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The win-win game of information literacy education: subject librarians tutoring information literacy online course for doctoral students

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Abstract: This article points to several aspects which need to be taken into account when planning an information literacy course for (doctoral) students, tutored by (subject) librarians. After analysing reflections of doctoral students of the University of Tartu and conducting a focus group with subject librarians of University of Tartu Library it is possible to point to the general organisation of a course, its content and form, the feedback given by tutors and fellow-students, and course-related emotions and problems as aspects that can foster or hinder the success of an information literacy course. As perceived somewhat differently by these two parties, the afore-mentioned aspects have certain overlapping, but also contradictory traits making the course planning a sophisticated enterprise.

Keywords: Information literacy education, E-learning, Librarians, Doctoral students, Universities, University libraries

1. Introduction

This article stands at the meeting point of two parties concerned about information literacy in contemporary academic environment. First, this study touches the ever-changing roles of academic librarians. Secondly, the current article pays attention to doctoral students, the advanced learners in information literacy context. These two parties usually meet in the academic library, one in the role of a service provider, another as a visitor in the library, yet the focus in current study is on both doctoral students' and academic librarians' perceptions about an online course 'Introduction to information research'. Within the frameworks of such course, novel roles are taken: the academic librarians, or subject librarians in present case, obtain the role of an educator, the doctoral students become learners. The research questions, to which answers are sought

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in this article, stem directly from this (re-)positioning: what are the opinions of doctoral students as learners and subject librarians as teachers about an individual credit-bearing information literacy online course? What aspects need to be considered in order to render such course beneficial for both parties?

Of particular importance is hereby, that there are several studies which pay attention to delivering information literacy instruction for graduate students via tutorials (Harkins, Rodriges and Orlov, 2011; Shaffer, 2011)) or information literacy courses with online support for doctoral students (Secker and Macrae-Gibson, 2011). Yet there is little research conducted to analyse the courses which use the methods of active learning and are held in online environment only (Green, 2006; Peacock et al., 2004). The current study analyses the efficiency of a course which is, in addition to being a credit-bearing online course, integrated into the doctoral curricula of the University of Tartu, is organised in a library, and is tutored by subject librarians. This latter aspect informs also the study, emphasizing the importance to learn about the perspective of the subject librarians as teachers. To do so, a focus group has been conducted with subject librarians at the University of Tartu Library in 2012. The perspectives of the subject librarians are complemented with reflection posts, presented as one of the assignments during the course 'Introduction to information research' by the doctoral students in 2009-2011. During this time span, the course 'Introduction to information research' has been 'seasoning' through the learners' feedback on the one hand, through the course tutors' and organisers' development on the other, so that it is now possible to make some conclusions and present few suggestions in order to contribute to the field of information literacy education and research.

2. Previous studies

Several studies focus on information behaviour of postgraduate students and conclude that information literacy skills of doctoral students are not sufficient. When conducting information searches on their topic, doctoral students prefer Google and/or Google Scholar in first order, and less use databases purchased by libraries (Du and Evans, 2011; Korobili et al., 2011; Vezzosi, 2009). New doctoral students are not often knowledgeable about the databases of their field, they lack confidence in the use of databases, and are in trouble when complex queries need to be formulated (Chu and Law, 2008; Harris, 2011; Patterson, 2009). Research has also shown that doctoral students overestimate their information seeking skills, and their self-efficacy is higher than their real skills have proven to be (Patterson, 2009; Stubbings and Franklin, 2005). Thus, recent studies suggest that doctoral students need information literacy training and support (Chu and Law, 2008; Conway, 2011; Korobili et al., 2011). Moreover, training of doctoral students by librarians is also seen as a pathway to more efficient faculty-librarian collaboration as this is "the faculty of the future" (Fleming-May and Yuro, 2009: 216) for whom the information literacy courses are provided today.

In order to have necessary knowledge and skills for research, doctoral students need advanced tutoring in information literacy, yet one-shot approaches and single classes are not sufficient for this purpose (Harris, 2011; Secker and Macrae-Gibson, 2011). Harris (2011) has described various models of library instruction, analysed their suitability for doctoral level students, and suggested that proper preparation for advanced level research is given to doctoral students when they are offered separate credit bearing research skills courses. In addition to classroom based courses, also online courses have been acknowledged as suitable environments for teaching information literacy. For example, Green (2006) describes an entirely online course for doctoral students which uses the community of practice framework and engages students in collaborative instructor- and peer-supported learning. Queensland University of Technology Library offers for distance students a librarian-facilitated online information literacy course as a parallel option to the classroom based course (Peacock et al., 2004).

