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Abstract: An examination of the information behaviour of distance learning students is described, based on a case study of the International Programmes of the University of London. A comprehensive literature analysis, and comparison of relevant information behaviour models is carried out, supported by a survey of student behaviour. Following a pilot study, a main survey gained responses from 649 students, in 81 countries and following diverse study programmes. A variety of inter-related factors were found to influence information behaviour, level and subject of study being most significant. Ease and speed of access, and familiarity of sources are predominant factors. An extension of Wilson's information behaviour model is proposed to cater for the specific features of the distance learning context.

The Information Seeking Behaviour of Distance Learners: a Case Study of the University of London International Programmes

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Abstract

An examination of the information behaviour of distance learning students is described, based on a case study of the International Programmes of the University of London. A comprehensive literature analysis, and comparison of relevant information behaviour models was carried out, supported by a survey of student behaviour. Following a pilot study, a main survey gained responses from 649 students, in 81 countries and following diverse study programmes. A variety of inter-related factors were found to influence information behaviour, level and subject of study being most significant. Ease and speed of access, and familiarity of sources were predominant factors. An extension of Wilson's information behaviour model is proposed to cater for the specific features of the distance learning context.

Keywords

information behaviour; distance learners; students; digital libraries

Introduction

The purpose of the study reported here was to gain an understanding of the information needs and information-seeking behaviour of distance learners, using the students of the International Programmes of the University of London as a case study.

Although much research has examined the information-related behaviour of students (Case, 2012), few studies have focused on distance learners. No previous study has looked at the information-seeking behaviour of a large constituency of distance learners who are distributed across several continents, and who predominantly depend on an online library at their host institution.

This gap in research may have arisen because information provision for distance learning has been considered an adjunct to the dominant provision by libraries to student communities primarily based on campus. The increase in scale and diversity of the student community, the importance of distance learning for access to education, and the economic importance of distance learning to higher education institutions necessitate the consideration of information provision for distance learning students as a subject for research.

The rapid growth of distance learning, and the particular nature of library and information provision to distance learners in such a situation, warrant such a study. In the UK alone, whereas before 1990 only the Open University and the University of London External System offered any form of formal distance learning, by 1998 over half of UK universities offered such provision (Unwin, Stephens and Bolton, 1997). Enrolment figures for institutions concentrating on distance learning have demonstrated large worldwide growth in recent years.

London University is one of longest-established of such institutions. Since 1858, students worldwide have been able to gain a University of London award without the requirement to attend a College (Kenyon Jones, 2008). Today the University of London has more than 50,000 students from more than 180 countries registered on its distance learning programmes. These programmes have expanded significantly since the early 1990s, student numbers rising by almost 40 per cent, and the range of programmes offered increasing fivefold (Quality Assurance Agency, 2005). The Quality Assurance Agency (2011) commented that “[this] diverse student body may be considered 'non-traditional' as it includes students in poorer and developing countries, mature learners, those with special needs due to disability, or geographic, economic, environmental, professional and social factors, and those with limited educational opportunities”.

The study reported here sought to extend the limited body of knowledge in this area by undertaking an information behaviour study of a large and representative sample of widely dispersed distance learners. The research was further aimed at developing a set of recommendations for effectively supporting the library and information needs of distance learners in the digital age. The research was carried out for a doctoral thesis, in which fuller details of all aspects are given (Tury, 2014).

Objectives and research questions

In order to meet these general aims of the study, six more specific objectives were identified:

- to identify the information needs of distance learners.
- to establish how the information needs of distance learners are met.
- to identify the challenges or barriers distance learners face when seeking, accessing, and using information sources and channels during the course of their studies.
- to establish the extent to which the information needs of the distance learners are met by the University of London's current Online Library provision.
- to explore what solutions can be employed to help distance learners overcome barriers to information access and use, and hence improve their learning experience.
- to make recommendations for better meeting the information needs of distance learning students.

These objectives were translated into five research questions:

- what are the information needs of distance learners at the University of London?
- what kind of information sources and information channels are used by distance learners and why they are used?
- what barriers do distance learners encounter when accessing and using Online Library resources?
- to what extent does the Online Library meet distance learners' information needs?
- what practical solutions can be employed to help learners overcome the barriers they face when seeking, accessing and using information sources?

In order to answer these questions, a detailed literature analysis was carried out, to identify all studies addressing specifically the information behaviour of distance learners. The results of this analysis were then combined with a comparison of information behaviour models, to give a conceptual basis for the study. From this, and the research questions, a series of hypotheses were generated, to be tested empirically in the University of London context.

Literature analysis

Relevant literature was identified by searches of Library and Information Science Abstracts, Library and Information Science and Technology Abstracts, and Web of Science, by following references and citations, and by scanning relevant journals and reviews. The intention was to be as comprehensive as possible in identifying items dealing specifically with the information behaviour of distance learners, and to be selective in dealing with the broader context.

Distance learners and library services

Distance learning offers important overall advantages to learners and to educational institutions. It enables education providers with limited resources to increase their student populations without necessarily investing in physical facilities, and allows learners to access any course, local or remote. However, there also disadvantages to distance learning in relation to information needs, which need to be taken into account in weighing its value and appropriateness and in assessing possible changes to ameliorate those difficulties. The main problem areas for learners include: lack of time; limited access to crucial support networks such as peers, tutors and librarians; delayed feedback; and technology which can fail, is often expensive to implement and often requires specialized skills to be used effectively. The provision of distance education has significant implications for library services, and there is a growing body of literature on how academic libraries have adapted their services to accommodate distance learners. For reviews and examples of this developing perspective, see, Lebowitz (1997), Unwin (1994, 1998), Beagle (2000), Ball (2003), Tang (2009), Raraigh-Hopper (2010), Hensley and Miller (2010), Shell et al. (2010), Lockerby and Stillwell (2010), Herring (2010), Iyer (2012) and Oladokun (2014).

