Terms/ Taxonomies
- Frequency Analysis of Control Terms for Weighting
- Recording of Theory Bits from the Indicators
- Categorisation of Indicators via Sorting Application for Substantive Codes
- Selective Coding of High Frequency Indicators/ Substantive Codes
- Identification of Theory Bits/ Insights from Substantive Codes
- Input of Theoretical Sensitivity-derived Theory Bits/Insights
- Categorisation of all Theory Bits as Control Terms
- Emergence of Early Theoretical Codes from Controlled Theory Bit Sorting
- Sorting of Early Theoretical Codes into Developed Theoretical Categories
- Sorting of Developed Theoretical Categories into High Level Categories
- Sorting of High Level Codes via Properties into Core Category
- Re-Appraisal of the Literature to Confirm Category Originality
Control Terms

Descriptive Code (Translated into Control Term)

Commitment issues
Communication tools e.g. email or social networks important to study
Commuting to study
Computer compatibility problems
Considerable use of Google for E-Resources
Internet access or cost issues
Difficulties obtaining exam papers online
Difficulties obtaining software
E-resource databases difficult to use
E-resource databases don’t provide relevant results
E-resource databases lack full text access
Electronic communications underused for distance learning
Feelings of isolation/ isolated nature of study
Group / peer working or communication problems
IT or study skills development challenges
IT skills support development not adequate
IT support difficulties
Insufficient E-Resources/ databases
Insufficient Library/IT Lab PC availability
Insufficient print resources in the library
Lack of confidence in IT skills
Library database skills development not adequate
Library opening/access issues
Library or IT Lab PCs slow or have other problems
Library/IT Lab noise and disruption issues
Low Contact Study
Mixed physical-online resource use
Multi-platform/ Internet resource discovery
Multiple platform sign-in problems
Printers or scanners have technical related issues
Printers or scanners not widely available
Printing expense or access problems
Problems searching the www, e.g. irrelevant results
Referencing support problems
Reliance on use of hardcopies
Relies on VLE mostly for course materials
Studies whilst travelling using mobile computing
Study support development not adequate
Technical problems
Too many documents provided in VLE
University or Library web pages difficult to navigate
Use of Library computers due to need for computing
Use of Library computers due to need for quiet space
Use of VLE communication tools
Use of a range of computers/operating systems
Use of computers across multiple sites
Use of too many databases and platforms
Used techniques to manage information such as folders, favourites
VLE difficult to navigate or usability problems
VLE under-used by other students
VLE under-used by programme
work has links to programme e.g. custom programme, work based case studies
work related worries such as the contribution
working to develop IT and study skills due to use of VLE etc.
Analysis Tools and Methods

• Existing Tools/ Approaches for Grounded Theory and Qualitative Research
  ▫ Excel as a Qualitative Data Analysis Tool
  ▫ Wordle as a Supplementary Research Tool

• Use of Excel Tools and Features for Grounded Theory Analysis
  ▫ Filters
  ▫ Formulae
  ▫ Charts and Tables

• Use of Frequency/ Frequency Distribution for Developing Substantive Categories
# Code Sorting Template

**Code Sorting Template**

<table>
<thead>
<tr>
<th>Key to code frequency distribution if applicable</th>
<th>0-5%</th>
<th>5-10%</th>
<th>11-20%</th>
<th>21-30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-40%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51-60%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61-70%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71-80%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>81-90%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91-100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table allows for sorting codes into different frequency ranges.
## Frequency Distribution

<table>
<thead>
<tr>
<th>.Commitment Issues</th>
<th>Memo Descriptive Code (Indicator) Properties (comma separated list)</th>
<th>Frequency of Control Terms used for Memo Descriptive Codes (Indicator)</th>
<th>Frequency Distribution (% of Control Terms used for Memo Descriptive Codes (Indicator))</th>
<th>Total Number of Interviews</th>
</tr>
</thead>
</table>
|Communicating tools e.g. email or social networks important to study| Email, Social Network usage via Facebook or similar; use of course provided communication tools| 13|12.87%|Comms tools importance

```
=COUNTIF(E9:E1001, "Commitment issues")
```
Filtering tools
Workbook structure

- Memo Data
- Substantive Codes
- Selective Coding
- Early Theoretical Codes
- Developed Theoretical Codes
- High Level Codes
- Core Category
- Key Theoretical Sensitivity
- Use of Charts and Tables
Sorting Process

- Use and Selection of Control Terms for Data/Theory Bits
- Use of Coding Types
  - Descriptive Coding Types/ Characteristics
  - Theoretical Coding Types/ Characteristics
- Pooling of Theory Bits and Early Insights
- Sorting Templates via Microsoft Office Drag and Drop Functionality
  - Brief Overview of Office Based Templates for Sorting
  - Example Sorting Development Stages
  - Sample Sorting Output
### Memo Data including Descriptive (Indicator) Codes (Categories)

**About this sheet:**

The Memoing process comprises the transcription of interviews with Participant individuals/group sessions, the output from the interviews is largely descriptive of issues, processes and activities, a number of additional processes can take place including noting conceptual insights. Constant Comparative Methods such as selective sampling (discussing issues related to an existing Code for verification) or assessing the validity of Theory Bits drawn from developing Codes or the Literature. Note the 1st column shows multiple entries/rows for the same interview.

**Key to Programmatic Acronyms:** BEng (Bachelor of Engineering), BN (Bachelor of Nursing), BSc (Bachelor of Science), CIMA (Chartered Institute of Management Accountants), CIPD (Chartered Institute of Personnel) and

### Notes

**Unique ID for session**

- Individual or Group Interviewed (P = pilot, (FP = full phase), G indicates a shared interview with a group followed by the number of participants present in the group)

- Summary of comment by group/individual

- Participant issue, process, activity categorised into an early Descriptive Code (Indicator) during or immediately following memo

- Detailed components of this issue, process or activity summarised

- Early insight into issue, process or activity as wider concept explaining motivations, goals, strategies etc.

