

# The More They Tried It the Less They Liked It: Norwegian and Romanian Student's Response to Electronic Course Material

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**Abstract.** In this paper we will present and compare survey findings from Romania and Norway taken from the “Multinational study on students' preferences regarding print versus electronic resources for course readings”. This study was conducted in April 2015 and surveyed undergraduate, graduate and postgraduate students of various subjects at different universities. The aim was to investigate students' format preferences when engaging with academic readings and what factors impact their preferences and behaviors. The comparative study will show whether students' reading format preferences vary or remain consistent across multi-national student populations. We also make comparisons with results from an earlier study of Romanian and Norwegian students' attitudes towards using academic libraries. In particular, we look at the reasons given for preferring course readings in either electronic or print format, and we discuss what this could mean for collection development policies.

**Keywords:** Print, electronic study material, Norway, Romania, academic libraries, student services.

## 1 Background I: The Multi-national Study

This paper is a first, exploratory investigation of data from the multinational study *Students' Print versus Electronic Preferences: A Multi-National Study*.

Diane Mizrahi, University of California Los Angeles (UCLA), presented a research paper at the second European Conference on Information Literacy (ECIL) in Dubrovnik in 2014. Her presentation had the title “Online or Print: Which Do Students Prefer”. The underlying study investigated academic reading format preferences for class readings (electronic or print) and reading behaviors of undergraduate students at UCLA. The survey aimed to answer the questions: “*What are undergraduates' format preferences when engaging with their academic*

*readings? What factors impact their preferences and behaviors? How do these factors impact their behaviors?” [1].*

In her literature review, “of selected studies comparing reading comprehension in different formats” Mizrachi [1, p. 301] found a general consistency in the findings. In her words: “A growing body of evidence however, shows that the presentation format, print or electronic, affects how efficiently the brain processes information (...). Expanding on Adler's observation that different levels and types of reading are employed according to the purpose and desired outcome of a reading task, we see that scanning and browsing for example, are effective strategies for many online tasks such as sorting through email, reviewing headlines, and checking facts and definitions. But the process of linear reading in print format appears to be more effective for deeper learning and comprehension goals, when focus and deep reading are demanded in order to internalize the information and make it understood.

Mizrachi also cites surveys going back for more than a decade, showing that undergraduate students prefer reading their academic texts in print. On the other hand they are influenced by convenience, ecological sustainability, and often the lower cost of accessing texts electronically [1].

After ECIL 2014, Joumana Boustany, from University of Paris Descartes, suggested replicating the survey in different countries to produce comparative results and to see whether students' reading format preferences vary or maintain consistency across multi-national student populations. More than 20 countries from all over the world were asked to participate: Australia, Bulgaria, China, Croatia, Czech Republic, France, Hungary, India, Israel, Italy, Latvia, Lithuania, Moldova, Norway, Peru, Poland, Portugal, Romania, Singapore, Slovenia, Switzerland, Turkey, UK, USA. Almost all have completed the data collection.

Boustany created the online survey on the LimeSurvey platform, based on the questions from the study at UCLA, however targeting students from higher education on all levels (undergraduates, graduates and postgraduates) in all disciplines. Some countries translated the survey from English into their own language, while others decided to use the English version. In spring 2015 the participating countries collected data in their own institution(s). Later these data were supposed to be combined for comparative work. So far the only publication of results from this survey is Mizrachi 2015.

The multi-national study seeks to investigate the format preferences for class readings - electronic or print - and the reading behaviors of students. The results of the research may further our understanding of how students prefer to read their course material and inform the decisions and policies of libraries and instructors regarding the collection and dissemination of online and print academic materials.

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## **2 Background II: The Survey from 2007**

In 2007 two of the present authors made surveys in their respective libraries. In this survey, the focus was on comparing the attitudes of Romanian and Norwegian university students to using the academic library and the different facilities. Landøy and Repanovici [2] showed that Romanian students were much less satisfied with access to study literature through the library than Norwegian students. It also indicated that students in Romania were more in favor of electronic study literature than those in Norway. Landøy and Repanovici speculated that Norwegian students might have tried electronic study literature and been disappointed, while Romanian students might have a more idealized view of the possibilities since they at that time did not have a substantial amount of electronic documents in the Romanian libraries. This earlier study is one of the reasons why we want to present the findings of the Multi-national Study from Norway and Romania together instead of separately.