Among the particular issues addressed have been: the need to foster the idea of 'library as place' for the distance student who may never visit the physical library (Coonin, Williams and Steiner, 2011); document delivery for remote users (Murphy, Franklin and Raia, 2007; Renner, Vardaman and Norton, 2007); the promotion of awareness of services among distant users (Davis, 2007); an 'outreach librarian' role for such students (Holloway, 2011); the use of standards to demonstrate quality of library services to distance students (Lewis, 2011); the need for specific training for library staff supporting distance learners (Cassner and Adams, 2012; Walsh, 2010); and the skills required of librarians supporting distance learners (Tang, 2013; Rebmann, Molitor and Rainey, 2012).

Information Behaviour of Distance Learners

The information behaviour of students has been one of the most studied topics within the whole information behaviour, giving much empirical data, and suggesting new models; see, for example, Case (2012), Catelano (2013), Al-Muomen, Morris and Maynard (2012), Grace (2008) and Urquhart and Rowley (2007).

Relatively little attention has been paid to the behaviour of distance learners specifically, although some authors have commented on the particular issues affecting them. An early example was the study by Unwin, Stephens and Bolton (1997), which looked at the library needs and expectations of 1000 UK-based postgraduate distance learners. Later studies have addressed issues such as information literacy and library skills instruction for distance learners (Kumar and Ochoa, 2012; Nazari, 2011;

1 Shaffer, 2011), the incidence of ‘library anxiety’ among distance learners, (Block,
2 2007), and how spatial metaphors affect distance education library services (Mirtz,
3 2010).

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5 Of particular relevance to the research reported here, a small number of studies have
6 examined distance learners’ information behaviour in the round, and these are
7 reported here.

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10 Thórsteinsdóttir (2005) investigated the information-seeking behaviour of Library
11 Information Science distance learning students and staff members at a Swedish
12 University. Her study revealed that geographical distance had a significant influence
13 on literature acquisition and information-seeking use even in online environments;
14 that distance learners often experienced problems with locating information and
15 mastering the techniques of seeking information, and with use of technology; and
16 there was a link between access to library services and use of high-quality sources.
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19 Boardi and Letsolo (2004) conducted a study on the information needs and
20 information-seeking behaviour of distance learners in Lesotho. The study found that
21 overall most respondents were satisfied with their sources of information, but relied
22 mainly on easily accessible information. In Botswana, the Oladokun (2010a, 2010b)
23 studies found significant evidence that students’ information needs were significantly
24 unmet, that printed sources, particularly books, were the most used information
25 source format, that neither level of study nor location had a significant influence on
26 students’ preferred information source format and that a significant number of
27 students depended on their lecturers and colleagues to supply information. Adetimirin
28 and Omogbhe (2011) examined the library use and habits of distance learning
29 students in a Nigerian university and found that the majority rarely used a library.
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34 Van de Vord (2010) investigated the factors that increase the likelihood of students
35 evaluating the relevance, currency, reliability, completeness and accuracy of online
36 information. The findings indicated significant positive relationships between media
37 awareness and information literacy, between access and information literacy and
38 information efficacy, and between information efficacy and information literacy.
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42 Byrne and Bates (2009) investigated the information behaviour of distance learning
43 business students in Ireland. The study found that although both print and electronic
44 resources were used by the students there was a general preference for electronic
45 resources. This group of students acquired information through both formal sources
46 (such as journals and course textbooks) and informal channels (conversations with
47 lecturers, course providers, work colleagues, and classmates). The study of Sullo et al.
48 (2012) reviewed 16 online classes in which there was an embedded librarian. 82
49 individual questions were reviewed. The category of general research guidance had
50 the most questions (28), followed by citation questions (18), and using library
51 resources questions (16). The study made recommendations for improving research
52 guidance for distance learning students.
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56 Parsons (2010) investigated the information access habits and mobile device use of
57 higher education distance learners as well as their attitudes to future changes in their
58 habits. The study found that although books and journals were accessed primarily in
59 print respondents wanted to use them electronically in future; all other learning
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1 materials were already available electronically. A longitudinal study by Alewine
2 (2012) assessed the satisfaction of distance education students with library reference
3 services through the use of a transaction-level survey. Findings revealed that the
4 majority of distance students were online graduate students, and they were largely
5 satisfied with the reference service.
6

7 A study by Brooke, McKinney and Donoghue (2013) used a multi-method approach,
8 with as much, or more, emphasis on finding the views of librarians as of those of
9 learners. A questionnaire survey of distance learning students at one university was
10 complemented by a questionnaire survey of 66 librarians at UK institutions, plus three
11 semi-structured interviews with librarians. A main finding was that there was a
12 considerable discrepancy between what were perceived as the main challenges for
13 distance learners by librarians, and what the learners themselves thought.
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16 Sutherland's (2000) study on the information use of distance learners at Western
17 Colorado Graduate School found that the majority of the survey participants borrowed
18 materials from local academic and local public libraries. Similarly, Moyo and Ellysa
19 (2003) carried out a survey to discover the attitudes of distance learners on the quality
20 and use of available information sources and services at Penn State World Campus
21 Internet and electronic library resources were preferred to traditional library resources
22 by most respondents. Tang and Tseng (2013) studied the information literacy skills of
23 distance learning students, by an online survey of 3,517 students on a distance
24 learning course at an American state university, but with a response rate of only 6.2%
25 (219 responses) and found that students with a high level of confidence in information
26 handling also had a high level of confidence in studying generally.
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31 A synthesis of the above studies, which have looked specifically at the information-
32 seeking behaviour of distance learners, showed that all focused on relatively small
33 numbers of students, generally within a single geographic area. The majority were
34 conducted in settings where distance learner students had access to both physical and
35 electronic library provision. While some issues appeared as issues in several studies,
36 there was insufficiently commonality to enable a model to be formulated, or general
37 recommendations made for practice. The study reported here aimed to focus on a
38 large and diverse group of distance learners, distributed in many different countries
39 around the world, and reliant on digital library services, with the aim of providing a
40 model of the information behaviour of distance learners, which could assist in
41 providing such practical advice.
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46 Models and hypotheses