However, teaching information literacy skills (whether as part of some general research course or in a specific course of its own) in the academic environment has been a matter of serious debates and of mutual distrust between librarians and academics. There have been examples of successful faculty-librarian collaboration (Abbott and Selzer, 2002; Grant and Berg; 2003; Harkins, Rodriges and Orlov, 2011), yet Johnston and Webber (2003) have also pointed to the situation where, on the one hand, the ability of academics to teach information literacy have been criticised by librarians, and on the other hand, the teaching methods of librarians have been found questionable by the faculty members. The experiences of giving bibliographic instruction, in which the academic libraries have gathered decades or even century-long stock of knowledge (Hopkins, 1982; Lynch and Smith, 2001), have been thus distinguished from 'educating' or 'teaching' students.

The current article keeps in mind this distinction: still acknowledging the broad component of education in instruction work of (academic) librarians, but also pointing to the educational tasks beyond previously prepared online tutorials, 'one-shot workshops', individual consultations, and course-integrated library instructions (Harris, 2011). In the University of Tartu Library IL courses, the several core competencies Walter (2008) has outlined in the pedagogical activities of instruction librarians, provision of "clear, logical instructions" (Walter, 2008: 57) and knowledge how to "verbalize a search strategy" (Walter, 2008: 58) are paired with the understanding of visibility and responsibility in an online course. A "steady contact" (Harris, 2011: 599) with students distinguishes participation in the course from random workshops or individual consultations, giving instructions as a response to students assignments differs the course from online tutorials, and a credit-bearing course of its own creates some distinction with course-integrated library instructions where the faculty member is usually planning the course activities. Thus, also the tasks of the subject librarians of the University of Tartu Library have changed within the

frameworks of the current e-learning course, their views about the course are introduced, side by side with experiences of doctoral students, after giving some overview of the course context.

3. Information literacy courses at the University of Tartu Library

One of the tasks of subject librarians of the University of Tartu Library is to teach information literacy. First, a web-based information literacy course (IL course) for bachelor's and master's students was developed, and included in the curricula of the University of Tartu since 2007 as a free elective course for all faculties. Since 2008, following the example of the afore-mentioned course, doctoral students have been provided with an advanced course, 'Introduction to information research', integrated into all doctoral curricula as an elective course. The university library also offers two Estonian-wide online information literacy courses, designed on the basis of the same model.

The courses are carried out in the virtual learning environment Moodle where students can find the materials, submit their home assignments, communicate with tutors and with each other, and get feedback. The learners are divided into speciality-based groups, and each group is supervised by a tutor. For the courses, user-centred active learning has been applied as the instructional approach. Within the frameworks of course assignments the learners perform information search exercises relevant for their topic of interest or research and reflect on the searching process. They also have to analyse some exercises of their fellow students, yet all exercises are given feedback also by the course tutors. Both the exercises and instructors' and fellow students' comments are posted to respective discussion forums where all participants can read them and thus learn from each other's work (Seiler, 2009; Seiler, Miil and Lepik, 2012).
The course for doctoral students is focussed on effective information search and information management – both skills are crucial to complete a doctoral dissertation. The course modules cover principles and practising of information search in different databases (e.g. EBSCO Discovery, Web of Science, Scopus), sources of scholarly information on the Internet, and using of reference managers RefWorks and Endnote Web. By the end of the course, students have collected relevant sources for their doctoral theses, and have learned how to export and manage their search results by using reference managers, and how to create a bibliography with these tools.

