Northumbria Research Link

Meaningful measures for individuals' realities: evidence from the JUBILEE project

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Abstract

Reality differs according to the individual's perception: this is a statement of the obvious. How to deliver appropriate library and information services to fulfill those individuals' requirements is not obvious. Measures of success are needed to form the basis of service planning. These measures must be meaningful for individuals, both users and managers, if the goal of designing and delivering library and information services to meet individuals' realities is to be realised. Contexts are changing for individuals: the fast developing world of electronic information services (EIS) provides individuals with new opportunities and new threats. It is against this background that the JUBILEE project was launched. This paper will use evidence from JUBILEE to present the issues underlying the development of an evaluation toolkit for managers of EIS, which will take into account differences between individuals, between disciplines, and between institutions.

Introduction

The paper will begin by setting the context of JUBILEE. It will review the issues involved in establishing meaningful measures and individuals' realities, and will include a brief consideration of changes underway in UK higher and further education. It will then locate JUBILEE within other work on performance measurement, especially in the evaluation and benchmarking of EIS, and will provide a detailed description of the derivation of the EIS Maturity Evaluation Toolkit being developed in JUBILEE.

Meaningful measures

In order to make measures meaningful to users and managers as individuals, the following issues must be taken into consideration, which will help to ensure the uptake of the research findings and resulting toolkit:

Awareness of audience

The researcher/service planner must be aware of the audience and purpose, for which the measures are being developed. This could be practitioners, academics, education managers, students, funding bodies, or a combination of individuals. All will have differing requirements, and an appreciation of them is needed at the design stage of the planned toolkit.

Ownership of process

If the planned toolkit is to be used and useful, then all stakeholders in the process must share in its ownership. This means identifying who they are at the outset, and involving them interactively at all stages of the process. Consequently, the information collected in support of the process must be first class – accurate, sufficient, representative, user-centred.

Quantitative and qualitative

A key theme of the Performance Measures 3 conference in 1999 was the need to collect and build in qualitative evidence, as well as the more familiar quantitative data used in performance measurement. JUBILEE is firmly rooted in the qualitative camp, whilst acknowledging that both quantitative and qualitative data are needed to give the complete, holistic picture needed for successful performance measurement tools.

Uptake of research

It must be of central concern to projects and funders to try to ensure uptake of their research. Projects end, staff move on, and impetus can die, unless particular effort has been directed towards uptake of the research outcomes during the lifetime of the project. Ownership of the research by its stakeholders is key to its uptake, as is effective dissemination of research outcomes through developing toolkits, running workshops, and the more usual conferences and publications.

Individuals' realities

Individual contexts

An individual's reality will be derived from the many variables which make up that individual's context. Individuals have a unique mix of variables, which influence their information behaviour, such as their own educational background, learning style and skills with information use. Impacting on them from outside of themselves are factors such as available resources, their own discipline of study, and the particular task, or query, they are trying to answer at any one time.

UK Higher Education (HE) and Further Education (FE)

The central theme here is of major and rapid change. The education landscape in the UK and worldwide has changed dramatically in the nineties for a range of reasons, some global and some more localised. In the UK two major reports have appeared which were farsighted and were to have long lasting impact on the future of library and information services. The Follett Report was published in 1993 and analysed trends in HE library spending (Joint Funding Councils' Libraries Review Group, 1993). It emphasised the importance of IT to effective library service management in the future, which galvanised management even before the Dearing report was published in 1997 (NCIHE, 1997). This report provided an overview of key issues impacting on HE in the UK, bringing to the forefront matters such as widening access to HE and coping with the increased numbers that would result. Managing information electronically is seen as a solution, if partial, to such pressures. Day et al (1997) summarise the chief forces for change in UK HE as:

- Expansion of the student population with many more "non-traditional" learners

- Stringent financial resources

- Increased financial accountability and quality assessments

- Introduction of new student-centred learning techniques

- Convergence of networking and telecommunications technologies and information

- Growth of a consumer-led society

Such debate provides the backdrop to the promotion and adoption of EIS in HE, and now in FE too.