47 The literature analysis shows that, not only has no conceptual information behaviour
48 model has been devised specifically for the distance learning context, but that none of
49 the existing models have been applied in studying the behaviour of distance learners.
50 The next aim of the research reported here was therefore to choose, or create, a model
51 to inform the empirical study.
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54 A number of models have been proposed, covering various forms of information
55 behaviour in various contexts. These are reviewed by Fisher, Erdelez, and McKechnie
56 (2005), Bawden and Robinson (2012), Wilson (2010), Case (2012), and Robson and
57 Robinson (2013 and 2015). To choose a set of models for consideration for this study,
58 the following criteria were applied to potentially useful models:
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- generally applicable to multiple contexts, occupations, roles and knowledge domains
- includes key distance learning variables, as identified from the literature analysis, such as access to peers and other support networks, high-quality information resources, technology issues, etc.
- includes issues of information needs and sources
- is based on empirical research and has been tested in subsequent studies
- can be related to a learning context
- adopt a user-centred, rather than system-centred, perspective

The models selected for comparison, applying these criteria, are those created by Wilson (1996), Dervin (Dervin, Foreman-Wernet and Lauterbach, 2003), Ellis (Ellis and Haughan, 1997), Kuhlthau (1991), Leckie, Pettigrew & Sylvain (1996), and Foster (2004).

Of these Wilson's model (Figure 1) was selected as the conceptual framework to guide this research. This model was chosen because it is comprehensive, applicable to various contents, roles and disciplines, and is well established in the field; as such, it is applicable in different contexts, roles and disciplines. It also includes the concept of 'intervening variables' that can enhance or hinder the whole process of information-seeking behaviour, including acquisition and use. This concept of 'intervening variables' is fundamental to distance learning as often learners are confronted with numerous barriers such as poor information and computer literacy (Thórsteinsdóttir 2005). It has also shown itself sufficiently flexible to be extended into new contexts; see, for example, Robson and Robinson (2013 and 2015) and Al-Muomen, Morris and Maynard (2012)

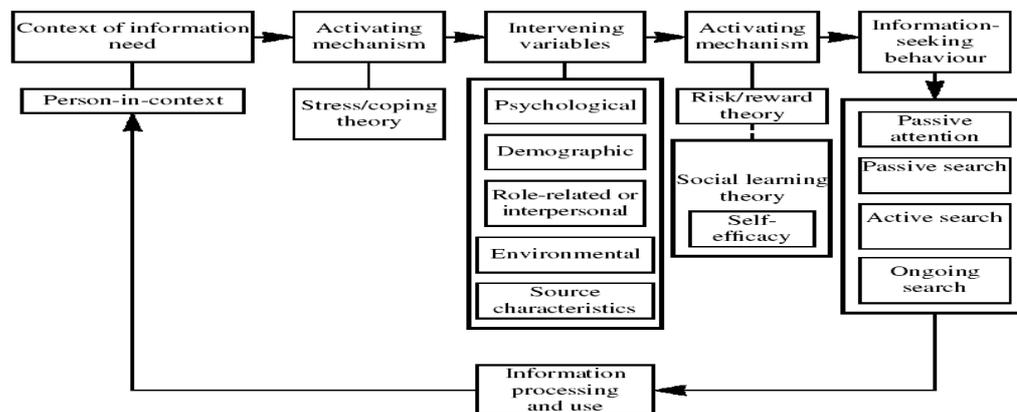


Figure 1: Wilson's 1996 revised model of information behaviour (adapted from Wilson 1999)

Using the components of Wilson's model together with the insights from the literature analysis, a series of testable hypotheses were drawn up, to establish whether variable of interest significantly influenced the information-seeking patterns and behaviours of distance learning students, and hence to provide answers to the research questions.

1 These were used to design the questionnaire used in the survey, and the results tested
2 statistically.

3 Survey methods

4 The survey method used was a structured questionnaire, gathering primarily
5 quantitative data, with some limited qualitative data. Despite the well-known
6 limitations of questionnaires with respect to gathering rich, meaningful information
7 (Pickard, 2013), it was felt that this method offered the best chance of gaining a
8 substantial response. The main survey was preceded by a pilot study, involving a
9 questionnaire and a small number of observations and interviews.

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13 The study received ethical approval from City University London, where the
14 researcher was registered for doctoral study, and from the University of London,
15 where the student participants were registered. Participants were informed about the
16 purposes of the study, and the intended use of the results, and gave their written
17 approval.

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21 The pilot survey employed a mix of online and printed questionnaires, to test which
22 would gain best response, bearing in mind that not all participants would have ready
23 and free online access. 500 participants, all distance learning law undergraduates,
24 were invited to take part, by email, with the option to complete the questionnaire
25 online or on paper. Only 92 questionnaires were returned, with a response rate of 17%
26 for online questionnaires and 10% for printed.

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29 After analyzing the results of the pilot study, a small face-to-face study was carried
30 out, with four distance learning students who were in London at the time. This was to
31 gain an understanding of how students used the system, to help ensure that the survey
32 questions were appropriately phrased. This part of the study involved observation of
33 the student using the Online Library with a 'think aloud' commentary, followed by a
34 semi-structured interview.

