Information Literacy Skills Assessment of LIS Students: A Case Study at the Jagiellonian University

Monika Krakowska

Jagiellonian University, Institute of Information and Library Science, Krakow, Poland
`monika.krakowska@uj.edu.pl`

Abstract. The purpose of the research was the identification of the information behaviour and experience in carrying out research necessary for meeting the study programs' objectives, as well as the identification of information literacy skills among information and library science students. This explorative study constitutes a specific contribution and presents the particular sample perspective, and was carried out as the part of international research. The survey was disseminated within the group of 232 bachelor and master students from the Institute of Information and Library Science at the Jagiellonian University in Krakow, Poland. The data gathered from the questionnaire was analysed briefly in a quantitative and qualitative manner. The evaluation of the results helps to understand the students' information behaviour, increase awareness of information literacy implementation, development and status within the academic information environment, and also is the basis for verifying the correlation of students' skills with international standards indicators and international and national directives concerning core competencies.

Keywords: Case study, information literacy, information seeking behaviour, LIS students, survey.

1 Introduction

Issues related to information behaviour in a variety of academic environments are frequently discussed and belong to the canon of theoretical and explorative activity of researchers [1]. In the area of higher education, whose fundamental tasks are: generating knowledge, dissemination of information and formulation of the information literate society, study concerning information science is focused on the exploration of patterns of information seeking behaviour within certain disciplines [2] while comparing different groups of users and examining the core competences and the factors influencing the information processes [3]. The analysis of information held in a variety of contexts [4], information seeking divided into multiple stages and the factors which affect the process such as motivations, incentives, academic and affective components [5] linked to individual information literacy skills [6], all of these factors influence a complementary approach to understanding the users' behaviour. The holistic idea of information literacy is a crucial concept, not only in

the development of information processes, but it also constitutes the crucial factor for the quality of the information behaviour [7] and the intellectual approach to develop and interpret it.

2   Research Approach

The research presented in the article was prepared as an exploratory study and is the prelude to investigating selected aspects of the information seeking behaviour and information literacy skills of LIS students. The purpose was also to gain knowledge about some core components of information seeking behaviour connected with starting, searching, monitoring and selecting activities, evaluating the sources, using information and communication tools during accomplishing academic assignments. It should be mentioned that the research was limited only to seeking information related to academic and learning activities of the LIS Institute at the Jagiellonian University, and it is planned to extend the exploration among students of all LIS institutes in Poland. The fact that respondents come from one institution has significance in the results that cannot be generalized to the total number of Polish LIS students. Their information seeking behaviour and information skills could be determined by many local factors, like cultural and social context, academic environment with differences of study programs or individual determinants forming the subjective information process activities in a given setting. Nevertheless, the results of the survey constitute the basis or the reference point for further analyses, comparisons and considerations.

The case study was a part of the international research of students' information literacy skills that covered LIS institutes from Australia, Bulgaria, Croatia, Finland, France, Hungary, Japan, Lithuania, Malta, the Netherlands, Poland, Portugal, Romania, Russia, Singapore, Switzerland, Turkey, UK, and the USA. A joint research instrument was prepared and translated by each participating national representative, distributed via the online environment from November 2012 until April 2013. To gain the goal of the research, the online questionnaire was translated into Polish and disseminated in the online environment with the use of the *Lime Survey* software. All students were invited to answer and complete the questionnaire by sending personal messages with the use of the local university student management information system, even though the survey was anonymous. Then, the collected data was analysed using the quantitative and the qualitative manner.

The questionnaire consisted of 16 questions divided into: 4 demographic questions concerning the current status, the grade point average (GPA), the age and gender, and 12 questions about the information seeking process and typical information skills. This article will present only selected answers to questions concerning the most important aspects of students' information literacy skills in academic environment.

3   Results

The total number of participants varies from question to question (from 176 to 232), as not all the logged respondents finished the survey and filled in it completely. The group was represented by 146 bachelor students and 86 master students.

The questions were related to the model of information behaviour in the academic environment, with a particular regard to the research experience, individual stages of the information seeking, knowledge about the sources and ICT tools, their use, the evaluation criteria and creation of new knowledge. They are all the key determinants of information literacy competences that have an impact on professional development. In the program of LIS study, the group courses are carried out with related learning objectives and content, to assist in education about information sources, strategies and search methods, quality assessment and selection and presentation of information. The data presented in Table 1 dealt with the determination of the degree of difficulty during the realization of assignments, students' individual experience in the implementation of the course tasks, information seeking process and their individual information skills.

