Print or Electronic Course Readings: Implications for Library Space and Information Literacy Programmes

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Abstract. For several years, there has been a debate about digital vs. print format for study materials. The Academic Reading Format International Study (ARFIS) has shown that students clearly are in favour of paper, both in Norway and many other countries. These preferences have various implications not only for collection development decisions, but also for the availability of space in academic libraries. Study literature offered in digital format has huge advantages. It is not only more available, but makes it also makes it possible to free up much needed floor and shelving space in physical libraries. It also reduces the time and work spent on handling physical literature, from acquisition to re-shelving. So how can these advantages be balanced with students' reading preferences? The authors discuss these challenges and suggest to developing training sessions on "How to use digital study literature?" Some Norwegian universities have already done this, and their results will be described.

Keywords: Information literacy, students' reading preferences, electronic study literature, Norway.

1   Introduction and Background

Over the past several years, Mizrachi and others have investigated the students' preferences for print vs. electronic study literature through an international set of surveys [1], [2]. The results are quite similar: students across many countries prefer the printed versions of study literature. Mainly, they give "ease of use for notetaking and highlighting", "more comfortable on the eyes" and "more familiar" as reasons for preference for printed literature.

Data and comments from Norwegian students were likewise gathered using the online Academic Reading Format International Study (ARFIS) questionnaire. The study was conducted in April 2015 and it surveyed undergraduate, graduate and postgraduate students of various subjects at different universities and university colleges in Norway (University of Bergen, University of Stavanger, Norwegian University of Science and Technology, Bergen University College, Sogndal University College and Stord/Haugesund University College).

The ARFIS questionnaire has two parts. The first part consists of 16 statements about students' preferences for reading formats and factors that influence their preferences and behaviours. A five-point Likert scale was used for possible answers, ranging from "strongly disagree" to "strongly agree". Each of the 16 questions/statements provides space for comments. In addition, the first part contains one question about devices that are used for electronic course readings. Students could tick off multiple answers to this question.

The second part has six questions or statements gathering demographic information, like age, current study status (in other words, first year, third year, or Ph.D.), and discipline major or field of study. Additionally, a final open-ended question asks for any other comments on academic reading format preferences. The original survey was created in English, and the authors decided to use the English version. In order to make sure that all questions in English were understood properly, an explanatory statement was added to question 21. The dissemination of the URL to the survey was carried out by email. The authors themselves or other participating colleagues sent explanatory text and the link to the questionnaire to students from the Norwegian institutions mentioned above. One thousand and sixty three responses were assembled. The gathered data were then entered, coded, and analysed using the SPSS statistical package.

Norwegian students, like their international fellows, prefer printed to electronic study literature. Altogether, 70 % of the students agreed (37 %) or strongly agreed (33 %) with the statement: "I prefer to have all my course materials in print format (e.g. book, course reader, handouts)", and 75 % disagreed (41 %) or strongly disagreed (34 %) with the statement "I prefer to read my course readings electronically" [3].

Inspired by the findings that were informally reported at the Norwegian University of Science and Technology (NTNU) Library, Trondheim, the branch library for medicine and health set up a survey of their own students, with somewhat similar questions. The authors of that study also added focus groups and interviews with academic staff. Among the students, they found:

- Preferences for print format for texts longer than seven pages (75% of student respondents agreed or partly agreed, N=130);
- Students of medicine used print books as study literature (55%);
- Almost 60% of the students usually highlighted or made notes in the printed study material, but more than 70 % did not know about the corresponding features for e-books;
- When asked about what would be needed to use e-books as study material to a higher degree, 42 % of the students indicated "more knowledge" about how to use e-books and 44 % wanted "better platforms". However, 12 % of the students replied that they did not want to use e-books.

When asked whether the library should prioritise printed or electronic books, the majority of students wanted the library to cut purchasing printed books, and rather maintain the supply of e-books. In the comments section, students mentioned the advantages of electronic literature, mainly their availability 24/7, and their ease of access. One student mentioned that s/he looked at the library e-books in order to

evaluate which printed books s/he would buy personally [4].

There have also been earlier investigations of students' reading preferences in Norway. In 2013, University of Agder Library conducted a study where they provided 74 students in the Humanities and Social Sciences with e-readers (Kindle and iPad) preloaded with course materials. The most interesting finding for our purpose was that

> a total of 79% of the students thought the e-reader was good or very good for reading journal articles. A little less, 61%, had a similar opinion related to reading books. Despite a high degree of satisfaction with the e-readers, much fewer students thought they would solely relying on such a device. When having been given the opportunity to read literature from the reading list on an e-reader, 54% of the students replied that they still preferred to read print books. Only 11% would rely solely on an e-reader device, and 28% found that a combination of print books and online material on e-readers was best for study purposes. Seven percent answered that they did not know what kind of format they preferred books to be in [5].