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38 The main study was designed using the experience of the pilot. The participants were
39 1000 students, representative of the wider range of distance learning programmes:
40 Laws LLB (320); Laws LLM (80); EMFSS (Finance and Social Sciences) (320);
41 Cefims (Centre for Financial and Management Studies) (112); (CEDEP (Centre for
42 Development, Environment and Policy) (80); MBA (International Management) (IM)
43 (80); Educational and Social Research (MRES) (8). Participants were selected from
44 all levels of programme, Diploma, first year, second year, third year and Master's
45 level, rather than just Diploma and Master's level as selected in the Pilot Study.
46 Participants were also selected to ensure a geographical spread including the major
47 markets of the international programmes, such as Hong Kong, Malaysia, Trinidad and
48 Tobago, Pakistan and the UK, and also those countries worldwide with fewer
49 registered students.

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53 The questionnaires were adapted from those used in the pilot, the questions being
54 simplified and shortened, and the structure and coherence of the survey improved.
55 Printed questionnaires were abandoned, and the questionnaire was emailed to all
56 participants, rather than being posted on the Online Library gateway; this improved
57 response rates, as well as ensuring that the questionnaires were filled in only once by
58 the correct respondent. Email reminders were sent. Efforts were made to enthuse
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1 respondents, taking advantage of the publicity generated by the introduction of a new
2 discovery system in the Online Library. Consequently a better response rate of 65%
3 was obtained, with 649 completed responses.

4 *Survey questions*

5 The survey asked respondents to reply to questions designed to establish a wide range
6 of relevant factors that have an impact on their information-seeking behaviour. The
7 questionnaire is shown in full in Appendix 1.
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10 The questionnaire included questions designed to identify the *demographic*
11 *characteristics* of the respondents (questions 1 to 4) in terms of gender, age, country
12 of residence, and English language proficiency. The questions identified the current
13 personal *educational context* of each respondent (questions 5 to 8) in terms of the
14 programme for which they were registered, level of programme (access course,
15 undergraduate or postgraduate), mode of study (whether studying independently or at
16 an institution and whether receiving private tuition), and highest educational
17 qualification.
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21 Questions 9 to 11 of the survey investigated the *information-seeking activities* of the
22 respondents including the purpose of information-seeking tasks undertaken, what type
23 of resource was used most frequently, and the reasons for the preference.
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26 Questions 12 to 32 asked about the *Online Library* and its facilities, about particular
27 *information resources*, and about the respondents' interaction with them, including
28 their self-evaluation of their use of them. The questions investigated whether the
29 respondents use the Online Library, where they heard about it, how they access it,
30 how they log on to it, and whether it meets all the respondents' information needs;
31 they also elicited suggestions for changes in the Online Library. Some questions
32 explored which individual resources are used by respondents, how successful they
33 believe they are in using those resources, which alternative resources are used, and the
34 reasons why they prefer their most-used resources. The questionnaire also sought to
35 establish whether nearby libraries are accessible and where those libraries are located.
36 Other questions asked about the extent of the respondents' confidence in using
37 electronic resources, whether training is required (and how to arrange it), the
38 respondents' use of the Summon search engine and their opinions about it, how the
39 respondents search the Online Library, and what service improvements and additional
40 online services would be desirable. Free text additional comments were also invited.
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46 The main themes to which the data contribute findings are discussed below, drawing
47 together the responses to the direct questions and the significant data from the cross-
48 tabulation with other responses.
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- 51 • Research Question 1: What are the information needs of distance learners at
52 the University of London? This question is addressed by reference to survey question
53 9 and relevant cross-tabulations.
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- 56 • Research Question 2: What kind of information sources and information
57 channels are used by distance learners and why they are used? This question is
58 addressed by survey questions 10, 11, 12, 13, 17, 19, 20, 23, 24 and relevant cross-
59 tabulations.
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1 • Research Question 3: What barriers do distance learners encounter when
2 accessing and using Online Library resources? This question is addressed by survey
3 questions 14, 15, 16, 18, 25, and relevant cross-tabulations.
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6 • Research Question 4: To what extent does the Online Library meet distance
7 learners' information needs? This question is addressed by survey questions 21, 22,
8 30, 31, and relevant cross-tabulations.
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11 • Research Question 5: What practical solutions can be employed to help
12 learners overcome the barriers they face when seeking, accessing and using
13 information sources? This question is addressed by survey questions 27, 28, 29, 31,
14 32, 33 and relevant cross-tabulations.
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16 *Data Analysis*

17 Data from the main study was analyzed by tabulating the answers from each
18 respondent to each question and noting non-responses. The results were then cross-
19 tabulated to discover significant relationships between the variables, in particular to
20 relate information activities to demographic factors and personal contexts.
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22 Statistical significance was assessed by chi-square tests, using Excel software. 'No
23 responses' and all other non-specified categories such as 'other' have been omitted
24 from the chi-square test in order to provide clear, unambiguous results. The chi-
25 square *significance value* was taken as $p = 0.05$, and this was used to test the
26 hypotheses above; those findings that were significant were used in answering the
27 research questions. The full data and tabulations are given in Tury (2014).
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32 Survey results and discussion

33 *Demographic and Background Data*

34 The response rates, as shown in Table 1, were in proportion to the overall size of the
35 various University of London International Programmes and were broadly
36 representative of the sample with the two largest programmes, Laws and EMFSS
37 generating over 45% and 40% of the response respectively. Just over half (53%) of
38 the respondents were female and 47% were male. The age distribution among
39 respondents was dominated by those aged over 25, who account for 67%. The
40 geographical distribution of the respondents was wide (81 countries). The large
41 majority (72%) of respondents were following an undergraduate degree course and
42 almost all the remaining respondents (23%) were following a higher-degree course.
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50 Table 1: Number of respondents in each programme area

Programme of study	Number of respondents	Percentage of total respondents	Number in sample	Percentage of total sample
LLB	294	45.30%	320	32%
EMFSS	255	39.30%	320	32%
LLM	35	5.40%	80	8%
International Management	21	3.20%	80	8%
CEFIMS	18	2.80%	112	11.20%
CEDEP	16	2.50%	80	8%
MRES	8	1.20%	8	0.80%

Other	2	0.30%	0	0%
Total number respondents	649	100%	1000	100%

Table 2: Purpose of Respondents' Information Activity

Purpose of information gathering	Frequency	Percentage (%) of sample
Preparation for exams and tests	479	73.8
Course work and assignments	423	65.2
To supplement course materials	314	48.4
General Reading / Current awareness	192	29.6
Dissertation and Research	83	12.8
Other (please specify)	1	0.2

Research Question 1: What are the information needs of distance learners at the University of London?