Table 1. Information processes that students find difficult while starting and searching information for course-related assignments (n=202)

Information Process/Activity	SA %	A %	NAD %	D %	SD %	NE %
Getting started on the assignment	13.86	48.51	10.40	23.27	3.47	0.50
Defining a topic for the assignment	6.93	39.60	11.39	35.15	6.44	0.50
Narrowing down a topic	2.97	37.62	12.87	39.11	5.94	1.49
Coming up with search terms	2.97	13.86	8.91	54.46	18.32	1.49
Building up the search strategy	3.96	30.69	12.87	41.09	8.91	2.48
Deciding which database to use	5.94	25.74	12.38	40.59	13.37	1.98
Finding articles in the library's databases	3.47	18.81	6.44	44.06	23.76	3.47
Finding sources to use "out on the Web"	1.98	3.96	2.97	42.08	47.52	1.49
Determining whether a Web Site is credible or not	2.97	16.34	10.40	45.05	23.27	1.98
Figuring out where to find sources in the library	1.98	10.89	11.39	39.11	35.15	1.49
Finding up-to-date materials	3.47	19.80	10.40	40.59	24.26	1.49
Finding "gray literature"	5.94	30.69	14.36	32.18	10.89	5.94
Having to sort through all the irrelevant results	5.45	33.66	17.33	27.23	13.86	2.48

SA= Strongly agree, A= Agree, NAD= Neither agree not disagree, D=Disagree SD=Strongly disagree, NE: No experience

Students indicated that they had serious problems during the undertaking of the information processes, especially at their initial stages. They found starting the course-related assignment troublesome. Probably this is due to different reasons,

motivations and factors underlying affective information behaviour of users. For respondents it was also difficult to have to sort through all the irrelevant results in order to find what was needed, as well as a challenging activity was finding gray literature like thesis, reports, unpublished papers, etc. On the other hand, the informally published written material was not hard to retrieve for 43.07% respondents. Similarly, the dualistic approach in relation to the components of the information process and competences related to the information search and the use of sources, the recognition of information needs and creating new knowledge, the students had difficulty with defining the topic of an assignment, building up the search strategy, deciding which database to use, and narrowing down a topic. The larger group of students did not have any problems with the selected modules of the information seeking process like finding articles in the library's databases like LISA, Wos, EBSCO, JSTOR, acquiring online sources like Google, Wikipedia, government sites, as well as determining whether a Web Site is credible or not. It was also not so problematic to find up-to-date materials or figuring out where to find sources in the library. The models and methodology of information searching, information resources and information research skills are presented during the first year of undergraduate studies. There was a group of students, especially from master level studies that had no experience with knowing about some information sources or searching and using them. Probably it was connected with the fact that information and library science on the master level is studied also by people who have obtained a bachelor's degree in other scientific disciplines, and who do not have adequate information literacy skills. They indicated that they had difficulty with finding gray literature, using the library's databases, building a search strategy and using critical thinking skills to sort through all irrelevant results.

A reliable and more readable dimension of acquiring and developing information literacy also provides an analysis of the major and most commonly used criteria to evaluate the quality of information resources. The data are presented in Table 2.

The lack of adequate knowledge in the area of information sources and insufficiently developed basic information skills may result in difficulties in the initial phase of starting and searching for information. It was interesting that the most difficult stages for students were the processes of sources' evaluation, composing a text or being aware that the assignment had been done correctly or not, the knowledge of whether to use a source in given circumstances, re-phrasing the text and creating their own product. Again this may stem from the fact that a large group of respondents are first-year bachelor students and have no experience in the evaluation process or writing text and using citations. Students indicated that the easiest processes were: taking notes, reading through the range of selected sources, citing them with the knowledge of how to do that and where, integrating different resources into assignments or deciding when to finish a task.

The appropriate information behaviour of users and proper information literacy skills development on the academic level in various disciplines requires knowledge of relevant information sources and use. Therefore, respondents were asked about the systematic use of selected sources, both traditional and electronic.