### Columns

- **Comment ID:** Unique ID for comment
- **Session:** Unique ID for session
- **Group or Person Description:** Individual or Group Interviewed (P = pilot, (FP = full phase), G indicates a shared interview with a group followed by the number of participants present in the group)
- **Comment (summarised):** Summary of comment by group/individual
- **Descriptive Code (Indicator) (refined as Control Term):** Participant issue, process, activity categorised into an early Descriptive Code (Indicator) during or immediately following memo
- **Descriptive Code Properties (comma separated list):** Detailed components of this issue, process or activity summarised
- **Early insight into issue, process or activity as wider concept explaining motivations, goals, strategies etc.:** Early insight into issue, process or activity as wider concept explaining motivations, goals, strategies etc.
- **Theory Bits:** Insights
- **Memo Descriptive Codes (expressed as Control Terms) to determine frequency of re-occurrence:** Memo Descriptive Codes (expressed as control terms) to determine frequency of re-occurrence
- **Memo Descriptive Code re-occurrence (expressed as control terms):** Memo Descriptive Code re-occurrence (expressed as control terms)
- **Percentage share of Control Term re-occurrence across all interviews:** Percentage share of Control Term re-occurrence across all interviews
- **Paraphrase term for sorting "card" used to categorise to build higher level code:** Paraphrase term for sorting "card" used to categorise to build higher level code
- **Total number of interviews:** Total number of interviews

**Undergraduate found on student studying part time, busy work-life balance with some home working:**

- Childcare, elderly care, work
- Prioritising tasks and objectives to
- Childcare, elderly care, work commitments, travel commitments.
### Substantive Code (Categories) Creation

| About this sheet: | The Descriptive Codes developed via Memos are processed using the Constant Comparative Method to create Substantive Codes i.e. higher level categories (or Codes) describing shared issues, processes or activities, these Substantive Codes can also suggest new Theory Bits contributing to the development of Theoretical Codes |

| Substantive Code (Categories) Creation |

| Notes |

The most prolific Memo Descriptive Codes (Indicators) and their Properties, demonstrated by frequency tally on Sheet 1 are used to develop Substantive Descriptive Codes, grouping these into larger code categories of issue, process or activity. Note - (P) = pilot, (FP) = full phase.

| Substantive Descriptive Code, these are inevitably shared with properties of the Memo Descriptive Codes and will reflect more commonly occurring properties and new assimilated properties (where |

| Substantive Descriptive Code, explaining the categorised issue, process or activity |

| Weighting for all supporting indicators within this substantive code, i.e. all the frequency distribution values for supporting indicators are added together to indicate the weighting for the overall Substantive Code |

| Cumulative early insight into issue, process or activity as wider concept explaining motivations, goals, strategies etc. |

| Substantive Descriptive Code Assimilated/ Grouped from High Frequency Memo Descriptive Codes (and commonly occurring Properties) and based on category sorting |

| Memo Codes (Indicators) related to this Substantive Code (paraphrased) with frequency distribution of individual indicators - also see sorting tables |

| Further Explanation of Substantive Descriptive Code |

| Sum of all supporting Memo indicator frequency distribution values supporting this code |

| Cumulative Theory Bits, Insights |

| Students who are part time and studying via Blended learning convey a range of developing strategies |

| Adaptive use of e-learning communications tools, mobile devices and VLE features to engage with peers, tutors and course content. Some students are apprehensive regarding the use of e-learning and their remote study context, some of these... |
## Selective Coding - Selective sampling to validate developing Indicators/ Substantive Codes

### Notes
- Substantive Codes being developed and refined can be verified at interview. This table lists selected Indicator Codes from the interviews and emergent Substantive Codes.
- Reason why the Indicator/ Code was explored/ verified or explored at further interviews.

### Memos Comments and developing Substantive Codes (in bold)
these codes derived from Full Phase interviews and identified for Selective Sampling in subsequent interviews. Because these early codes were still not fully refined or translated into Control Terms these indicators do not match final Control Terms.

<table>
<thead>
<tr>
<th>Justification/ Reason for Selective sampling of this Indicator/ Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role of Communication tools</td>
</tr>
<tr>
<td>To ascertain if online communication tools are used alongside static course content as suggested in early pilot interviews.</td>
</tr>
<tr>
<td>Use of the WWW</td>
</tr>
<tr>
<td>To verify usability issues using formal databases as suggested in early pilot and throughout many interviews in the full phase, also to ascertain user confidence and skills in using the WWW and diverse WWW sources.</td>
</tr>
<tr>
<td>Database issues</td>
</tr>
<tr>
<td>To confirm problems reported using Library databases as part of the repertoire of WWW/e-resources.</td>
</tr>
<tr>
<td>Results Issues via Databases</td>
</tr>
<tr>
<td>To further confirm problems reported using Library databases as part of the repertoire of WWW/e-resources.</td>
</tr>
<tr>
<td>Full text (e-resource) location</td>
</tr>
<tr>
<td>To confirm issues reported when using bibliographic databases, also confirming that students increasingly expect bibliographic databases to supply full text rather than traditionally displaying citation details for physical item sourcing.</td>
</tr>
<tr>
<td>Complaints regarding lack of electronic communications uptake by the programme</td>
</tr>
<tr>
<td>To confirm if students have higher expectations of electronic communications use than is currently implemented.</td>
</tr>
<tr>
<td>Early phase issues</td>
</tr>
<tr>
<td>To ascertain self confidence and a sense of skills development for using ICT, early pilot responses suggested students felt challenged when using some...</td>
</tr>
</tbody>
</table>