The key principles of the course 'Introduction to information research' draw on works of acknowledged practitioners and researchers (e.g Bruce, 2002; Edwards, 2006; Stubbings and Franklin, 2005). The opportunity to critically reflect (Edwards, 2006) on information searching process enables the students to enhance their information searching skills. Coupled with learner-centred approach, critical reflection helps to shape the 'best practice' in information literacy education (Bruce, 2002) as this way, the learners can better understand and critically evaluate their activity, analyse their successes and failures, and learn from their experiences. The self-evaluation is complemented by the

feedback (by tutors), as consistent and practical assessment provides feedback and encourages deep learning (Webber and Johnston, 2003 cited in Stubbings and Franklin, 2005). In the IL course analysed in this article, the tutors work with each learner individually, giving formative feedback (Shute, 2008) which allows taking into account varying needs and experiences of learners, and modifies their "thinking or behavior for the purpose of improving learning" (Shute, 2008: 154). As a time-consuming activity, giving feedback has to be constructive and to support the learner, thereby contributing to the effectiveness of both teaching and learning processes (Biggs and Tang, 2007). In the IL courses provided by the tutors of the University of Tartu Library, also the optimal number of course participants per tutor has been considered to achieve a good result.

4. Methodology

In this article, two sets of data have been collected and analysed. First, the reflection posts by doctoral students participating in the course 'Introduction to information research' analysed by applying the method of qualitative content analysis. Secondly, the focus group conducted with the course tutors was analysed, applying close reading of transcriptions to find answers to research questions of this study.

The first corpus of data consists of reflection posts provided by doctoral students who took the course 'Introduction to information research' in 2009-2011. In total, the number of students who passed the course was 226, and 207 of them left the reflection posts analysed also in this article (quoted as "DS The number of reflection in a list, the year of taking the course", for example: "DS 55, 2009"). As has been the case elsewhere (Seiler, Miil and Lepik, 2012), the doctoral students study in varying fields, and have taken this course as their elective subject. As the reflection post is an obligatory assignment of the course, the response rate by doctoral students has been high (91.59% of the doctoral students wrote the reflection).

In reflection posts, doctoral students have been asked to answer to questions about finding new sources for research, to evaluate the effectiveness of conducting searches in different databases, and reflect about databases seen as useful (for future purposes). These particular topics in reflection posts yield relative coherence in the contents of the reflections, making these to some extent comparable, yet still diverse due to the open-ended nature of the reflections (as there were no pre-given choices of answers to respond to).

To analyse and interpret the data from reflection posts, the method of qualitative content analysis has been applied, using inductive category application (Mayring, 2000), and defining units of analysis as "the smallest components of texts in which the occurrence and the characterisation of variables (properties, categories) are examined" (Titscher, Meyer, Wodak and Vetter, 2000: 58). In current study, although it is possible (with certain precaution) to count the

number of topics meaningful to doctoral students, the focus is on the perceptions about the course (Stokes, 2003), the "themes or concepts" (Neuman, 2006: 460) emerging from the data. Before the analysis, pilot study was conducted to check the 'bottlenecks' of the code-book and assure that the code system would be applied similarly by the co-authors. On the basis of the pilot study it was possible to check inter-coder reliability by calculating "average reliability coefficients across all pairs of coders" (Neuendorf, 2002: 161). The percent agreement (PAO = A / n) which helps to check the average reliability consists in this formula of the "agreements between two coders" (A) divided by the "total number of units the two coders have coded for the test" (Neuendorf, 2002: 149). The percent agreements in the pilot-study group were: 1-2: 90.68%, 2-3: 90.68%, 3-1: 87.74%. The average inter-coder agreement is 89.7%, acceptable in most situations (Neuendorf, 2002).

The code system been set at as simple as possible, formulating the presence and tone of various categories possibly present in reflection posts. Most categories (like 'opinion about the tutor's feedback') allowed only a single code - whether the opinion was positive, neutral, negative or not mentioned; in few cases (like the 'benefits of the course for the student') also multiple codes were allowed due to possible emerging topics that were important for the doctoral students.

The focus group involving 7 tutors (quoted as "Tutor The number of tutor from the transcript", for example "Tutor 1") from the University of Tartu Library was conducted in February 2012. All of the tutors had participated in the online course 'Introduction to information research' since 2007. Three tutors who also usually participate in courses were excluded from this focus group due to their roles of organising the course (the 2nd and 3rd author) or being a moderator of the focus group (was the case for the 1st author). Although the tutors of the course could have been interviewed individually, the focus group was preferred because of the possible interaction (Carson et al., 2001) emerging from the discussion of topics that needed to be recalled (e.g. how a subject librarian becomes a tutor, how does a 'usual' day of a tutor look like). In several cases, the focus group allowed the participants to talk more openly about problematic things, to discuss about these with colleagues – hence, during the focus group, synergy emerged, making a "discussion [...] greater than the sum of separate individual opinions gleaned from interviews" (Carson et al., 2001: 16). Nevertheless, during the analysis of the focus group, it was also visible that some of the participants should have been encouraged to speak more as sometimes they could only repeat the words of previously spoken colleagues – this is a threat that has been warned by authors introducing the method (Carson et al., 2001).