The results indicate that distance learning information needs are strongly task-orientated and are determined by the need to complete course work or prepare for examinations. The majority of students (74%) sought information in order to prepare for exams and (65%) to complete their course work and assignments. The results show that there is a significant relationship between distance learners' information-seeking activities and gender. More female respondents engage in general reading activities, supplementing their course readings and more in-depth research than their male counterparts, roughly 55% to 45% in all cases. There is no significant relationship between 'purpose of information-seeking activity' and age. However, there is a significant correlation between the 'purpose of information activity' and level of programme, which itself is partly determined by age range. Of those nominating the purpose of 'dissertation and research' just over 55% were postgraduate students (post graduates formed only 15% of total responses) while 'course work and assignments' and 'preparation for examinations and tests' drew the largest number of respondent choices from among undergraduates, each with over 70%.

Research Question 2: What kind of information sources and information channels are used by distance learners and why they are used?

Information sources and channels used most frequently

The most used information sources were 'course textbooks' (80%) and 'free sources on the Internet' (79%). The Online Library was cited by just over 56% of respondents and the course VLE, which one would also have thought was essential, was cited by only 53%. This finding is different that Byrne and Bates (2009), who found that 84% of their participants regularly used the VLE. The extent of use of free sources on the Internet has implications for the provision of materials and raises important issues of information literacy support and development. This finding is consistent with the findings of Byrne and Bates (2009).

1 Just under a third of respondents supplemented course textbooks with other book
2 purchases. 'Family and friends' as an information source / channel was specified by
3 almost 10% of respondents (89% of them undergraduates) even though it was not
4 given in the options available in the survey.
5

6 The heavy reliance on directed reading indicates the very important and central role of
7 the faculty in the information-seeking behaviour of distance learners, particularly with
8 regard to their information and resource use. These findings are in line with the
9 findings of Byrne and Bates (2009), who concluded that lecturers, learning support
10 officers and personal tutors played a vital role in assessing the validity of distance
11 learners' resources. There very frequent use of 'family and friends' as an information
12 source particularly by undergraduates, again in accordance with the findings of Byrne
13 and Bates 2009), emphasizes the importance of social networks to distance learners
14 and relates to initial findings from the observation part of the pilot study in which a
15 student said "it's easy to get information from friends than from the library".
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19 Gender, age and English language proficiency did not influence distance learners'
20 choice of information sources or frequency of use. However, programme of study,
21 level of programme, and mode of study all influenced the choice of resources and
22 channels used most frequently. There was a low overall rate of success with almost all
23 sources but there was a relationship between distance learners' most frequently used
24 sources and success at accessing information
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27 *Reasons for choice of information resources*

28 The most important resource selection criteria were 'easy to access' (74%), 'easy to
29 use' (58%) and 'readily available' (54.4%). Quality was not a major consideration
30 (17%) nor were reliability (22%) or relevance (34%). Level of Programme influenced
31 distance learners' resource preferences, with postgraduates choosing 'relevance'
32 (20%) and 'reliability' (30%) more than the overall proportion (15%). There is a
33 relationship between reason for use of information sources and programme of study,
34 law students, for example, favouring sources which they had previous experience,
35 while EMFSS students were much more concerned with reliability and relevance.
36 Mode of study was also found to be an important factor affecting choice of resources.
37 This strong preference for ease of use, convenience and familiarity of sources, over
38 quality, is consistent with the findings of Thórsteinsdóttir (2005) and Van de Vord
39 (2010).
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45 *Use and awareness of the Online Library*

46 The majority of students (77%) used the University of London Online Library, but a
47 significant minority (20%) did not. Postgraduates were more likely than
48 undergraduates to use it, reflecting the finding that postgraduates are more likely to
49 choose reliable and high-quality resources. Programme of study an important factor,
50 with more respondents from EMFSS using it than law students, as was mode of study,
51 with more students studying at a private college using it than those studying
52 independently. Use was not influenced by whether a student was a native English
53 language speaker, nor by gender or age. Almost all students had learned about the
54 Online Library from direct communications by the University and only a very small
55 number of students (only 3 in total) had never heard of it.; non-use is not caused by
56 ignorance of the resource's existence. The way in which users found out about the
57 Online Library was influenced by numerous factors, including gender, English
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1 language proficiency, programme of study, mode of study and level of programme;
2 this finding has implications for the way in which library services are promoted.

3
4 Within the Online Library, use of particular resources was largely determined by
5 programme of study, as might be expected, but age and level of programme was also
6 important, with older respondents and postgraduates preferring specialized resources,
7 while younger respondents used more general sources. Claimed success rates in
8 finding information were higher for subject-specialized sources.
9