### About this sheet:
This table outlines how Memo Indicators (Comments) and emerging Substantive (Descriptive) Codes have been selected for verification or further discussion/exploration with participants. The use of Selective Coding (or sampling) generates new data, codes, properties and Theory Bits via the Interview Process, allowing for repeated airing of discussions which can be coded and recorded using Control Terms, Selective Coding may also result in no related data or the development of entirely new indicators.
## Coding and Selective Coding from the Pilot Interviews

### About this sheet:

This table outlines how Pilot-derived emerging Codes have been selected for verification or further discussion/exploration with participants. The use of Selective Coding (or sampling) generates new data, codes, properties and Theory Bits via the Interview Process, allowing for repeated arising of discussions which can be coded and recorded using Control Terms. Selective Coding may also result in non-related data or the development of entirely new indicators.

### Notes

Pilot-derived developing Substantive Codes available for Selective Coding at later interviews.

Reason why the Indicator/Code was explored/verified or explored at further interviews

Early pilot-derived Theoretical Codes associated with this Substantive Code

Early pilot-derived Developed Theoretical Codes associated with this Substantive Code

### Pilot derived Substantive Code used for Selective Sampling in later interviews

**Justification/Reason for Selective Sampling of this Indicator/Code**

Whilst the sample groups/individuals interviewed were mostly on formal part-time courses, some individuals were approached ad-hoc in open learning areas, in some cases these turned out to be full-time students but consistently indicated they were attending class less than 10 hours a week. All the students interviewed (including ‘full time’ students) indicated low-contact with staff and peers was a factor in their study, including travel times required, need for effective use of time in class and need for excellent ICT facilities on sites during visits.

Many students indicated they were ‘lone’ students, with varying levels of contact with peers or staff via ICT.

Many of these students felt they received minimal or no support for issues such as ICT use, software use, learning support study skills, use of the Web and information sources, considering the support staff available in the library were helpful but lacking the intensive support some seemed to require.

**Associated Tentative Theoretical Codes**

Lone studying via ICT; Self-navigating Technologies; Inter-location studying; Remote peer-communicating; Study-Work integrating; ICT self-supporting; ICT knowledge sharing; ICT facility

**Associated Tentative Developed Code**

...
Early Theoretical Codes (Categories) developed from Theory Bits/Insights etc.

<table>
<thead>
<tr>
<th>Early Theoretical Codes (Categories) developed from Theory Bits/Insights etc.</th>
<th>About this sheet</th>
<th>The generation of a conceptual explanation for issues, processes and activities within the participant group begins with the appraisal of Theory Bits/Insights obtained from Memo Indicators, Substantive Codes and Theoretical Sensitivity. All theory Bits/Insights are translated into a Control Term, allowing for sorting into theoretical groups or Early &quot;Theoretical Codes&quot;, the conceptual properties/narrative of the Code can then be elaborated. The generation of categories of theoretical codes has occurred following completion of the descriptive memo recording phase.</th>
</tr>
</thead>
</table>

### Notes

<table>
<thead>
<tr>
<th>Allocation of Control Term for this Theory Bit, Insight etc.</th>
<th>Control Term for new Early Theoretical Code.</th>
<th>Detailed components of the conceptualised issue, process or activity/activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>A narrative of the Early Theoretical Code, explaining the conceptualised issue, process or activity as wider concept explaining motivations, goals, strategies etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All informal theory bits and insights listed from Memo Data sheet, Substantive Descriptive Code sheet and Theoretical Sensitivity sheet</th>
<th>Theory Bit/Insight (refined as Control Term) following category sorting</th>
<th>Early Theoretical Code Properties (drawn from Theory Bits) - also see sorting tables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further Explanation of Early Theoretical Code</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Students indicated they had significant remit to self-manage own study processes and resources, this extended to management of work and family commitments to detailed coordination and facilitation of shared group work. Students also had to manage access and use of diverse computing facilities and workplace support. Another aspect of self-led management of study included a sense of personal career, skills, professional and academic development for lifelong learning and workplace security. Students also indicated varying levels of support/facilities expectancy and indicated methods to source or engage in a variety of strategies, support networks or developmental processes to accommodate the realities of these expectations.
Developed Theoretical Codes (Categories)

### Developed Theoretical Codes (Categories)

**About this sheet:**
This sheet represents the processing of Early Theoretical Codes into Developed Theoretical level Codes with shared conceptual traits - this is achieved by appraising Early Theoretical Codes and their frequency of occurrence as Control Terms. Additional aggregated/categorised properties may emerge when considering properties aggregated from merged Codes. Theoretical Codes may also be verified or explored by appraising the output of interview responses or introducing Code properties during interview, allowing for 'saturation' to test the validity of the Theoretical Code.

### Notes
The Early Theoretical Codes are examined according to their common scope and properties, allowing for the development of theoretical codes which reflect these shared concepts.