The focus group questions (see Figure 1) were complemented by several projective techniques: the tutors could mark their daily work tasks on a figure depicting a clock plate, and fill in a worksheet in the shape of a table to make notes about the advantages and disadvantages of the course model. These

worksheets were useful on the one hand to give the focus group participants some time to collect their thoughts, recall daily work situations. On the other hand these worksheets were useful in cases where some of the focus group participants had a wish to write an idea which was not revealed for some reason during the focus group discussions. The projective techniques thus yielded additional information in addition to what was spoken during the focus group, being thus the means to a "greater understanding" (Keegan, 2008: 687).

1.	Please introduce yourself: what is your name and how long have you worked in our library, on the current position?
2.	To what extent have you instructed students before becoming a tutor?
3.	Please sketch your work tasks you performed yesterday (on the clock plate). Name the work tasks and write how much time did you spend on these? You can also outline the work done at home.
4.	Which tasks are related to being a tutor? How would you assess the amount of tasks related to being a tutor? Could there be something differently on the clock plate? What precisely, why? How do you think about the current organization of courses related to information literacy?
5.	Please recall the first courses about information literacy. How did you become a tutor? What did you feel when you were informed about becoming one? What did becoming a tutor mean to you in the context of daily work?
6.	How have you been developing in passing years as a tutor? Which was the previous knowledge you could use after becoming a tutor? Which knowledge or experiences have you felt as lacking? Which experiences have you obtained as a tutor?
7.	The feedback you leave for your students is visible to all students and tutors – has this somehow affected the way of leaving feedback? How would you assess the impact of each other (colleagues) on your development as a tutor?
8.	Please make notes in the first column of the 'Introduction to information research' course elements which, in your opinion, support students (the task with the worksheet with the table). In the second column, write those elements of the course which seem to be confusing or hinder the students' performance in course.
9.	In case you should introduce the course organisation to some decision-maker – what would be the most important aspect you would like to talk about? In case of the information literacy we have discussed today – is there any topic or an issue that was not discussed but should be pointed to?

Figure1. Key focus group questions

The transcript of the focus group interview was analysed by close reading of the text, keeping in mind the research questions of this study. As some of the questions and answers were out of the scope of the current study, particular attention was paid to themes which had been already emerging in reflection posts of the doctoral students. This way, the linkage was established between two sets of data which were initially planned to be used in separate studies. In the following chapter, the analysis of aspects concerning the online course is presented.

5. Results

The analysis has yielded several aspects which help to compare the doctoral students' and subject librarians' perceptions about information literacy stand-alone course. In the following chapter, these aspects are outlined as equally important – this means that their order is not emphasizing the importance of one or another aspect, and thus purpose of this study is not to count, but to outline aspects (shortly done in Table 1) which make a course beneficial for both doctoral students and their tutors (subject librarians). The course aspects have been presented in order of their possible appearance during the course: the **timing** and '**hosting**' of the course are usually considered first, followed by the **topics** and **databases** used by the students who later get **feedback from their peers** and **tutors**, and afterwards can reflect the **emotions** and **problems** that emerged during the course.

Table1. The aspects of an IL course perceived by doctoral students and their tutors, the subject librarians