10 11 *Use of alternative information sources*

12 Respondents were asked about which other information resources they used during
13 the course of their studies that were not provided by the Online Library. The majority
14 of respondents used ‘recommended textbooks’, followed by ‘tutor notes’ and ‘friends
15 and family’; combined with a very low response rate for ‘I don’t use any other
16 information source’. This emphasizes the importance of these alternative sources. Age
17 and level of programme were important influences, with younger students and
18 undergraduates relying more on alternative sources, as was programme of study, with
19 law students relying more on these alternative sources than others and mode of study,
20 with those studying independently relying more on alternative sources. Country of
21 residence did not influence use of alternative sources, but those whose first language
22 is not English made less use of alternative sources. These findings are at variance with
23 those of Thórsteinsdóttir (2005) and Oladokun (2010a), who found that geographical
24 location and distance had an influence on source preference. This may be because,
25 with the very geographically dispersed group studied here, and differences due to
26 particular locations will be evened out.
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33 Reasons for choice of alternative sources were mainly familiarity, and ease of access
34 and of use, rather than quality, relevance or being up-to-date. This was also found by
35 Thórsteinsdóttir (2005, 223), who also noted that distance learners “chose information
36 paths and sources that they had previously used with good results”. Age had an
37 influence here, with the middle 26-35 year range, typically postgraduates, being more
38 likely to attend to reliability and quality than others. Programme of study had an
39 influence, with law students seeking comprehensive and reliable resources more than
40 students of other subjects. Affordability was a minor factor, but was mentioned as
41 much by students in countries with a high standard of living as those in the
42 developing world, in accordance with the findings of Thórsteinsdóttir (2005) and
43 Oladokun (2010a).
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47 *Access to physical libraries*

48 54% of students did not have access to any local library. Among those who do, most
49 used libraries close to where they live, mainly university libraries. In the observation
50 study that formed the preliminary part of this study, students said that public libraries
51 were only used as a place to study. These findings confirm those of other studies
52 (Unwin et al. 1998; Boardi et al. 2004; Oladokun 2010b) which found that distance
53 learners frequently used local public libraries more than their university library
54 although they often found such collections lacking.
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59 **Research Question 3: What barriers do distance learners encounter when
60 accessing and using Online Library resources?**
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1 A large majority of participants accessed the Online Library from home, although
2 younger students were more likely to access from an educational institution, and the
3 older age ranges, and those studying independently, to access from the workplace.
4 Country of residence appeared to have no effect, and in general there seemed few
5 barriers to accessing online resources.
6

7 In terms of success in accessing required information, relatively few respondents
8 claimed to be always successful (10%) or never successful (6%); a matter of concern
9 is that only about one third claimed to always, or frequently, find the information they
10 need. There was no very clear pattern of relation of success or failure to other factors,
11 although there were indications that it was the younger, undergraduate students, and
12 some of those studying independently, who had least success.
13
14

15 There was a strong correlation between claimed success at accessing Online Library
16 resources and confidence in using digital resources. However, there remained a
17 notable group of students with high confidence but low levels of success; it appeared
18 that at least some over-estimated their abilities in this respect. Postgraduate students
19 were very much more confident than undergraduates, but the relation between
20 confidence and age and gender was unclear. Law students were notably less confident
21 than those in other subject areas, suggesting a particular problem with their use of
22 specialist databases.
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26 **Research Question 4: To what extent does the Online Library meet distance** 27 **learners' information needs?**

28 Although the Online Library met some needs of all respondents, it fully answered
29 the needs of less than half. Postgraduates, with wide and less well-defined
30 information needs, were less likely than undergraduates to believe that it met all their
31 needs, as were those studying independently, and those studying certain subjects, such
32 as international development.
33
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35

36 The most commonly used search method was database browsing (66%), followed by
37 the Journal Finder (53%), browsing the gateway (37%) and site search (24%) with the
38 A-Z being the least used method. This indicates that search functions were not
39 understood, not trusted, or are too complex for the task. There was very low use of the
40 *Summon* discovery tool, though this had been introduced only shortly before the
41 survey was conducted.
42
43
44

45 Eight broad categories of service improvements were mentioned:

- 46 • access to a broader range of resources, particularly e-books
 - 47 • more guidance and support in using the Online Library, particularly online
48 help and training guides
 - 49 • more support to prepare for exams
 - 50 • easier and improved access to Online Library resources
 - 51 • improved search facilities
 - 52 • more individual support for students who live outside the UK
 - 53 • more opportunities to communicate with tutors and fellow students
 - 54 • increased awareness of resources and system facilities
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59 **Research Question 5: What practical solutions can be employed to help learners**
60 **overcome the barriers they face when seeking, accessing and using information**
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sources?