<table>
<thead>
<tr>
<th>Developed Theoretical Code assimilated/grouped derived from Low Level Theoretical Codes (and commonly occurring Properties) following category sorting</th>
<th>Early Theoretical Codes related to this Indicator refined as Control Terms using comma separated list</th>
<th>Explanation of Developed Theoretical Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-tasking Commitments</td>
<td>Self-Management of Study Regime and Programme; Managing and Negotiating Work-Study Relationship</td>
<td>Managing simultaneous commitments via prioritisation across the programme, work and private life.</td>
</tr>
<tr>
<td>Self-Regulated Engagement</td>
<td>Acquiring and Suplementing Study Skills; Developing Confidence in Technologies and Low Contact Study; Resolving and Suplementing Information Literacy for Effective Research; Resolving and Suplementing ICT Problems;</td>
<td>Leading aspects of personal study, this relates heavily to perceptions of low contact and class/study support where students develop self-led approaches to managing their work, overcoming skills barriers, developing strategies for overcoming resource or access issues and leading project work.</td>
</tr>
<tr>
<td></td>
<td>Most students exhibit some level of transitional or traditional approaches to study, the most evident aspect of this behaviour is the heavy reliance on printed media amongst some students; other characteristics include avoidance of wider e-resource/database engagement or poor engagement within group work or associated electronic YLE communication tools. Students</td>
<td></td>
</tr>
</tbody>
</table>
# High Level Theoretical Codes (Categories)

## About this sheet:
This sheet represents the processing of Developed Theoretical Codes into High level Code 'Categories' with shared conceptual traits. This is achieved by appraising Developed Theoretical Codes and their frequency of occurrence as Control Terms. Additional aggregated/ categorised properties may emerge when considering properties aggregated from merged Codes.

## Notes
- The Developed Theoretical Codes are examined according to their common scope and properties, allowing for the development of High Level Theoretical Codes which reflect these shared concepts.
- Developed Theoretical Codes related to the High Level Theoretical Code:
- A narrative of the High Level Theoretical Code, explaining the conceptualised issue, process or activity as wider concept explaining motivations, goals, strategies etc.

## High Level Theoretical Code assimilated/ grouped derived from Developed Theoretical Codes (and commonly occurring Properties) following category sorting

### Developed Theoretical Codes related to this Indicator refined as Control Terms using comma separated list

### Explanation of high Level Theoretical Code
- Most students exhibit some level of transitional or traditional approaches to study, the most evident aspect of this behaviour is the heavy reliance on printed media amongst some students, other characteristics include avoidance of wider e-resource/database engagement or poor engagement within group work or associated electronic/VLE communication tools. Students may also have anxieties regarding management or storage of digital media and may rely on printed textbooks. Students may also either avoid the VLE where there are options to work around this platform or minimise usage. Students who exhibit these kind of tendencies could be considered transitional in terms of cultural acceptance of digital technologies more generally, their reliance on printed and class-based participation (vs. online or social learning interactions) could be described as physicalisation of remote learning.

## Transitional Physicalisation of Online Learning

### Transitional Physicalisation of Online Learning

### and efficient study practices as an imperative to online/blended study, this property featured heavily in almost all High Level codes contributing to the Core
### Core Category

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core Category</strong></td>
<td><strong>About this sheet:</strong></td>
<td>This sheet represents the processing of High Level Theoretical Codes into Core Codes or &quot;Categories&quot; with broadly shared conceptual traits - this is achieved by appraising High Level Theoretical Codes and their commonly occurring Properties. Additional aggregated/categorised properties may emerge when considering properties aggregated from merged Codes. There are two stages for the development of the Core Category, including the Tentative Core Category (the result of the pilot phase practical study) and the single, over-arching Core Category itself (the result of all aggregated data, including the pilot phase). The Core Category is an attempt to conceptually explain the wider issue, process or activity central to the participant group, this Category should also have universal appeal and relevance as a grounded theory narrative beyond the particular participant group to explain broadly similar motivations, strategies or goals sought amongst any sector, industry or social group.</td>
</tr>
</tbody>
</table>

### Notes

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>The High Level Theoretical Codes are examined according to their common scope and properties, allowing for the development of a single Core Category, reflecting all these shared concepts.</td>
<td>Codes related to the Category</td>
<td>A narrative of the Category explaining the conceptualised issue, process or activity as wider concept explaining motivations, goals, strategies etc., including scope for application beyond the Participant Group</td>
</tr>
</tbody>
</table>

### Core Category assimilated/ grouped based on Developed (High Level) Theoretical Categories

<table>
<thead>
<tr>
<th></th>
<th>Principal Developed (High Level) Categories related to this Category</th>
<th>Explanation of this Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>improvised Learning</td>
<td>Transitional Physicalisation of Online Learning; Motivational adoption and improvisation via Online Learning; Navigating diverse platforms, equipment, locations</td>
<td>Improvisation concerns strategies to access on-demand support; resource location or learning needs such as use of support networks within the social or family sphere, exploitation of University or other local services such as local libraries or improvisation such as use of WWW search engines to locate e-resources or supplement formal databases for literature searching. Exploitation and innovation emerged as a highly important strategy and process for literature searching due to perceived problems using databases and platforms provided within the Library. Innovation can be seen to complement and include all existing theoretical categories and particularly the following Developed and High Level Theoretical Categories: Motivational adoption and improvisation via Online Learning, Adaptive Virtualisation of Learning, Self-regulated engagement, On-Demand Exploitation/Improvisation Navigating diverse platforms, equipment, locations</td>
</tr>
</tbody>
</table>
## Key Theoretical Sensitivity from the Literature

### About this sheet:
Insights found principally in the on-going Literature Review or related sources used to inform the development of early stage Theoretical Codes via 'Theory Bits'. Whilst Theoretical Codes developed from insights found principally in the on-going Literature Review or related sources used to inform the development of early stage Theoretical Codes via 'Theory Bits'.

### Notes
Theoretical Sensitivity is not used to pre-empt Selective Coding for the practical interviews, but can be used to develop any level of Theoretical Code by evaluating these 'Theory Bits' alongside similar insights derived from the interviews, in this way, material from the Literature has the same status as data.