Bakka and Landøy present results from another study on preferences for print vs electronic study literature. This study surveyed 256 first year students of Social Sciences at the University of Bergen, and the preferences are similar to the ones from other studies. However, one interesting finding is that 70 % of the students indicated that they would like to participate in a library training about more efficient use of electronic books, if such training was offered [6].

2   Implications for Information Literacy Programmes

When the authors presented the results at ECIL2015, it was in collaboration and comparison with data from the Romanian part of the ARFIS study. In that paper it was suggested, based on data from another Romanian study, that perhaps one of the reasons for preferring paper material was the familiarity with highlighting and annotating. This was supported when looking more closely at the data from the survey, especially on the preferences according to the level of students. The younger students (first and second year) agreed more with the statements about preferences for printed material and disagreed more with statements about preferences for electronic study literature than students at master's level.

Table 1. Students' agreement with remembering best when read from printed pages (cross-tabulated with level of study).

Study level	Agree	Neither	Disagree	N
First year	82.1%	13.6%	4.3%	184
Second year	72.9%	17.6%	9.6%	188
Master	76.9%	18.4%	4.7%	277

PhD	74.8%	14.7%	10.5%	143

Table 2. Students' agreement with the convenience of reading electronically (cross-tabulated with level of study)

Study level	Agree	Neither	Disagree	N
First year	21,2 %	16,8 %	62,0 %	184
Second year	20,1 %	16,3 %	63,6 %	184
Master	16,7 %	14,6 %	68,6 %	287
PhD	28,7 %	14,7 %	56,6 %	143

With these indications, the Western Norwegian academic libraries who were part of the study decided to try an intervention. They received funding to develop a new course on "How to use electronic study literature in an efficient way". The course was given as a "training the trainers session" in Bergen in November 2016. The day-long course included practical work with several platforms for electronic books (in other words, Ebrary, ProQuest books, and Norwegian digital books from the National Library of Norway), and focused on finding and using tools for highlighting, annotating, and writing comments on these platforms. In addition, it provided a suggestion for a course agenda that participating librarians could use as a skeleton for their own teaching of students later on. The main objective of the training was to familiarise the librarians with what kind of supporting tools are available and where to find them.

After the training session in Bergen, the libraries planned to cascade the new knowledge to other colleagues, but unfortunately this has not happened yet, mainly because of organisational changes in the libraries and in their mother institutions. However, there are new plans for conducting these courses at all universities/colleges in Western Norway. The plans include a cascading effort for the entire library staff through formal and informal training sessions, and a newly developed 45 minute library course for students. The course for the students will be subject-specific, and will focus on the main e-book platform(s) for a specific group of students. The training for librarians will be divided. Librarians in the "front-line" will be trained in responding to rather simple questions arriving on chat or at the circulation desk. The academic librarians will have to acquire deeper knowledge of the tools and functions, to be able to teach and fully support students. Some of the teaching librarians are also adding "How to apply extra features when reading e-books" in their ordinary information literacy courses.

3   Implications for Library Space

Being able to fully utilise electronic study literature offered by academic libraries would provide advantages for both students and the library.

For the students, the literature will be more available because of shorter loan periods and 24/7 availability. Electronic literature can be accessed from anywhere, also when the library is closed.

For libraries, the benefits include the possibility to free up much needed floor and

shelving space in physical libraries. That is important because academic institutions all over the world are looking at ways of reducing costs, and space is one of the costs that has to be considered. Increasing the efficient and appropriate use of library spaces is important because academic libraries are usually situated in the centre of campus and each square meter, particularly on the campuses of urban or older universities, is very costly [7], [8].

While physical libraries are repositories of printed books and journals, they are also, as Watson and others argue, learning spaces, providing students with much-needed areas for quiet studying and academic collaboration [9]. So the need for study spaces is huge, and "weeding" in the stacks in order to reduce the number of shelves can be a good way of meeting this demand.

Some of the internal library operations are independent from the format of the book, however a shift to more usage of electronic books and less printed books would also reduce the time and work spent on handling physical books, from acquisition to re-shelving. The stafftime saved could be used for more and better support of students and academic staff or other library tasks.

4   Summary and Conclusions

The international research on students' preferences for printed vs. electronic study literature showed that Norwegian students have the same preferences for printed material as students in many other countries. However, there are some indications that this is not universal among all student groups in Norway. These indications lead us to the assumption that one reason for the preference for print over electronic study material is about the preference for a well-known format, or rather the lack of knowledge of online supporting tools. Therefore the obvious conclusion was to expand existing information literacy programmes by teaching special features of e-book platforms, like highlighting and annotating. If the students will want to fully utilise study literature in electronic format, this will have implications for librarians' teachings, and also for the development and use of library space. There is still space for more research in this area.

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