### **3 Methodological Issues**

Data and comments from Norwegian and Romanian students were gathered using the online Academic Readings 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, The Norwegian University of Science and Technology, Bergen University College, Sogndal University College and Stord/Haugesund University College) and at the 18 faculties of Transilvania University of Brasov in Romania.

The questionnaire comprises two parts. The first part consists of 16 statements about students' preferences for reading formats and factors that impact their preferences and behaviors. A five-point Likert scale is 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 comprises six questions or statements gathering demographic information, like age, current study status (i.e. first year, third year, PhD), 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. The authors from Norway decided to use the English version, while the author from Romania translated the survey into Romanian. In order to make sure that all questions in English would be understood properly, the Norwegian authors added an explanatory statement to question 21.

The dissemination of the URL to the survey was carried out by email in April 2015. The authors themselves or other participating colleagues sent explanatory text and the link to the questionnaire to students from different institutions in Norway and Romania.

In Norway 1063 responses were assembled. The gathered data were entered, coded, and analyzed using the SPSS statistical package.

In Romania, the study was conducted within Transilvania University from Braşov. The Research Ethics Committee of the university approved the participation in the multinational research.

The structure of the approximately 600 respondents from Transilvania University students matches the university structure of 18 faculties by gender and year of study variables. In Norway, since the survey was distributed to students of different faculties at the six collaborating universities/university colleges, no such matching was possible.

## 4 The Findings

Mizrachi [1] asked “*What are undergraduates’ format preferences when engaging with their academic readings?*” and found that students, both in her own survey and in the literature, preferred to have their course material in print format. What is the preference on Norwegian and Romanian students from all levels of study and from different institutions?

**Table 1.** Level of agreement to statement in Question 3: “I prefer to have all my course materials in print format (e.g. book, course reader, handouts)”

Reply	Norway %	Norway N	Romania %	Romania N
Strongly agree	33	353	30	182
Agree	37	390	33	200
Neither agree or disagree	13	139	12	75
Disagree	14	144	12	71
Strongly disagree	3	37	13	82
Total	100	1063	100	610

The preference for course material in print format is quite similar among the respondents from both countries. A minor discrepancy may be noted in the difference between the Norwegians and Romanians who “strongly disagree” with this statement.

In the Norwegian survey, there are 72 comments on this statement, indicating that the students have definite opinions on the topic. Well over half, 41 comments, indicate that even if a large majority agree that print format is preferred for course material, there is reading material that is preferred in electronic format. Twelve others comment more explicitly that this depends on the size and kind of reading material, while seven respondents comment that electronic reading material is more easily available, and that the students themselves can choose whether to save and print. Nine students comment on the benefits of printed material; that it is more comfortable, or is better for learning.

From Brasov, there are 11 comments showing that students prefer printed courses for several reasons, for example: “I believe I have a better developed visual memory when I read in print format”; “I remember better the information from paper, but archiving courses is more practical in electronic form”; “I prefer electronic format, as it allows me to select the pages I want to print”; “Personally, I prefer to have the

important electronic materials in print format as well”; “It is known that during a course a lot of information can be forgotten or can be uninteresting. But, the printed format brings an extra help to the student.”

**Table 2.** Level of agreement with the statement in Question 13: “I prefer to read my course readings electronically”

Reply	Norway %	Norway N	Romania %	Romania N
Strongly agree	3	29	4	22
Agree	8	81	7	38
Neither agree or disagree	14	150	18	98
Disagree	41	441	48	265
Strongly disagree	34	362	23	126
Total	100	1063	100	549

In Table 2 we see that the level of disagreement (“disagree” and “strongly disagree” combined) to this statement is quite similar for Norwegian and Romanian students.

Interestingly, there are few comments to this statement from the Norwegian respondents, only nine, and they touch upon the same issues as the comments to question 3: It depends on the content, size and importance.