### Theory Bits derived from Literature

<table>
<thead>
<tr>
<th>Theory Bits derived from Literature</th>
<th>Explanation</th>
<th>Citation</th>
<th>Full Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blended learning (for detailed overview see Theoretical Sensitivity worksheet)</td>
<td>&quot;Online learning has its drawbacks. One of the main disadvantages is the lack of social interaction which is taken as given in conventional settings. This creates a special need to motivate the less independent student (Salmon, 2002). The need for a compromise between the conventional face-to-face sessions and online learning leads us towards a new approach to teaching and learning, the so-called hybrid or blended learning (Rogers, 2001).&quot; (Proctor, 2003)</td>
<td>Proctor, C.T.</td>
<td>Proctor, C. (2003). Blended learning in practice. Education in a Changing Environment: 17th-18th September 2003, University of Salford.</td>
</tr>
<tr>
<td>Low contact motivations for delivering or engaging in e-learning (for detailed overview see Theoretical Sensitivity worksheet)</td>
<td>Students studying in a part-time context will be subject to a range of motivations and pressures for engaging in e-learning style education, this may be due to monetary, personal commitments or other limitations on conventional full time study; these motivations or pressures can prompt the adoption of e-learning approaches and technologies for all traditional on-line education.</td>
<td>Catherall, P.</td>
<td>Catherall, P. (2005). Delivering e-learning for information services in higher education. Chandos.</td>
</tr>
</tbody>
</table>
## Indicators sorted to create Substantive Codes

<table>
<thead>
<tr>
<th>Remote Learning Characteristics</th>
<th>Skills challenges (Skills problems and concerns raised)</th>
<th>Resource Discovery challenges</th>
<th>Resourcing for Study (Equipment, costs and related resourcing problems reported)</th>
<th>Technical Challenges (Technical Problems reported)</th>
<th>Study and Research Approaches</th>
<th>Study and Research Challenges</th>
<th>Personal and Non-study related Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses a range of locations for ICT</td>
<td>8.91</td>
<td>Insufficient databases 10.89%</td>
<td>Internet access/cost 1.98%</td>
<td>Compatibility issues 2.97%</td>
<td>High Google use 14.85%</td>
<td>VLE usability/navigation issues 3.96%</td>
<td>Work related anxieties 2.97%</td>
</tr>
<tr>
<td>Commutes 11.88%</td>
<td>Database skills development issues 4.95%</td>
<td>Too many platforms 5.94%</td>
<td>Obtaining software difficult 5.94%</td>
<td>Technical problems 2.97%</td>
<td>Trying to build IT/ study skills 7.92%</td>
<td>Study training/development issues 7.92%</td>
<td>Uses Library PCs for quiet study 6.93%</td>
</tr>
<tr>
<td>Mobile device user when travels 2.97%</td>
<td>IT/study development issues 4.95%</td>
<td>E-resource databases usability 8.91%</td>
<td>Digital exam paper issues 0.99%</td>
<td>Printer/scanne r technical issues 7.92%</td>
<td>Uses content</td>
<td>VLE underused by programme 9.90%</td>
<td>Work linked programme 1.98%</td>
</tr>
<tr>
<td>Uses a range of computer systems 1.98%</td>
<td>Referencing support issues 4.95%</td>
<td>Multi platform login issues 4.95%</td>
<td>Insufficient PC availability 1.95%</td>
<td>PCs slow or technical issues 7.92%</td>
<td>Relies on Library PCs 3.96%</td>
<td>Group or peer comms issues 13.86%</td>
<td>Commitment issues 34.65%</td>
</tr>
<tr>
<td>Comms tools importance 12.87%</td>
<td>IT skills training access issues 13.86%</td>
<td>WWW search results issues 3.96%</td>
<td>Printing cost or access issues 3.96%</td>
<td>IT support difficulties 9.90%</td>
<td>Relies on VLE for materials 38.61%</td>
<td>Low contact study 99.02%</td>
<td>Feelings of isolation as a student 4.95%</td>
</tr>
<tr>
<td>Uses VLE comms tools 11.88%</td>
<td>Database results issues 1.98%</td>
<td>Library availability issues 3.96%</td>
<td>Reliance on hardcopies 9.90%</td>
<td>Too many documents in VLE</td>
<td>Digital Comms under-used 6.93%</td>
<td>VLE under-used by students 4.95%</td>
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</tr>
<tr>
<td>Physical/Online experience 9.90%</td>
<td>Institutional/University Web difficulties 3.96%</td>
<td>Insufficient printing facilities 2.97%</td>
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<td>Library or IT Lab noise 4.95%</td>
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<tr>
<td></td>
<td>Database full text access issues 4.95%</td>
<td>Insufficient printed texts in Library 0.99%</td>
<td>Requires multi platform use 30.69%</td>
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</tr>
<tr>
<td>Indicators sorted to create Substantive Codes (first 2 levels only)</td>
<td>Self-Management of Study Regime and Programme</td>
<td>Exploiting Facilities and Services</td>
<td>Resolving and Supplemented ICT Problems</td>
<td>Engaging with and Negotiating Online Communications</td>
<td>Acquiring and Supplementing Study Skills</td>
<td>Resolving and Supplementing Information Literacy for Effective Research</td>
<td>Engaging with and Negotiating Digital Platforms</td>
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<tr>
<td>Prioritising tasks, aims and objectives</td>
<td>Exploiting oncampus and online services</td>
<td>Overcoming &amp; negotiating IT problems</td>
<td>Negotiating diverse communication tools (VLE, messaging, email, social</td>
<td>Self-development of study skills</td>
<td>Assimilating prior online resource behaviours with current facilities</td>
<td>VLE, Library Platform or WWW page navigating</td>
<td>Physicalisation of digital or online documents</td>
</tr>
<tr>
<td>Managing/coordinating group work</td>
<td>Skilling and exploiting IT facilities</td>
<td>Overcoming Library/Lab equipment issues via personal/mobile devices</td>
<td>Reconciling diverse email platforms to ensure effective communication</td>
<td>Overcoming study confidence</td>
<td>Referencing skills to avoid plagiarism and grade detriment</td>
<td>Overcoming confidence issues using the VLE</td>
<td>Reliance on VLE for prioritised/optimised study routine</td>
</tr>
</tbody>
</table>
### Early Theoretical Codes sorted into Developed Theoretical Codes