The FE sector, traditionally for the post 16 students not entering HE and wishing to take more vocational courses, is becoming increasingly involved with the HE sector. FE colleges are increasingly forming partnerships with HE institutions and provide teaching to bridge the gap for students between the sectors.

The JISC and EIS

The Joint Information Systems Committee (JISC) of the Higher and Further Education Funding Councils in the United Kingdom funds a number of national information services for the use of the higher and further education and research communities. These include online bibliographic databases; bulletin boards; software archives; data archives; and socio-economic, scientific and digital map databases; electronic mail discussion lists. An aim is to promote best practice and the use of agreed standards. The new JISC strategy 2001-2005 outlines:

… the vision of a single, world wide, information environment that will support learners, teachers, researchers and administrators … it is designed to help the sector manage change … (JISC, 2000)

JISC is developing the network infrastructure and content under the banner of the Distributed National Electronic Resource. Its main objective is to stimulate the further development of the UK's research base in the creation, management and exploitation of digital resources for the support of learning, teaching and research (JISC, 1999a, b).

About JUBILEE

JUBILEE (**J**ISC **U**ser **B**ehaviour in **I**nformation seeking: **L**ongitudinal **E**valuation of **E**IS) is a three year project being funded by the JISC as part of its programme on monitoring and evaluating user behaviour in UK HE, focusing on EIS. The project started in September 1999. By undertaking a qualitative longitudinal monitoring of EIS use and non-use, JUBILEE is seeking to predict, monitor and characterise information-seeking behaviour in relation to EIS, and is providing illuminative and contextualised pictures built up over time, in different disciplines. It is focusing on users and non-users in actual sites (fieldwork institutions and Departments within them) and virtual sites (discipline/subject communities). The project is designed in three annual cycles of investigation, with each cycle focusing on three disciplines, in six case study HE institutions. Data is being collected and analysed in each cycle to inform subsequent cycles, and refine the developing benchmarking tool. JUBILEE began in HE, and was extended in cycle 2 to incorporate work in the FE sector too.

JUBILEE thumbnail

JUBILEE is about:

- Characterising information behaviour in respect of EIS in UK HE and FE

- Looking for variations between disciplines, sites, individuals and groups of individuals, such as students, academics

- Using the information behaviour pictures built up as the basis for an evaluation and benchmarking toolkit, the JUBILEE EIS Maturity Evaluation Toolkit

JUBILEE's approach is:

- Building a picture bottom-up, over time, seeking individuals' views

- Holistic, essentially qualitative, but including quantitative data to provide a complete picture

- User and discipline based, focused on EIS use/non-use

- Building illuminative and contextualised pictures through fieldwork using questionnaires, interviews, focus groups, documentary analysis

- Interactively developing the toolkit for HE and FE managers to use in EIS service development.

JUBILEE DATA

By the time of Performance Measures 4 in August 2001 detailed evidence has been collected as follows:

- Cycle 1, 1999-2000. 6 HE sites, 3 disciplines (Health Sciences, English, Business Studies). 500 students and 200 library staff and academic questionnaires, and 60 interviews

- Cycle 2, 2000-2001. 6 HE and 4 FE sites, 3 disciplines (Computing, History, Sociology).

  - HE: 300 student and 100 library staff and academic questionnaires, and 90 interviews

  - FE: 430 student and 25 library staff and academic questionnaires, and 50 interviews.

Developing the EIS Maturity Evaluation Toolkit

An outcome of the JUBILEE project was stated in the project proposal to the JISC as:

> *a benchmarking tool, in the form of an Action Plan for the use of HE managers, based on the characterisation of user-based success criteria in relation to EIS, as seen from the users' points of view. HE managers will be enabled to see how well positioned they are to exploit JISC resources and to support their decision making with respect to EIS* (Banwell et al, 1999; Rowley, 2000)

RELATED WORK

The evaluation and benchmarking work currently being undertaken in the JUBILEE project builds on a range of earlier and related studies, some of which are reviewed briefly below.