Table 2. Information processes that students find difficult while realising the course-related assignments (n=190)

Information Process/Activity	SA %	A %	NAD %	D %	SD %	NE %
Evaluation of sources	2.63	33.68	26.32	28.42	3.68	5.26
Reading through the material	1.58	16.84	7.37	49.47	24.21	0.53
Taking notes	1.58	8.42	6.84	51.58	31.05	0.53
Integrating different sources from research into assignment	1.58	20.53	22.63	40.00	8.95	6.32
Writing	6.32	28.95	14.21	39.47	9.47	1.58
Re-phrasing text from a source	7.37	29.47	12.11	35.79	12.11	3.16
Knowing when to cite a source	3.16	18.95	16.84	46.32	11.58	3.16
Knowledge of how to cite a source in the right format	4.74	21.58	17.89	37.89	13.68	3.68
Knowledge of whether using a source constitutes plagiarism or not	5.79	30.53	15.79	30.00	12.11	5.26
Decision of whether to finish or not	2.63	19.47	24.21	38.95	13.16	1.58
Knowledge of whether the assignment is well done or not	4.21	32.11	21.05	33.16	7.89	1.58

SA= Strongly agree, A= Agree, NAD= Neither agree not disagree, D=Disagree SD=Strongly disagree, NE: No experience

Table 3. Frequency of sources referred by LIS students for providing information during the course-related assignments (n=187)

Information Sources	AA %	O %	S %	R %	N %
Course readings	13.37	31.02	32.62	16.58	6.42
Search engines	59.36	31.55	6.42	2.14	0.53
Library catalogues	21.39	40.11	26.74	9.09	2.67
Encyclopaedias	16.04	37.97	24.60	17.65	3.74
Governmental Web sites	3.74	12.83	42.25	34.22	6.95
Research databases through the library Web site	16.58	27.81	29.41	21.93	4.28
Gray literature	1.60	10.16	21.39	41.71	25.13
Blogs	3.74	17.11	33.16	31.02	14.97
Wikipedia	22.99	40.64	17.65	15.51	3.21
Social networking sites	11.76	18.18	19.25	20.32	30.48
Video sharing sites for getting information	12.83	20.86	25.13	24.60	16.58
Slide sharing sites for getting information	5.35	32.62	36.90	15.51	9.63
Online forums for getting information	6.95	18.18	34.22	26.74	13.90
Personal collection	21.93	37.43	22.99	12.83	4.81
Library shelves	29.95	40.11	20.86	7.49	1.60

AA= Almost always, O= Often, S= Sometimes, R= Rarely, N= Never

From the data indicated in Table 3, it is apparent that the sources mostly used by respondents during the completion of academic tasks were search engines like Google (which allows multi-faceted search), Bing or Yahoo, library catalogues and shelves, as well as personal collections. Students often used Wikipedia and encyclopaedias such as *Britannica*, either online or printed. Most likely they use sources that are known to them and from which information can be quickly and easily reached. It is interesting that students rarely or never used gray literature, blogs, online forums, government web sites, video sharing sites or social networking sites like Facebook to get information. (It can be concluded that they treat it as a form and communication tool, not as a source of information). The course readings were used sometimes, similarly to slide sharing sites. It would be useful to deepen analysis of reluctance in relation to the usage of such resources, especially in relation to information skills and presenting a wide range of sources during the LIS teaching process.

The question about how students value information, according to specific criteria for the evaluation of resources, has been formulated in a way to check on whether a student uses the dimensions to guarantee the quality of sources. The data appearing in Table 4 shows that the significant factors considered most frequently-used evaluation criteria of online resources were: recurrence and the possibility to re-use, acquaintance, instructors' mentioning its use, the bibliography list and references, and the native language of the resource.