<table>
<thead>
<tr>
<th>Multi-tasking Commitments</th>
<th>Self-Regulated Engagement</th>
<th>Transitional Physicalisation of Online Learning</th>
<th>Network Building/Engaging</th>
<th>Adaptive Virtualisation of Learning</th>
<th>Socialisation of Learning</th>
<th>On-Demand Improvisation/Exploitation</th>
<th>Navigating diverse platforms, equipment, locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Management of Study Regime and Programme</td>
<td>Resolving and Supplementing Information Literacy for Effective Research</td>
<td>Physicalisation of Virtual Learning</td>
<td>Engaging with and Negotiating Remote Group Working</td>
<td>Virtualisation and Engagement for Online Feedback and Assessment</td>
<td>Socialisation of Learning for Group/Peer Working</td>
<td>Supplementing and Innovating Literature Searching</td>
<td>Engaging with and Negotiating Digital Platforms</td>
</tr>
<tr>
<td>Managing and Negotiating Work-Study Relationship</td>
<td>Acquiring and Supplementing Study Skills</td>
<td>Learning Resources Capital Acquisition</td>
<td>Resolving and Networking for Acquisition of ICT Support</td>
<td>Virtualisation of Learning to accommodate Remote Study</td>
<td>Exploiting Facilities and Services</td>
<td></td>
<td>Engaging with and Negotiating VLE and course content</td>
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<tr>
<td>Resolving and Supplementing ICT Problems</td>
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- **Developing Confidence in Technologies and Low Contact Study**
- **Resolving and Negotiating Online Communications**
- **Resolving and Negotiating WWW usage issues**
- **Organisation of Learning Assets**
Developed Theoretical Codes Sorted into High Level Codes with Core Categories

<table>
<thead>
<tr>
<th>Core Category</th>
<th>Common Properties drawn from High Level Categories:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvised Learning</td>
<td>Motivational Learning Adaptive Virtualisation of Learning Self-regulated/managed learning context On-Demand Exploitation/Improvisation Navigating platforms, equipment etc.</td>
</tr>
<tr>
<td>Transistional Physicalisation of Online Learning</td>
<td>Motivational adaption and improvisation via Online Learning</td>
</tr>
<tr>
<td>Common Properties drawn from High Level Categories:</td>
<td>Common Properties drawn from High Level Categories:</td>
</tr>
<tr>
<td>Self-regulated/managed learning context</td>
<td>Navigating diverse platforms, equipment, locations</td>
</tr>
<tr>
<td>On-Demand Exploitation/Improvisation</td>
<td>Adaptive Virtualisation of Learning Self-regulated/managed learning context On-Demand Exploitation/Improvisation Navigating platforms, equipment etc.</td>
</tr>
<tr>
<td>Socialisation of Learning</td>
<td>Motivational Learning Adaptive Virtualisation of Learning Self-regulated/managed learning context On-Demand Exploitation/Improvisation Navigating platforms, equipment etc.</td>
</tr>
<tr>
<td>Multi-tasking Commitments</td>
<td>Motivational Learning Adaptive Virtualisation of Learning Self-regulated/managed learning context On-Demand Exploitation/Improvisation Navigating platforms, equipment etc.</td>
</tr>
<tr>
<td>Adaptive Virtualisation of Learning</td>
<td>Motivational Learning Adaptive Virtualisation of Learning Self-regulated/managed learning context On-Demand Exploitation/Improvisation Navigating platforms, equipment etc.</td>
</tr>
<tr>
<td>On-Demand Exploitation/Improvisation</td>
<td>Motivational Learning Adaptive Virtualisation of Learning Self-regulated/managed learning context On-Demand Exploitation/Improvisation Navigating platforms, equipment etc.</td>
</tr>
</tbody>
</table>
Relational Visualisations

• Use of Office Relationships Hierarchies Tool for Visual Representations
  ▫ Brief Overview of Relationships Hierarchies Template
  ▫ Example Relationships Hierarchies Development Stages
  ▫ Sample Relationships Hierarchies Output

• Use of Wordle for Informal Visualisation of Commonly Occurring Terms
Wordle containing all text from all memo comments summarised from verbal exchanges
Wordle containing all text from all controlled Memo indicator codes
Wordle containing all text from all early insights/theory bit occurrences recorded during initial Memoing
Wordle containing all Theory Bits/insights translated into control terms
Development of categories from the research data

- Sorting Full Phase/ Assimilated Pilot Memo Indicators for Substantive Categories
- Theoretical Sensitivity – contributions from the literature to Theoretical Codes
- Sorting for Emergence of Early Theoretical Codes
- Sorting for Emergence of Developed Theoretical Codes
- Sorting for the Emergence of High Level Theoretical Codes
- Sorting for the Emergence of the Core Category
- Constant Comparative Techniques used for Coding/ Categorisation
The Core Category

- Key Descriptive Codes contributing to Improvised Learning
- Early Theoretical Codes contributing to Improvised Learning
- Developed/ High Level Theoretical Codes contributing to Improvised Learning
- Theoretical Sensitivity – key contributions to the Core Category
- Constant Comparative Techniques used to confirm the Core Category
- Review of the Literature on Improvised Learning
Visualisations of the grounded theory analysis

