

Institution:	University of Northumbria at Newcastle
Unit of Assessment:	36B - Library and Information Management
Title of case study:	Understanding and responding to user behaviour in ever-changing information environments
1. Summary of the impact	
<p>Twelve years of our research into users' information behaviour has helped a wide variety of learners and Internet users to interact better with web-based information by equipping them with the skills and knowledge to develop their own agile models of information behaviour in the web environment. It has produced practical tools such as a toolkit for service providers, a methods book and awe-based resources evaluation framework that are employed nationally and internationally in secondary and higher education. The research is benefiting librarians, educators and learners dealing with complex information environments. Within the LIS (Library and Information Science) community, researchers, academics and practitioners are also benefiting from training current and next generation practitioners in the user engagement methods developed during the research.</p>	
2. Underpinning research	
<p>Since 1999 we have conducted research into users' information behaviour in ever-changing information environments to understand how they interact with information sources and services in order to improve the efficiency and effectiveness of those interactions. This case study is underpinned by a number of most significant projects, led by a number of staff based at Northumbria within the UoA during the period.</p> <p>The first, JUBILEE (1999-2004), was funded under the JISC Framework for Monitoring and Evaluating User Behaviour in Information Seeking and Use of IT and Information Services in UK HE, led by Dr L Banwell, Research and Development Manager, then Director of the Information Management Research Institute at Northumbria from 1999-2005. Over five cycles JUBILEE (JISC User Behaviour in Information Seeking: Longitudinal Evaluation of Electronic information services) involved national surveys and in-depth case studies of both HE and FE information services. The findings revealed that behaviour was unstructured and lacked a systematic approach to both training and search patterns. A toolkit was produced for service providers across the sector in the UK, USA and Europe which enabled information practitioners to structure their service such that it provided the support necessary for users to develop more efficient searching behaviours (Reference 1). This work was complemented by the studies of two fully-funded AHRC PhD studentships at Northumbria (1999-2002) which explored "<i>The impact of access to electronic and digital information resources on learning opportunities for young people</i>" (Pickard) and "<i>The characteristics and development of young people's information universes</i>" (Shenton). Their research provided insight into the role of information behaviour in learning. It also provided a framework for teachers and librarians to use in supporting children and students learning in the emerging online environment. A follow-on three-year longitudinal study of information behaviour in HE (2002-05) led to the revision of the original JUBILEE research toolkit to include guidelines for supporting younger users in secondary and primary education (Reference 2). This work was led by Dr A Pickard (Lecturer at Northumbria from 2000, and subsequently Senior then Principal Lecturer).</p> <p>In 2006-07 case study research, led by Dr S McTavish (at Northumbria between 1992 and 2007 first as Senior Lecturer then Principal Lecturer) and Pickard, for local Public Library Authorities, as part of a national initiative "<i>Welcome to your Library</i>" funded by the Paul Hamlyn Trust, focused on the information needs and behaviour of refugees and asylum seekers (RAS). It found that few RAS were aware of the free Public Library service and were rather daunted by asking questions; those that did use it found it a lifeline to friends and family (internet access) and said all should be encouraged to use the service. This led to developments in service provision in several regional libraries. For example, Newcastle City Library created a community space with coffee mornings and short-term loans of stock from the British Library in multiple languages for this group of users; South Tyneside introduced a public information desk in the library foyer and Sunderland; provision</p>	

Impact case study (REF3b)

at Gateshead was found to be appropriate to their community (Reference 3).

Research focusing on user behaviour in educational contexts was supported by a Northumbria University Centre for Teaching and Learning (CETL) grant (2008-10) (Pickard and Sambell). This project used action research to explore the role of mentoring in scaffolding students through their information literacy development; LIS final year students mentored second year students in other disciplines during their information seeking activities. An analysis of the outcomes identified how best to support novice researchers in their information-seeking and how best to apply formal interventions, such as guidelines on structured searches and an introduction to online tutorials, into teaching plans.

In 2010 another JISC funded project "*Users' trust in information resources in the web environment*", led by Pickard, continued to develop this work in HE. This interdisciplinary research with colleagues in psychology at Northumbria involved a systematic review of literature in LIS and cognitive psychology and a community consultation with all stakeholders (students, service providers and publishers). The research led to the development of the "iTrust" model of online information sources. The model added new dimensions to previous understanding of users' trust in web-based resources, considering behaviour at the points at which choices were made and intention to use particular sources. In particular, it identified a need to address individual, personal models of information interactions of young people (Reference 4). A follow-up project in 2011 to determine how young people in Key Stages 4 and 5 (13-16 years) evaluate resources on the Web involved a survey of all students in that age group at a secondary school in the North East of England (Reference 5). This has resulted in a framework to guide the development of personal, agile models of information behaviour of young people which is now being applied by teachers and librarians in the UK, Europe and USA (See Section 4).