The evaluation of information systems and services generally occurs at the end of the design process, in a cyclical framework where the outcomes of the evaluation feed into the improved design of the system (Banwell, 2000). User-centred design shifts the emphasis to earlier in the design process where user needs inform design and user feedback is on going. JUBILEE is deriving user-based criteria for evaluating the on-going success of EIS in order to inform further developments within institutions, with the intention of increasing effectiveness from the user point of view.

Performance measurement of libraries and library services is developing to increasingly include qualitative indicators, and to accommodate EIS. In 1995 the Joint Funding Council's (1993) Ad-hoc Group on Performance Indicators for Libraries published *'The*

Effective Academic Library: A Framework for Evaluating the Performance of UK Academic Libraries'. This consultative report originated from the recommendation, made in the Follett Report in December 1993, that a framework of coherent and generic performance indicators, suitable for assessing academic libraries be established. The Follett Implementation Group for Information Technology recognised the growing significance of EIS and suggested that "...indicators should be amended to take appropriate cognisance of the growing significance of IT-based services in libraries…" and further advised that "As electronic services become more pervasive there may also be a need...to include some indicators based solely on the extent of provision and take up of electronic services..."

Kantor (1996) lays stress on the fact that assessing the impact of EIS is complicated by the fact that the technologies and the resources are growing more than exponentially. In consequence, measures of EIS use and impact will grow. Kantor advocates identification and measurement of factors that accelerate adoption of EIS and those which hinder that adoption. JUBILEE's approach to EIS, as part of a holistic view of user information seeking behaviour, will facilitate this identification and measurement by illuminating their use and non-use.

At preceding Performance Measures conferences, papers have been presented by leading workers in the field who have made strong pleas for the central role of qualitative evidence and its involvement in the performance measurement process (Lancaster, 1997; McClure, 1999)

The recently completed EQUINOX project has developed performance measures for the electronic library which will be used in addition to more traditional measures. It also makes a plea for qualitative evidence to be explicitly built in to the use of performance indicators. The list of indicators is displayed on the project website (Clarke, 1999). They have formed a checklist of areas to be covered in the JUBILEE investigation.

As well as taking into account the work cited above, the analysis and resulting toolkit in JUBILEE is building on a recent study undertaken in the School of Information Studies for UKOLN (UK Office of Library Networking). In the 1999 project *Managing Organisational Change in the Hybrid Library*, a development matrix for hybrid libraries in Higher Education was produced (Banwell et al, 1999). Five development stages were identified (Baseline, Change, Congruence, Embedding, Full Integration) and were applied to themes to produce development paths. The themes had been identified through consultation with experts and through fieldwork and were:

1. The wider environment

2. Institutional context

3. Strategic management within the institution

4. Library service issues

5. User needs

6. Communication

7. Quality

8. Resources

Benchmarks were produced to indicate the point at which the Library/Information Service could move to the next level of development. These findings provide context for the JUBILEE project, and a similar analysis is being undertaken with specific reference to EIS. Cycle 1 was JUBILEE's baseline cycle when a set of themes were identified. These were developed in cycle 2 for use as the framework for the toolkit which will result at the end of the project. Benchmarks to indicate the point at which EIS information behaviour in the organisation moves from one level to the next are being characterised in cycles 2 and 3 of JUBILEE.

PREREQUISITES, SUCCESS FACTORS

The rationale for the development of the JUBILEE EIS Maturity Evaluation Toolkit was described in the cycle 1 report as follows (Banwell et al, 1999):

> *At its most general level, the information provider's goal is to create a situation where users, academics and students, will use information seamlessly, irrespective of type or source, with confidence and trusting in its quality, in support of their learning and leisure. An individual's success criteria for information searching will be linked to achieving that goal personally. Evidence from cycle 1 fieldwork in JUBILEE suggests that the prerequisites for achieving this goal are for users to perceive they are in a situation where:*

> – *Access to information, including EIS, is easy for all users*

> – *The resource base (technical and human resources) itself is good to excellent*

> – *Users have the technical and evaluative skills to use information, including from EIS*

> – *EIS are embedded in course design and delivery, and in the research process*

> – *EIS are embedded in student learning*

> – *Quality assurance processes are in place for internet-based information*

> – *Seamlessness is achieved*

These user-based success criteria become the basis for toolkit themes, and provide the framework for driving change, around which a development path will be constructed as the project progresses. Barriers will be encountered by users, creating dilemmas for individuals and institutional managers. Enablers will provide solutions and will permit movement along the development path. Institutional and discipline contexts and constraints will determine the exact nature of the development path appropriate in each individual and institutional context.