- Frequency and Frequency Distribution Charts for Memo Control terms
- Hierarchical Visualisation of Code Relationships
- Visualisation of Substantive Codes and relationship to Memo Indicators
- Visualisation of the Core Theoretical Category (without Theory Bits)
- Visualisation of Theory Bits and Relationship to Early Theoretical Categories
- Wordle Visualisations of Term Occurrence
Hierarchical Visualisation of Substantive Codes and relationship to Memo Indicators

Remote Learning Characteristics

- Uses a range of locations for ICT
- Commutes
- Mobile device user when travels
- Uses a range of computer systems
- Comms tools importance
- Uses VLE comms tools
- Physical/Online experience

Skills challenges

- IT skills confidence issues
- Database skills development issues
- IT/study development issues
- Referencing support issues
- IT skills training access issues
Resource Discovery challenges

- Insufficient databases
- Too many platforms
- E-resource databases usability
- Multi platform login issues
- WWW search results issues
- Database results issues
- Institutional/Library Web difficulties
- Database full text access issues
- Requires multi platform use

Resourcing for Study

- Internet access/cost
- Obtaining software difficult
- Digital exam paper issues
- Insufficient PC availability
- Printing cost or access issues
- Library availability issues
- Insufficient printing facilities
- Insufficient printed texts in Library
Technical Challenges

- Compatibility issues
- Technical problems
- Printer/scanner technical issues
- PCs slow or technical issues
- IT support difficulties

Study and Research Approaches

- High Google use
- Trying to build IT/study skills
- Uses content management skills
- Relies on Library PCs
- Relies on VLE for materials
- Reliance on hardcopies
Hierarchical Visualisation of Theory Bits and Relationship to Early Theoretical Categories

Physicalisation of Virtual Learning
- Physicalisation of digital or online documents
- Reliance on VLE for prioritised/optimised study routine
- Reliance on facilities for study space, quiet etc.
- VLE/online tools avoidance via reliable on core handbook or selected print materials
- Avoidance of unfamiliar technologies and related training, utilising familiar technologies
Learning Resources Capital Acquisition

- Seeking autonomy to access software installed in diverse locations
- Overcoming deficit of specialist software applications
Developing Confidence in Technologies and Low Contact Study

Overcoming confidence issues for low contact context

Dealing with anxieties in online learning

Overcoming confidence issues for group work via online tools
Resolving and Supplementing ICT Problems

- Resolving IT support limitations
- Resolving VLE support limitations
- Developing peer, family, work networks to support ICT issues/use
- Exploiting institutional support networks

Engaging with and Negotiating Remote Group Working

- Managing high volumes of course material
- Overcoming difficulties accessing online exam materials
Theory Bits

- Self-Management of Study Regime and Programme
- Exploiting Facilities and Services
- Resolving and Supplementing ICT Problems
- Engaging with and Negotiating Online Communications
- Acquiring and Supplementing Study Skills
- Resolving and Supplementing Information Literacy for Effective Research
- Engaging with and Negotiating Digital Platforms
- Physicalisation of Virtual Learning
- Virtualisation of Learning to accommodate Remote Study
- Learning Resources Capital Acquisition
- Organisation of Learning Assets
- Supplementing and Innovating Literature Searching Approaches
- Virtualisation and Engagement for Online Feedback and Assessment
- Socialisation of Learning for Group/Peer Working
- Engaging with and Negotiating Remote Group Working
- Resolving and Networking for Acquisition of ICT Support
- Engaging with and Negotiating VLE and course content
- Managing and Negotiating Work-Study Relationship
- Resolving and Negotiating WWW usage issues
- Developing Confidence in Technologies and Low Contact Study
Theoretical Sensitivity – from the literature

- Blended learning
- Low contact motivations for delivering or engaging in e-learning
- Use of synchronous communication tools to achieve more dynamic group communication e.g. Skype, Live tools
- Use of asynchronous communication tools such as discussion boards or file sharing for group and peer interactions to overcome low contact context
- Ubiquitous learning style - using a variety of devices and design options to facilitate 24/7 on-demand learning, accommodating the students' own time schedule and commitments
- E-Moderating
- Collaborative learning
- Distributed Learning
- Self regulated learning
- Self-Managed Learning
- Demand-led learning (Learning On Demand)
- Mobile Learning
- Social Learning
- Uses and Gratification Expectancy
- Calm Computing
Hierarchical Visualisation of the Core Theoretical Category and Relationship with Emerging Theoretical Codes
Hierarchical Visualisation of the Core Theoretical Category and Relationship with Emerging Theoretical Codes
Impromptu Learning

- Transitional Physicalisation of Online Learning
- Physicalisation of Virtual Learning
  - Physicalisation of digital or online documents
  - Reliance on VLE for prioritised/optimised study routine
  - Reliance on facilities for study space, etc.
  - VLE/online tools avoidance via reliable on core handbook or selected print materials
  - Avoidance of unfamiliar technologies and related training, utilising familiar technologies
- Learning Resources Capital Acquisition
  - Seeking autonomy to access software installed in diverse locations
  - Overcoming deficit of specialist software applications
- Motivational adaption and improvisation via Online Learning
  - Self-Regulated Engagement
- Resolving and Supplementing Information Literacy for Effective Research
  - Assimilating prior online resource behaviours with current facilities
  - Referencing skilling to avoid plagiarism and grade detriment
  - Skilling with information sources to enhance research
  - Skilling with challenging databases to enhance research
  - Skilling with challenging databases to enhance research
  - Skilling with wider online sources to enhance research
  - Skilling in use of database sign in to facilitate literature searching
  - Skilling in use of database sign in to facilitate literature searching
  - Skilling in referencing to avoid plagiarism and avoid grade detriment
  - Sourcing specialist e-resources or databases
  - Overcoming database issues to obtain core reading texts
  - Overcoming confidence issues using/evaluating/trusting WWW content
Improvised Learning (core category)