1 Training in use of library systems and information resources is the major issue. This
2 was requested particularly by undergraduates, and those studying certain subjects,
3 such as law. However, it is a need which was expressed by a wide cross-section of
4 respondents, including those who expressed a high level of confidence in using library
5 systems, and those who were successful in finding the information they needed.
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8 Promotion of new system features is clearly of importance, as evidenced by the small
9 proportion of those who had used the recently introduced Summon discovery system
10 and the high levels of satisfaction of the minority who had used it. Providing extra
11 resources is clearly valuable, but only if accompanied by promotion of their
12 availability and training in their use.
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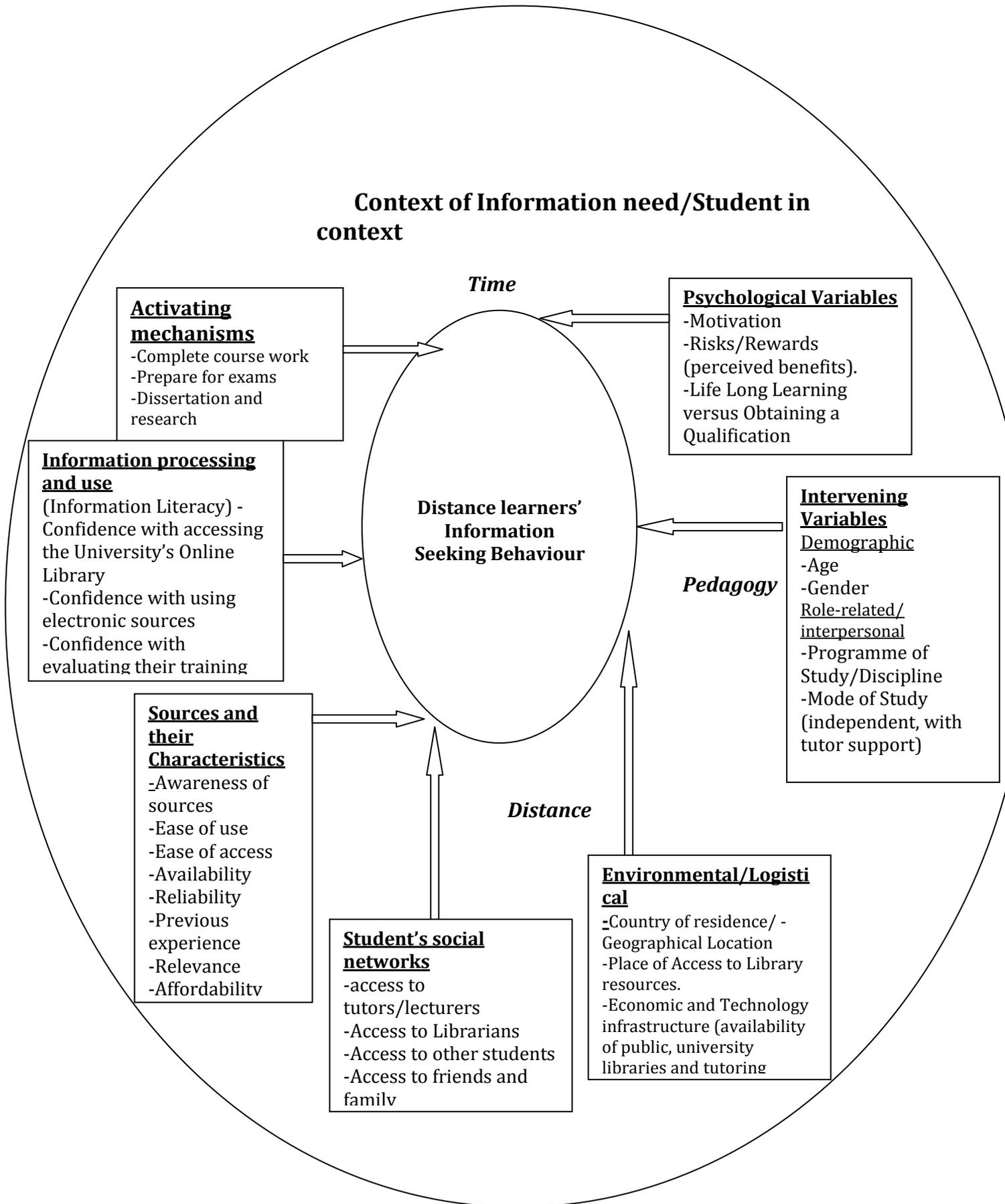
A new model for the information behaviour of distance learners

15
16 As discussed above, Wilson's 1996 model was found to be the best information
17 behaviour to provide a conceptual framework for this study. In light of the results, a
18 revised version of this model can be derived, specifically for considering the distance
19 learning context. This variant of the model, shown in Figure 2, extends some of the
20 generic variables of the original, to make them more specifically relevant to distance
21 learning. The extended components are as follows:
22

- 23 • context of information need (the unique information environment of distance
24 learners which is governed by time, distance and pedagogy)
- 25 • person-in -context (the learner's personal and other role-related characteristics
26 such as age, gender, student)
- 27 • activating mechanisms (what motivates a learner to seek information such as
28 the need to complete course work, prepare for exams)
- 29 • intervening variables or factors which hinder or enhance the information-
30 seeking process such as a learner's motivation, age, programme of study and
31 mode of study, geographical location, resources availability and their
32 characteristics (accessibility and reliability).
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38 This extension leaves unchanged the basic structure of the model, expressing the
39 information seeking process, while allowing a concentration on the aspects of most
40 importance for distance learners. The ability to customize the contextual factors, in
41 particular affecting the success of information seeking, is a strength of this conceptual
42 model. It is a means of understanding the processes, and comparing different situation
43 and contexts of information seeking, but is also a tool of practical value,
44 foregrounding the wide range of specific concerns of distance learners and their
45 interconnectedness.
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Figure 2: An extension of Wilson's model for the information behaviours of distance learners



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Conclusions

1 The results of this study have emphasized the complex information behaviour of
2 distance students, and the variety of inter-related issues involved. There is not always
3 a clear pattern: gender and age, for instance, are important for some issues, not for
4 others. Level of subject and study appear generally important, the geographical
5 location of the learner not so. Distance learners, however, are not a homogenous
6 group. Nor is the fact of their being distance learners necessarily the dominant factor
7 in their information behaviour: that they say, a postgraduate student, or a law student,
8 seems to be of more significance.
9

10
11
12 The behaviour of the group studied here fits a generally accepted pattern: ease and
13 speed of access, and familiarity of sources, is seen, for the most part and with
14 important exceptions, as more important than issues of quality, reliability, and
15 comprehensiveness. The principle of least effort, and the tactic of 'satisficing', are as
16 important for distance learners as for other groups. The task for information providers
17 is to work within this context, while trying to promote the value of high-quality
18 relevant sources.
19
20

21
22 Practical lessons are that promotion of systems and resources, and training in their
23 use, is particularly important to this physically separated groups; but that, as much as,
24 if not more than, with any other context, it needs to be tailored to sub-groups, subjects
25 and demographics.
26

27
28 The extended version of the Wilson model proposed here should be of value as a basis
29 for further investigation of information needs and behaviour of distance learners,
30 likely to be an increasingly important category of students in future, as well as
31 addition to the study of information behaviour *per se*.
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Appendix 1: Survey questions