DEVELOPMENT STAGES

JUBILEE is deriving user-based criteria for evaluating the on-going success of EIS in order to inform further developments within institutions, with the intention of increasing effectiveness of EIS from the user point of view. The JUBILEE approach is holistic, with both qualitative and quantitative evidence being collected.

By building up exemplars of good practice in different disciplines at different sites, evidence will be presented of baseline, intermediate and advanced development in the use of EIS, to be included as part of the toolkit by the end of cycle 3. Each theme will be developed in detail to provide a development path showing the interaction between barriers to development, dilemmas for resolution and enablers which could be employed at the local level to overcome the barrier.

The toolkit has been developed further in cycle 2. Additional ways of synthesising and presenting data by site and by discipline for eventual inclusion in a toolkit manual at the end of cycle 3 are presented in this report.

The work undertaken for UKOLN had resulted in the identification of development stages of maturity in relation to managing organisational change in the hybrid library. These were characterised as baseline, change, congruence, embedding and full integration. Generic characteristics have been derived for each development stage, based on fieldwork evidence. These are presented below.

EIS Maturity Evaluation Toolkit methodology: generic development stages

Stage		characteristics
1	**Baseline** Starting point, status quo	No systematic practice, sporadic surveys, historical picture, not a priority; Systems uncoordinated/fragmented; Understanding of broader issues; Introduction of new systems to adapt to/accommodate change; and, Some early decisions made.
2	**Change** Point at which there is recognition of a need to change	User needs, objectives, service targets established; On-going methods of satisfying needs etc. devised e.g. working parties, informal strategy document, service evaluation (surveys, staff involvement); Resource use monitored; and, Relationships being strengthened.
3	**Congruence** Stage where the vision is starting to be implemented	Provide and monitor effectiveness of skills training; Institution wide policies and standards established; and, Collect and optimise statistical and qualitative data.
4	**Embedding** Appropriate partnerships are developing from congruence and are accepted as part of the culture	User education and monitoring, restructured framework for needs assessment; Partnership between students, researchers and staff; Widespread implementation of strategies and policies at all levels; and, Ensure meeting of targets.
5	**Full integration** All the diverse elements are assimilated signifying maturity and the ability to fully exploit potential available	Individual behaviour recognised and satisfied; Generic frameworks adopted and adaptable; Student/user-centred strategies, involvement in the curriculum; Appropriate multidimensional systems in place; and, Continuous performance measurement.

The JUBILEE project is testing this methodology in the context of EIS. Based on cycle 2 evidence collected in both HE and FE, the project team is satisfied that the methodology from the UKOLN project is transferable to JUBILEE, both to HE and FE. This aspect was discussed at the June meeting of the Project Advisory Group, where strong endorsement was received for the use and usefulness of the developing toolkit.

The final form of the toolkit manual, to be published at the end of cycle 3, will be multi-layered. The generic form of the toolkit will overlay the characterisation of situations in different disciplines and sites. This form of presentation will permit institutions to tailor the illuminative material contained in it to their own situations, at institution, discipline or individual levels. Such a multi-layered, web-enabled presentation, was used with success by the HyLiFe eLib3 project, which focused on interface development for the hybrid library (HyLiFe, 2000).