- Principal Developed (High Level) Categories related to this Category
  - Transitional Physicalisation of Online Learning; Motivational adaption and improvisation via Online Learning; Navigating diverse platforms, equipment, locations

*Improvisation concerns strategies to access on-demand support, resource location or learning needs such as use of support networks within the social or family sphere, exploitation of University or other local services such as local libraries or improvisation such as use of WWW search engines to locate e-resources or supplement formal databases for literature searching. Exploitation and innovation emerged as a highly important strategy and process for literature searching due to perceived problems using databases and platforms provided within the Library. Innovation can be seen to complement and include all existing theoretical categories and particularly the following Developed and High Level Theoretical Categories: Motivational adaption and improvisation via Online Learning, Adaptive Virtualisation of Learning; Self-regulated engagement; On-Demand Exploitation/Improvisation Navigating diverse platforms, equipment, locations.*
Information Systems Traversing or Self-led multi-systems traversing (Tentative Core Category)

- Original anecdotal Theoretical Codes related to this Category
  - Lone studying via ICT; Self navigating Technologies; Inter-location studying; Remote peer-communicating; Multi-tasking commitments; Study-Work Integrating; ICT self-supporting; ICT knowledge sharing; ICT facility discovery; ICT facility exploiting; Commitment (life, work, study) accommodating; Vocational study avoiding; Vocational study exploitation/appropriation; VLE workload avoidance; VLE information exploitation; Career studying (voluntary / involuntary); ICT familiarising; Goal-based ICT appropriation; ICT problem navigating; Support network developing; ICT software/systems/equipment ownership (literal owner and stakeholder); Cross-system/platform coping; ICT systems, software, Web resource, VLE navigation; ICT self-reliance; Web credentialising/evaluating; Institutional Web navigating/awareness building; Goggle-based Web experiencing; Web sorting; Web resource storing/retrieving; Cross-system Web navigating; VLE-based Web browsing/searching; Web space integrating; Web-resource trusting; Overseas VLE studying; Mobile ICT exploiting; VLE document managing; Digital resource selecting/incorporating; Digital transforming (digital copy to hard copy); Work facilitated document transformation; ICT facility dependency; Managing ICT resource availability; Sharing ICT resources (peers, family, friends); Email navigating; System referencing; Traditional email dependency; VLE-email interrelating; Tutor network developing/maintaining; Remote group participating; Social (Peer) network developing/maintaining; Shared e-document creation/development; Group time managing/prioritising/coordinating; VLE document seeking/navigation; Habitual VLE visiting; Habitual VLE avoidance; VLE course/course-requirement dependence; VLE-literature (books) navigation; VLE styles navigation/reconciliation; VLE content deficit reconciliation; VLE-external systems navigation; VLE-Web reconciliation; VLE-course/programme structure reconciliation; Course content specificity reconciliation/navigation; ICT-hardcopy multitasking/reconciliation (e-studying?); Multiple location e-studying; Desktop computer problem reconciliation; Quiet-e-studying reconciliation; Digital document multitasking; Digital/hardcopy resource reconciliation.; Web resource/excerpt integration; Digital resource sorting, labelling and situating; Digital document internalising; Digital document processing; Digital document volume reduction/management; Digital document filtering; Digital document credentialising; Digital resource discovery; Assimilation of online sources (of information); Credentialising, labelling, storing and retrieving information sources; Plagiarism avoiding; Integrating professional and study sources (of information); Accommodating/reconciling digital documents; Transforming digital to hardcopy resources; Integrating information sources; Awareness acquiring of information sources; VLE course resource dependence (as information portal); Search engine digital resource dependence; Search engine results interpreting;
Information Systems Traversing or Self-led multi-systems traversing (Tentative Core Category)

‘Self-led multi-systems traversing’ this basically indicates the primary and core concern of the student is related to managing a disparate array of systems, digital and hardcopy resources, logins, PC-based applications and Web-based systems. Some serious considerations for this tentative core category could include ICT literacy of intake students (i.e. having sufficiently high ICT skills to cope with the breadth of ICT requirements for a Higher Education course delivered via blended learning and associated technologies, and support issues for the training, induction, and ongoing support for users in a low-contact/ part-time context. The self-led issue is perhaps the most important sub-category, indicating the sense the student has of isolation and demands placed on them to perform a range of basic ICT functions within the VLE and in the use of wider systems.
Conclusions and Recommendations (in progress)

- Originality of the Research & Application for Post-Statutory Education
- Application of ‘Improvised Learning’ beyond the Field of Study
- Operationalizing Theoretical Outcomes for E-Learning Design & Competencies
- Operationalizing ‘Improvised Learning’ for E-Learning Design & Competencies
- Conclusions and Suggested Areas for Further Research
Inter-disciplinary context

- E-learning/ Blended learning
- Information Architecture
- Web Accessibility/ Usability
- Pedagogy, Instructional Design, Learning Styles
- Web development/ Systems
- Library and Information Science
- Social Networking, Web 2.0 – the Semantic Web
- Sociological methods (coding-based method)
- Higher Education context, development of legislation funding and policy...
- etc....
Selected personal publications related to the project:


Selected References


Rowland, F., & Rubbert, I. (2001). An evaluation of the information needs and practices of part-time and distance-learning students in the context of educational and social change through lifelong learning


Traxler, J. (2007). Defining, discussing and evaluating mobile learning: The moving finger writes and having writ.... *The International Review of Research in Open and Distance Learning, 8*(2)