In the Romanian survey the most interesting comments were: “Depending on the how the material content is presented, I prefer both printed and electronic materials”; “Usually, if I have only electronic materials, I highlight ideas which I note down on paper”; “If the material is in electronic form, I prefer to read it as is. The same is valid for printed materials.”

The results as displayed in Tables 1 and 2 show that the agreement and disagreement to preferences for electronic course literature is almost opposite, and when we do a cross tabulation in the Norwegian data to see whether there is a match between disagree on one and agree on the other, we find that the responses show a clear preferences for print and against electronic at the same time.

Around 75 percent of the respondents from both countries agree that they remember information from their course readings best when they read from printed pages.

In the comment section to this question in the survey, the Norwegian comments can be divided into five main groups: nine comments mainly agree with the statement, and four mainly disagree with the statement. Three say print and electronic basically are equal, and four find that a mix of both electronic and printed sources is the best. The main part of the comments however, (23) touch in one way or another on how the physical use of printed material supports the learning process for the student. “On printed pages, it is easier to make notes”, one respondent claims. “More visual tags that I remember”, says another.

**Table 3.** Level of agreement with statement in Question 1: “I remember information from my course readings best when I read them from printed pages”

Reply	Norway %	Norway N	Romania %	Romania N
Strongly agree	38	400	30	164
Agree	39	413	42,5	232
Neither agree or disagree	16	168	12,5	68
Disagree	6	65	9	49
Strongly disagree	1	17	6	33
Total	100	1063	100	546

The 19 comments from Romania also reveal that most respondents prefer printed course materials, for various reasons: “To be not so easily distracted by other things they can do on the PC, to learn better, remember better, read faster. Also, after some time, reading texts on the laptop becomes difficult, as the eyes start to hurt”.

On the other hand there was the following comment: “Generally, with respect to the subjects approached during courses, I gather information from electronic sources, due to the wealth and diversified volume of materials, which I prefer not to print. It does not affect my capacity to understand/ memorize/remember, as long as I read something that is of interest to me and I enjoy.”

**Table 4.** Level of agreement with statement in Question 2: “It is more convenient to read my assigned readings electronically than to read them in print”

Reply	Norway %	Norway N	Romania %	Romania N
Strongly agree	6	66	5,5	31
Agree	15	158	14,5	79
Neither agree or disagree	15	164	13	71
Disagree	41	435	51	278
Strongly disagree	23	240	16	87
Total	100	1063	100	546

Table 4 shows the same tendency to similar a response pattern between the Norwegian and Romanian students; where the majority (around 65 percent) of the respondents disagree that it is more convenient to read the assigned readings electronically than in print.

For question 2 there are 15 respondents from Norway who comment on the convenience of saving the environment by not printing paper, or of not having to carry paper around. Eleven respondents comment that they are happy to be able to use study material in both printed and electronic format, and four comment that they prefer printed material. Six of them have some kind of problems with their eyes or concentration when reading on screen, and four comment that they can read electronically on a tablet.

Some of the Norwegian respondents commented on both questions 1 and 2. One respondent commented that s/he remembered information from course readings best “when I highlight with a marker”, and that it is more convenient with electronic versions of assigned readings because it is “easier to make a system”. Similarly,

another respondent said that “I rely on visual memory and remember things better when they have a certain organized structure on a sheet. On the screen it is always different with scrolling/scaling” to question 1, and “Printing everything is a chore and for most of the papers I read I only need to get the main point, so amassing tons of papers in the office is useless”.

In Norway, there is a slight tendency for the master and PhD-students agreeing more than the younger students with the statement “I prefer to read my course readings electronically”, and similarly disagreeing with the statement “I prefer to have all my course materials in print format (e.g. book, course reader, handouts)”. This may indicate that the more mature students, or the more research-oriented ones are moving towards a preference for using sources in electronic format, but more research will be needed to investigate this question further.

## **5 Comparing Results from the Surveys in 2015 and 2007**

There are no significant differences between the Romanian and Norwegian students’ preferences. Both Norwegian and Romanian students prefer printed course materials, but they believe that electronic materials are also important. They prefer the printed version because they read it more easily, they can make annotations, and they find it is healthier for eyesight. At the same time, they find that having access to course material in electronic format has other benefits, i.e. to be easily searchable and accessible, easier to develop a structure and more convenient in saving paper and weight.