In addition to the findings that increased our understanding of, and ability to support, user behaviour in digital environments, research methods in LIS were developed significantly during the course of conducting this body of work. In particular, rigorous approaches to qualitative investigation, in order to understand user interactions better, were developed (Reference 6). This led to the publication of a handbook on methods for LIS research.

3. References to the research

1. Banwell, L. et.al. (2004) *JISC User Behaviour in Information Seeking: Longitudinal Evaluation of EIS (JUBILEE). Fifth Annual Report; Final Report*. JISC. <http://nrl.northumbria.ac.uk/14659/>
2. Pickard, A.J. (2005) 'The role of effective intervention in promoting the value of electronic information services in the learning process: Case studies in Higher Education.' *Performance Measures and Metrics*, **6** (3), pp.172-182. <http://dx.doi.org/10.1108/14678040510636739>
3. McTavish, S. and Pickard, A. J. (2007) *Research into Refugees and Asylum Seekers (RAS) Library/Information Needs*. Available at: <http://nrl.northumbria.ac.uk/5560/>.
4. Pickard, A.J., Gannon-Leary, P. and Coventry, L. (2011) 'The onus on us? Stage one in developing an i-Trust model for our users.' *Library and Information Research*, **35** (111), pp.87-104. Copies made available on request.
5. Pickard, A.J., Shenton, A.K. and Johnson, A. (2012) 'Young people and the evaluation of information on the web: principles, practice and beliefs.' *Journal of Library and Information Science* (<http://dx.doi.org/10.1177/0961000612467813>, first published on December 23, 2012 Sage OnlineFirst).
6. Pickard, A.J. and Dixon P. (2004) 'The applicability of constructivist user studies: How can constructivist inquiry inform service providers and systems designers?' *Information Research*, **9** (3) paper 175. <http://informationr.net/ir/9-3/paper175.html> Copies available on request.

4. Details of the impact

There are two main impacts arising from this body of research. Firstly, it has influenced the training of LIS practitioners internationally in relation to how to engage in user research within LIS. Secondly, it has helped learners and pupils in secondary schools dealing with complex information environments to change how they access, assess and interact with web-based information. It has also assisted educators in UK secondary school to understand better these behaviours and thus to

be better informed about how to support users.

Impact on training LIS practitioners: The book “*Research methods in information*” by Pickard was a major output from the work on research methodology explained in Section 2. It was the first “handbook” of research methods developed specifically for LIS and was a Facet best-seller in 2008, with two print runs totalling over 10,000 copies sold. Now in its second edition (2013) it has also been translated into Italian (Source 1). The book is being used as a core LIS text in over 24 countries by educators and their students who are studying to be practitioners, and as a tool by established LIS practitioners internationally who engage in user/LIS research, and has been adopted in other disciplines such as computing, journalism and communication. “*Pickard’s even-handed approach provides a safe haven for exploration and thinking. Regardless of a student’s orientation, the text tours diverse approaches and promotes thinking about research. The handbook also emboldens faculty who wish to provide creative options for students, in lieu of steering them toward a predetermined path*” (Source 2). LIS students have identified specific impact of the book on their work: “*particularly for students on University College Dublin’s MLIS programme undertaking Assignment 1 (Evaluation of published LIS research). If I had to choose between Creswell and Pickard, I would choose Pickard because it has a better logical flow, contains information not in Creswell... and overall has better detail...Creswell’s description seems out of date (or immature) compared to Pickard’s*” (Source 3). More recent impact has come from a new chapter in the second edition which has: “*had a successful and measurable impact on our Simmons College [USA] students’ successful grades/marks on the qualitative case analyses that they were assigned last month*” - “*the students really found your materials helpful and I know our librarian community here will as well*” (Source 3)

Impact on user behaviour of learners/pupils and educators: Output from the JUBILEE project, in the form of an online toolkit, was made openly available via the JISC InfoNET infrastructure. In her review of the project for JISC, Professor Jenny Rowley considered that the JUBILEE toolkit was: “*far more ambitious and sophisticated than any work attempted elsewhere... The EIS [Electronic Information Systems] maturity tool-kit offers a valuable tool for HE managers*” (Source 4). School Learning Resource centres responded swiftly to the findings of the AHRC PhD study (Pickard) and CPD training on the introduction and delivery of online information services was developed and delivered to school librarians across the country. The findings of the CETL-funded research have produced a model for information literacy mentoring which continues to be used and is being developed in secondary schools nationally.