Profile of respondents

1. Are you male or female?

Male Female

2. What age are you?

Under 25 26-35 36-45 46-55 56 +

3. Which country do you live in?

4. Is English your first language?

Yes No

5. What programme are you studying on?

CeFIMS EMFSS International management (RHUL)
MRES Laws (Laws Consortium) Other

6. What level is your course programme?

Undergraduate Post Graduate Diploma Certificate Access

7. What is your mode of study?

At an institution (supplemented by private tuition)
At an institution (with no private tuition)
Independent study (with private tuition)
Independent study (with NO private tuition)
Other (please specify)

8. What is your current highest educational qualification?

Undergraduate Degree Post Graduate Degree Diploma Certificate

Access/Foundation A-Level Other (please specify)

Purpose of your information gathering exercise

1 9. What is the purpose of your information gathering exercise?
2

3 Course work and assignments Preparation for exams and tests
4

5 General Reading/Current awareness To supplement course materials
6

7
8 Dissertation and Research Other (Please specify)
9

10
11
12 10. When gathering information, what sources do use most frequently?
13 (you can select more than one)
14

15 Course text books Free sources on the internet Course VLE
16

17 Online Library E-books Purchase Books Newspapers
18

19 Thesis and Dissertation Print journals conference proceedings
20

21 Other
22
23
24
25

26 11. What are your reasons for your preferences (can select more than one)
27

28 They are easy to use They are easy to access Readily available
29

30 They are reliable I have previous experience They are relevant
31

32 They are affordable they are high quality Other
33
34
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38 12. Do you use the Online Library at (<http://external.shl.london.ac.uk/>)?
39

40 Yes No
41
42
43

44 13. Where did you hear about the Online Library?
45

46 Tutor
47

48 Course pack
49

50 VLE
51

52 Fellow student
53

54 Other (please state)
55

56 Never heard of it
57
58
59

60 14. Where do you access the Online Library from?
61

62 At home At work At internet café Other (Please specify)
63
64
65

1 15. How do you access the Online Library?
2

3 From the VLE From the University website From my bookmarks
4

5 I Google it My Athens Directly at website Other (please specify)
6
7
8

9 16. What is your preferred login method and why?
10

11 Athens Portal password Both Other (specify)
12
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15 17. Which of the following information resources provided on the Online Library
16 have you used during the course of your study?
17

18 ABI/Inform
19 Academic search premier
20 Business Source Premier
21 Case track
22 Educational Indexes (ERIC, BEI, AEI)
23 IBSS
24 Hein Online
25 JSTOR
26 Justis
27 Kluwer Arbitration
28 Lexis Library
29 Sage journals
30 Science Direct
31 Web of Knowledge
32 Westlaw
33 Wiley Interscience
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41 18. How successful do you believe you are at accessing information resources
42 provided by the databases listed above?
43

44 I always access the information I need
45 I regularly access the information I need
46 I sometimes access the information I need
47 I never access the information I need
48
49
50
51

52 19. Which of the following resources not available on the Online Library do you also
53 use?
54

55 Tutor notes
56 Friends and family
57 Recommended Textbooks
58 I don't use any other information source
59
60
61
62

Other (please specify)

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2
3
4 20. Why do you prefer the resources you use most frequently?
5
6

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10 21. In your opinion does the Online Library meet all your library and information
11 needs?
12

13 Yes No
14
15

16
17 22. If your answer to the above is 'NO' please tell us what changes in the information
18 service you would you like to see? Your feedback is really important to us, and will
19 enable us to develop a service that meets your individual needs.
20

21 Simple notes. Details example so as to understand problem. More precise and focus
22 notes.
23
24

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29 23. Do you use have access to any other library near where you live?
30

31 Yes No
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35 24. If you said 'yes' to the above, can you please tell us the name of the library and
36 country or other details (this will enable us to compile a list of useful local libraries).
37
38

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43 25. How confident are you in using electronic resources?
44

45 I am very confident I find it fairly easy I am not confident Other (specify)
46
47
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49
50 26. Would you like to receive some training in using the Online Library?
51

52 Yes No
53
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55

56 27. If yes, please tell us the best way to contact you to arrange the training (e.g. email
57 or telephone including country code)
58
59

1
2 28. Have you used the new library search engine Summon found at
3 (<http://external.shl.london.ac.uk/summon/index.php> ?
4
5

6
7 Yes No
8
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10 29. Please tell us what you think?
11
12 -----
13
14

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16
17 30. How do you search the Online Library for information? (can select more than one)
18

19 I browse the databases
20 I use the journal finder
21 I browse resources available on my course gateway.
22 I use the site search
23 I use Summon
24 I use the A-Z
25 Other (specify)
26
27
28
29

30 31. What improvements in the service we provide would you like to see made to the
31 Online Library?
32

33
34 I would like more journals (please specify).....
35 I would like more e-books (please specify).....
36 I would like more databases (please specify).....
37 More useful website suggestions
38 I would like to be able access resources easily
39 I would like to be able to communicate with the Online Library team at any time.
40 I would like more online help and training guides
41
42
43
44

45 32. Which of these online services would you find helpful?
46

47 Ebooks Podcasts Facebook Twitter Blog inter library loan
48 service Instant ask a librarian enquiry service Longer enquiry service hours
49 Interactive Tutorials Discussion forum. Other (please specify)
50
51
52

53 33. Are there any further comments you would like to make about the Online Library.
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56

57 *Thank you for your time. Your honest feedback is really important to us and will*
58 *enable us to develop the service that meets your individual needs.*
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Response to reviewers

The paper has been proof-read, typographical errors corrected, and the reference format made consistent.

Additional comment has been given on the expanded Wilson model, and an extra relevant reference added.

We have considered the suggestion of referee 2 that details should be omitted. However, this referee gives no indication of where this should be done, and the advice seem to contradict that of referee 1 that the article is “filled with useful information”. We have therefore not omitted anything, but will happily do so if given more detailed advice.

Cover letter

Please find attached our revised paper, unchanged title page, and response to reviewers' comments

Thank you