Concluding comments

VARIATIONS AND GAPS

JUBILEE fieldwork is collecting discipline-based evidence of information seeking behaviour, contextualised by site, and focusing on EIS. Already by the end of Cycle 1, there was abundant qualitative evidence of gaps e.g. between academic and/or LIS staff expectations and reality seen from the students' points of view. Some instances are:

– There are examples in varying degrees of the Head of Department thinking that the students are doing well in their use of EIS, and the students and/or LIS staff thinking that it is almost non-existent;

– There seems to be generally a better correspondence between IT skills problems and students recognising their lack of skills, or demonstrating that they lack them;

– Disciplines are clearly at different evolutionary stages within and between sites;

– EIS create a demand for material/s which are not yet available. Users become frustrated when they find references to material that the library does not have, and collections appear the poorer and interlibrary loans are expensive;

– EIS create expectations now that everything will be accessible remotely and will intercommunicate (e.g. to e-mail from CD database) – the reality falls short;

– Library systems disappoint: OPAC system indicates books are available on the shelves "when 98% of the time they are not" (student);

– There is still a lack of understanding by users as to why they need to know about retrieving information from electronic resources; and,

– LIS staff expect more knowledge than the user has, leading to poor instructions and assistance.

There is also evidence that LIS staff are becoming increasingly aware of the low levels of IT literacy of many students despite changes in the UK National Curriculum, and that variations in these levels are not dependent on student age or their discipline of study.

In addition to the qualitative evidence of gaps, as presented above, analysis of the data entered into SPSS has laid the foundation for an analysis of gaps existing between expectations and reality on a number of variables. Numbers in some sample population sub-groups are too small to be generalisable to a wider population, but are nevertheless indicative of patterns and trends which will be more widely investigated as amounts of data increase with subsequent cycles of the project.

The gap analysis is being used to help characterise areas of improvement (i.e. enablers) to move EIS between stages of development in the toolkit.

DEMONSTRATING THE TOOLKIT IN JUBILEE CYCLE 2

The cycle 2 report contains detailed examples of the use of the toolkit to date, and will be available on the IMRI website (http://is.northumbria.ac.uk/imri/) in the autumn of 2001. Below are some thumbnails showing development stages for the JUBILEE cycle 2 target disciplines, in both HE and FE case study institutions.

Cycle 2 HE institutions and disciplines – development stages

Site	Discipline	Stage reached	Thumbnail
1	Computing	1/2	Assimilation
1	History	2/3	Progress/transformation
1	Sociology	1	Rudimentary
2	Computing	2	shift
2	History	1	Incipient
2	Sociology	1/2	Apperception
3	Computing	3	Innovative
3	History	2	On the cusp
3	Sociology	1	Basic
4	Computing	4	Established
4	Sociology	3	Readied
5	Computing	3/4	Equipped
5	History	2	Movement/sense of direction
5	Sociology	1/2	Acclimatisation
6	Computing	2/3	Transitional
6	History	1	Elementary
6	Sociology	1/2	Adjusting

Cycle 2 FE institutions and disciplines – development stages

Stage		Site	History	Sociology	Computing
1	**Baseline** Starting point, status quo	Site 3	Site 2, 3	Site 3	Site 1, 2
2	**Change** Point at which there is recognition of the need to change	Site 1, 2, 4	Site 1, 4	Site 1, 4	Site 3, 4
3	**Congruence** Stage where the vision is starting to be implemented				
4	**Embedding** Appropriate partnerships are developing from congruence and are accepted as part of the culture				
5	**Full integration** All of the diverse elements are assimilated signifying maturity and the ability to fully exploit potential available				

SOME EMERGING ISSUES

Use of EIS is, as yet, minimal in most areas of HE, and all of FE, and certainly is not yet changing lives. We as information professionals need to ask ourselves why this is, and examine whether or not it is an acceptable situation, given the high levels of investment in EIS. Are we surprised, complacent, proactive, both as individuals and as members of an institution?

User viewpoints are key if the acceptability of EIS is to be embedded in custom and practice. User information collection must therefore be designed into the whole EIS process in order to promote uptake of services and research results alike.

And finally, focusing on EIS will become increasingly difficult as seamlessness in service provision increases, and consequently, transparency decreases. The future for EIS will certainly be intertwined with the development in HE and FE of Managed Learning Environments (MLEs)/Virtual Learning Environments (VLEs), which are developing apace.

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