The iTrust research (2010) received a similarly favourable review: “*The results were extremely interesting... The report deserves wider dissemination than normal LIS channels as there are implications for all stages of education*” (Source 5). The iTrust model developed from the research has been used as the basis for developing a new approach to digital awareness involving personal models of information evaluation which has application within the education sector and more generally to all citizens. The model, and the understanding it brings of user behaviour, has been used by Pickard to deliver CPD training to Public Library staff in the region (15 Senior Library and Information Officers (LIO) and over 40 LIO’s, 2008-09) in preparation for the national Go ON UK Project. This involved preparing library staff for new ways of working including the delivery of training to “silver surfers”, young people and the unemployed to make use of online services; developing collaborative ways of working and understanding community cohesion. Anne Turnbull, Trainee Library and Information Officer, Newcastle Libraries, said of the CPD: “*ICM staff designed a brilliant, hands-on programme which covered topics from Web 2.0, community engagement, presentation and management skills to reader development...the most valued and practical lesson that we all took away from the programme was the importance of reflective practice and the opportunity to share good practice and learn from more challenging situations... as a team, we’ve gone from being localised and out of touch to being leaders, innovators and opportunists!*” (Source 6). This training led to a request to carry out research on behalf of housing associations to discover the extent of residents’ online information literacy in preparation for Government plans to digitise the entire state benefit system.

Based on our most recent investigation into the evaluation practices of Key Stage 4 and 5 pupils (13-16 years) Pickard and Shenton have developed a framework to assist in improving the evaluation and critical thinking skills of young learners in their information interactions on the web.

Impact case study (REF3b)

Our Evaluation Framework tool for meta-evaluation of web-based resources for secondary education has now been published in “*Creative Teaching and Learning*” (V3 (2), 2012, pp22-28) and on the British Computer Society Digital Literacy for Life programme website (Reports and thought leadership, <http://dfl.bcs.org/category/17628>), extending the work beyond LIS and into IT and teacher education. A request from a teacher led to the framework being tested with 6th form pupils preparing research case studies for the A-Level awards (Source 7). Evidence from this case study suggests that use of the Framework significantly increased levels of self-efficacy in the use of digital resources and increased awareness of the evaluation process. Evidence of assimilation of knowledge, accommodation and transference were noted when the intervention was applied across other subjects. One pupil said that the framework had been: “*just as useful in my history coursework as it has been here, I feel like I’m more in control now*”. Another claimed that: “*I used it all of the time, now I’m doing this stuff...evaluating, without always thinking*” (Source 8). As a result of this research Pickard and Shenton submitted a proposal to the UK Literacy Association to write a minibook for their series about the Evaluation Framework and practical approaches to its use within the classroom. The UKLA responded very positively inviting them to contribute, saying: “*there is an urgent need for more information on how to support children and young people in assessing the value and relevance of the information they are accessing from a variety of sources. This issue is becoming particularly more pressing of course, the further we enter into the internet age, as young people have exposure to so much information in electronic and digital forms*” and “*felt [they] have an important contribution to make within the context of this minibook series*” (Source 9). There has been significant interest nationally and internationally in using the Framework in Secondary and Higher Education (Source 10).

All of this research contributed to the preparation of a successful collaborative EU Tempus programme bid in 2012, which supports the modernisation of HE in partner countries in Europe and Central Asia. The £700,000 “IMPRESS” project is concerned with knowledge transfer across Ukrainian universities, focusing on digital literacy and other related skills and aiming to provide a framework for the Ukrainian Ministry of Education across their national HE sector. Northumbria University is the lead partner (Strachan and Pickard, 2012-15).

5. Sources to corroborate the impact

1. Pickard, A. J. (2007 & 2013, 2nded.) *Research methods in information*. Facet. Also published by Neal Schuman in the USA and translated into Italian and published in Italy by BibliotechOggi (2010). Sales figures from the publisher.
2. Logan, R. (2009) Review of: Pickard, Alison Jane. *Research methods in information*. *Journal of the Medical Library Association*. **96** (1): 70–71.
3. CITEULIKE post by Sarah McDonald, Highest GPA 2009 Prize Winner; University College Dublin. (<http://www.citeulike.org/user/seninp/article/209817>). Email correspondence and eScience Community blog post by A. Creamer, Librarian at University of Massachusetts Medical School (<http://esciencecommunity.umassmed.edu/2013/03/19/crossing-that-bridge-we-have-come-to-teaching-students-how-to-manage-qualitative-data/>) (the blog goes out on a listserv to a wide readership of over 200 health sciences, science and technology academic librarians in the Massachusetts area interested in learning more about data management).
4. Rowley, J. (2004) Evaluation of *JISC Framework for Monitoring and Evaluating User Behaviour in Information Seeking and Use of IT and Information Services in UK HE: User Behaviour in Information Seeking: Longitudinal Evaluation of EIS (JUBILEE)*. JISC Final Report Review.
5. Parker, S. (2010) Evaluation of the *JISC Users’ trust in information resources in the web environment project*. JISC Final Review.
6. Written up as an article: Turnbull, A. (2009) Newcastle Libraries and Northumbria University: Bespoke CPD programme. *Impact: J. of the Career Development Group*, V12 (2), pp. 28-30.
7. Personal approach from a high school teacher.
8. Transcripts of audio recordings of focus groups with pupils.
9. Email from the Editor of the UKLA minibook series.
10. Comments/email from a consultant to the Global Libraries Programme of the Bill and Melinda Gates Foundation; Learning Resource Co-ordinator at Blairgowrie High School; and a Lecturer at Charles Sturt University, WaggaWagga, Australia.