Table 4. Web site's quality evaluation criteria indicated by LIS students (n=182)

Evaluation Criteria of Information Sources	AA %	O %	S %	R %	N %
Currency	5.43	35.87	40.76	11.41	6.52
Author's affiliation/credentials	9.78	33.70	25.00	24.46	7.07
The content acknowledges different viewpoints	1.22	40.22	33.15	8.15	3.26
The author gives credit for using other ideas	28.26	41.30	22.83	5.43	2.17
Whether it has a bibliography/reference list.	23.37	42.93	20.65	10.33	2.72
If there are charts - whether they have vital information	11.96	39.13	28.80	17.39	2.72
Publisher of the source.	9.78	22.83	30.98	26.63	9.78
Whether a librarian mentioned using this source.	4.89	25.00	30.98	20.11	19.02
Whether an instructor mentioned using this source.	25.00	44.02	20.65	8.70	1.63
Whether the student has ever heard of this source before.	14.13	42.93	33.70	7.61	1.63
Whether the student has used this source before.	25.00	46.20	20.65	6.52	1.63
Whether it is written in the native language.	33.15	39.67	17.39	7.61	2.17

AA= Almost always, O= Often, S= Sometimes, R= Rarely, N= Never

Currency is often important for students or sometimes taken into consideration. It was interesting that 69.02% respondents indicated that almost always and often, an important criterion for evaluation is the source of a personal expert and the

recommendation of the instructor. They never used the criteria of the librarian's advice, publisher information or the author's affiliation. Students characteristically prefer sources well know and previously used.

4   Conclusions

The study requires an in-depth analysis and comparison of information seeking processes and information competences of LIS students of other Polish institutions in order to form a comprehensive picture of the information behaviour and the information literacy impact on this activity. What also should be taken into account are the intensive actions in the field of understanding of relevant information skills training, especially in the face of key competences to implement guidelines associated with the effects of training in different fields of science. The next stage of the analysis would be the comparison of test results carried out in international groups as a part of one international study.

It can be expected that a similar survey conducted among students of other fields would also give interesting results. A kind of comparison of the results would be an answer to the question why some students, in particular with master degrees, pointed to the lack of knowledge and experience in the evaluation process, integrating knowledge from different sources, citing the resources and using them in a correct manner. Students cannot efficiently use the variety of new information and communication technologies, and what is more, they also seem to be unable to take full advantage of the sources they are already familiar with, like search engines (Google) or online encyclopaedias (Wikipedia).

It would be useful to consider the possible cause of not using the social networking sites or slide sharing sites for getting information, and whether this is a general trend in information processing that is caused by other factors, new social relationships or the real ignorance of new forms of communication. Quite interesting is the fact of ignoring or doubting librarians, their knowledge, or that of disregarding traditional library services. There has been observed a change in the sources' preference (students use mainly the online resources that could be searched instantly), significance of sources and criteria for their evaluation. The activities connected with the development of the information competences, the improvement of analytical and research skills and gaining new knowledge are foundations for information processes undertaken by students and their motivation, which will determine the realisation of the assignments in the academic environment. It is therefore the need for in-depth evaluation of information literacy, as well as drawing attention to factors that affect and shape information behaviour, and also attempt to compare not only users' competences in different training centres, but also at the level of undergraduate and master studies. This will also help to look at programs of study, effects of information literacy training and expectations in relation to students.

References

1. Fisher, K.E., Erdelez, S., McKechnie, L. (eds.): Theories of Information Behaviour. Information Today, Inc., Medford (2005)
2. Jamali, H.R., David, N.: Interdisciplinarity and the Information-Seeking Behavior of Scientists. Information Processing and Management 46(2), 233–243 (2010)
3. Ellis, D., et al.: Information Seeking and Mediated Searching. Part 5. User-intermediary Interaction. Journal of the American Society for Information Science and Technology 53(11), 883–893 (2002)
4. Järvelin, K., Ingwersen, P.: Information Seeking Research Needs Extension Towards Tasks and Technology. Information Research 10(1), Paper 212 (2004),
   `http://InformationR.net/ir/10-1/paper212.html`
5. Kuhlthau, C.C.: Kuhlthau's Information Search Process. In: Fisher, K.E., Erdelez, S., Mckechnie, L.E.F. (eds.) Theories of Information Behavior, pp. 230–234. Information Today, Inc, Medford (2005)
6. Uruqhart, C., Rowley, J.: Understanding Student Information Behavior in Relation to Electronic Information Services: Lessons from Longitudinal Monitoring and Evaluation, Part 2. Journal of the American Society for Information Science and Technology 58(8), 1188–1197 (2007)
7. Diehm, R., Lupton, M.: Approaches to Learning Information Literacy: A Phenomenographic Study. Journal of Academic Librarianship 38(4), 217–225 (2012)