Aspect of an IL course		**Perceived by doctoral students**	**Perceived by subject librarians as tutors**
General organi-sation of an IL course	Timing a course	Timing the course in frames of studies (doctoral studies or the entire study period). Flexible deadlines and quick feedback from the tutor	Timing the course in frames of a studies year (not too early, not too late in the semester). Flexibility useful for students; quick feedback – an obligation
	'Hosting' the course – online environment	Taken for granted, makes learning more flexible	Is considered important to make both learning and teaching easier
Contents of the	Individual topic	Relate the course to doctoral studies	Learn about the topic and formulating

course		and/or dissertation writing	queries in respective field
	Searches in several databases	Useful for a narrow topic, helps to learn about different search logics – lots of new experiences. Is a negative aspect for same reasons: fewer databases are sufficient for a narrow topic, learning too much consumes time and decreases learning motivation	Part of the professional knowledge. Help to learn about new trends in databases, constant revision of learning materials. Problematic in case updates in databases arrive unexpectedly
Feedback	Feedback from a fellow student	Hints about searching, other databases; allows getting 'moral support'. The purpose of this feedback needs to be clear – otherwise a waste of time	Highly dependent on a student, whether it is seen as interesting or not. Can be broadening the mind, but also give vague comments
	Feedback from a tutor	Not only the advice itself, but also social aspects (e.g. friendliness, patience, encouragement) matter	Writing individual feedback demands fitting the work into workload, developing strategies. The learners' feedback is encouraging
After-course emotions and proble-matic aspects	Course-related emotions	Increasing feeling of security or self-confidence about performing queries in databases, getting inspiration. The feeling of still getting lost in databases	Increasing feeling of self-confidence about teaching, feeling good about the work and broadening the mind
	Emerging	Technical (reference	Related to time

	problems	managers, access to databases), language barrier (international students)	management, but also to making sure that students learn well

The first pair of aspects related to a course emphasise **timing**, and establishing an IL course in an **online environment**. As shown in Table 1, timing the course can have a slightly different connotation to doctoral students and subject librarians: whereas the first need to fit the IL course in their doctoral studies (or consider the course as valuable in the entire time span of their studies), the latter need to take into account the timing of the course in an academic year so that course would take place not too early nor too late during the semester. The flexibility of presenting home assignments (although there are deadlines, some deviation from these is allowed) can be seen useful for doctoral students, who sometimes even ask for reminders: "*You might think about reminding the course participants about deadlines and the course. [...] Like, when the assignment is not presented we'd get an automatic reminding e-mail or something similar. This would help to pass the course!*" (DS 103, 2010). However, the quickly given feedback by tutors is an appreciated component of the course for doctoral students – for the tutors this is an obligation. Hosting the course in an online environment is an aspect which makes life easier for both doctoral students and subject librarians in their role as tutors – the online learning environment is particularly noteworthy for subject librarians in their everyday work (as sometimes work needs to be done at home), for doctoral students, online learning is already taken for granted.

The next couple of aspects, a possibility to pick an **individual topic** and the need to perform **searches in several databases**, influence the perception related to contents of the course. Choosing an individual topic is a useful aspect in an IL course which helps doctoral students to flexibly fit the course into their doctoral studies: to search materials for other courses, article or a dissertation they need to write. At the same time, the individual topic of a doctoral student can provide the tutor with a moment of learning: firstly about the topic itself, but secondly, to write individual feedback, the tutor also has an opportunity to learn more about conducting searches or new databases in the respective field: "*It was fun [...], in one group they were all citing a database I knew nothing about (said in a lowered voice). And then I later added it into my subject portal*" (Tutor 7). Conducting searches in different databases is probably the most controversial aspect of an IL course for doctoral students. On the one hand, conducting searches in several databases is a possibility to learn about various working logics, gain some peace of mind about knowing that all sources to find new information have been tried ("*In case I had used only one database I would not have found all those articles!*" (DS 19, 2009), and browsing various databases to find any piece of information when one has a relatively narrow topic. On the other hand, searching for information in several databases can be time-

consuming as there can be few particular databases which yield sufficient results – so that learning about working logics of other, unnecessary databases can also be a waste of time. Eventually, during a too information-intensive course the student may come to a feeling of saturation, and may have less motivation to complete the course. For tutors the feeling of saturation is not a problem as knowing a lot about different databases forms a part of their professional knowledge. For subject librarians in the role of the tutor, the assignments where searches in different databases have been conducted can be seen as sources about new trends in databases which help them to revise learning materials. However, if the changes in a large variety of databases occur unexpectedly, or especially during the IL course when feedback needs to be given quickly, these changes can also cause annoying problems.