There are also no large differences between the level of agreement to the statements about remembering the information better when reading from paper, and level of disagreement with the statement on convenience of electronic format. For the Norwegian students there was a slight tendency for the graduate and PhD students to prefer electronic course literature more than the undergraduates did, but it will require more analysis, particularly into possible differences between subject areas, before a conclusion could be made.

In the 2007 survey, both groups of students indicated that they preferred to use both electronic and printed study literature: 67 percent of the students from Bergen, and 56 percent of the students from Brasov replied “both” when asked for their preferences. However, the students in Brasov were more in favor of electronic study literature than those in Bergen – 18 percent of the Brasov students compared to 7 percent of the Bergen group. Landøy and Repanovici [2] speculated that Norwegian students might have tried electronic study literature and been disappointed, while Romanian students might have a more idealized view of the possibilities without having had access to electronic material to the same degree.

Today, however, with the initiative from the Ministry of Education and the Consortia of Academic Libraries, Romanian students have access to as many electronic resources as their Norwegian peers.

## 6 Conclusions and Recommendations

This study of Norwegian and Romanian students' course reading format preferences showed that students still are in favor of reading in print, even if there is a constant change of technology and learning environments. The respondents provided many comments that can help to understand the reasons for these preferences. While course literature (required reading, assigned reading) is only one of the document types that academic libraries supply to their patrons, it is still an important task, and we need to ask how the survey findings should influence the development of the library's collections.

Of course, libraries do not have the budget to supply all students with all their required readings. It also seems to be an assumption among the academic staff (especially among those who write text books) that students should purchase their study literature. So one way of looking at it is to say that course literature is not the library's concern, and leave it at that.

In Norway, all academic libraries acquire more and more electronic resources; many of them use up to 90 percent of their collection development budget for electronic materials. The latest national agreement between Kopinor, the Norwegian copyright holders' organization, and the Council of Universities and University Colleges allows academic institutions to compile electronic course material and to distribute it to their students. What does this mean for academic libraries? Will they become more involved in the distribution of study literature and assigned readings as well?

Libraries invest in electronic material for several reasons. It is accessible 24/7 when remote access has been established, far better than the library opening hours. It does not take shelf space either, freeing up space for student working stations or other activities. Many academic libraries find that the scholars expect electronic literature and have grown accustomed to having their academic information needs covered from their computers. There are added features like the possibility for note-taking or highlighting, and for electronic storage in reference management systems.

We saw from the responses from both Norwegian and Romanian students that while there were strong preferences for printed course literature and against readings in electronic format, there were qualifications to this picture of also expecting online access to required literature. Some students commented that their preferences depend on the aim of usage and on the length of the text. Others mentioned the convenience of the electronic format, in particular regarding a future retrieval of documents and for environmental aspects.

In other studies, among them one made by Repanovici and Landøy on a group of other students from Brasov and presented at ECIL2015, it is suggested that the students' preferences may be influenced by their level of familiarity with electronic documents. The students' acceptance of electronic study literature could increase when they are exposed to it through library training or information literacy courses. It also seems that students accept electronic course material more when the academic staff makes assigned readings in electronic format a sufficiently large part of the study literature lists.

For libraries, the findings of this study should be a starting point for discussing collection development policies. In particular, libraries should ask whether they need



to change policies that focus on electronic material when the students prefer print literature. Libraries are always talking about meeting users' needs, so should they follow students' preferences for print material or continue focusing on electronic documents? Libraries should also ask whether it is right to purchase mainly electronic literature when scientific studies tell us that most students learn and remember better from reading print material, a fact that also many respondents stated when commenting on the survey questions.

The survey findings and comments show as well that there seem to be a lack of skills for using and working with electronic documents, like highlighting text. Therefore, libraries should focus more on how to use and manage electronic resources when teaching students and they should raise awareness among academic staff for picking electronic versions of texts for course material.

More research will be needed to determine if there are particular groups of students that have special issues with print or electronic study literature, and to detect whether there are changes in the students' attitude following changes from print to electronic material in the course reading lists.

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