In the analysed course model, giving and getting **feedback** has a prominent role. Getting **feedback from the tutor** has a rewarding potential for both doctoral students and tutors. It is important to note that the doctoral students value not only the new knowledge from the tutor, but also the 'social' aspects of feedback and the givers of feedback: friendliness and patience of subject librarians and the encouragement they provide – this is well visible in students' reflections when tutors are acknowledged for "*the patient supervision and the necessary critique*" (DS 116, 2010) or "*friendly and encouraging comments!*" (DS 196, 2011). At the same time, the subject librarians work, keeping in mind the importance of their feedback: they make efforts to fit this task into the rest of their workload, develop various strategies (e.g. "*making 10 hour long working days*" (Tutor 2), using copy-paste function or "*pointing to feedback previously given to fellow student*" (Tutor 1)) to cope better with this time-consuming task, and like doctoral students, enjoy encouragement – received from their grateful students. Apart from the feedback from tutors, the doctoral students need to write **feedback to their fellow students**: this task, as was the case for conducting searches in different databases, is seen as somewhat controversial among both doctoral students and tutors. The tutors comments about this task well sum up also the doctoral students' reflections: the success of this task is highly dependent on students, whether they see it as useful or interesting, or not: "*There can be people who do not like it at all and who do not write much, and it is really difficult to evaluate this task... what has been done, or actually, what has not been done.*" (Tutor 4). Getting feedback from one's peer may potentially give good tips about formulating queries, about useful databases, or provide some 'moral' support when the course seems to be difficult at some point. In worse case, the doctoral students both see and write the feedback to their peers as a waste of time, by giving vague comments from which no one actually benefits.

Eventually, in retrospective it is possible to recall the **problems** and **emotions** emerging and accumulating during an IL course. When the course organisers are lucky, the problems can be solved when they occur, yet from time to time there have been also those doctoral students who have preferred to reveal the

problems they encountered only after the course. As the course is about databases and reference managers the issues of access to databases or saving records from/to reference managers are not rare. When the IL course contained learning materials only in Estonian, the international students who had taken the course were feeling somewhat in an unequal position even though most databases have instructions in English – by now, this problem has been solved by providing learning materials both in Estonian and English. For tutors, the problems were of somewhat different nature: first, the ever-present lack of time poses a challenge. Secondly, as a good start on the course makes tutoring easier throughout the course, on the basis of tutors' suggestions, a practical exercise about formulating queries about individual topics (without conducting searches in database) has been added to the course. This helps to point to the doctoral students' shortcomings in formulating queries already in the beginning of the course – although the suggestions about queries are given also in learning materials, a real practice and learning through mistakes teach the doctoral students better in tutors' opinion. Eventually, the afore-mentioned task is a part of the course which contributes to the information literacy related emotions of doctoral students and tutors. Although it is possible that even after the IL course some doctoral students still feel like getting lost in databases, "*floating in this huge sea of queries*" (DS 172, 2011), the IL course very often helps to increase the feeling of security or self-confidence about performing queries in databases, to get inspiration from tutors' or fellow students' suggestions. Likewise, the IL course contributes to the self-confidence of subject librarians, to their feeling as capable teachers, the perception of doing good work and getting some "*insight about topics which are currently researched at the faculty*" (Tutor 2).

6. Conclusions

In current study, several aspects generally occurring during the course, since its beginning (timing and 'hosting' the course) to its aftermaths (emotions and problems revealed afterwards), have been outlined. As it was possible to see, there are similarities yet also differences in perceiving the course aspects by doctoral students and subject librarians.

In some aspects there may be prevailing controversial opinions, e.g. getting feedback quickly vs. finding time to write feedback soon, demanding collaboration between course tutors to find appropriate solutions to such problems. Yet in other aspects, overlapping traits may occur: e.g. the students' need for encouragement can be easily solved by sometimes adding few sentences corresponding to this need – the tricky question is hereby in determining who, of the students, actually needs encouraging and who finds such thoughts as excessive.

The discovery and benefitting from overlapping course aspects, e.g. finding the need to conduct searches in several databases useful by both doctoral students and subject librarians, or becoming encouraged by each other's feedback, can potentially be the most rewarding step in (constant re-)development of a stand-

alone information literacy course. Very likely, in addition to teacher-learner relationship, a partnership between subject librarians as tutors and doctoral students as 'the faculty of the future' can emerge, resulting thus in a win-win game in information literacy education.

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