How to Explore Trends and Challenges
for Building Future Libraries

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Libraries need to use several different methods when determining the needs and wishes of students and academic patrons for future academic libraries and documentation centers. In this paper, the authors report findings from a survey in Romania and interviews in Norway, on what innovative issues students are imagining in future libraries. Among the trends students and academics are foreseeing are found green libraries, including green information literacy, bibliometrics/scientometrics, library as "home", makerspace (3D-printing) and libraries as centers for documentation, for academic writing and for other necessary skills.

Keywords: *academic libraries and documentation centres; library of the future; library users; surveys; interviews; Romania; Norway*

1. Introduction

Library planning and library development requires among other things the ability to acquire and sort input from stakeholders. In academic libraries the academic staff and the university leadership are certain stakeholders, but maybe even more relevant are the students. One of the issues with gathering input from students is how to get the most relevant information.

In this paper, the authors will pin-point some considerations that need to be done when deciding how to find students opinions. The actual issue is concentrated around students' needs and wishes from the university library. After some theoretical and methodological remarks, we will show in practice how we used two different methods to ask students in our locations: *Transilvania* University of Brasov, Romania, and University of Bergen Library, Norway.

Our starting point is that determining needs and wishes probably requires the use of several different methods. We wanted to take into consideration the needs from students for future academic libraries and documentation centres as they see it themselves, and we wondered what innovative issues students can imagine in future academic libraries.

As Connaway and Radford (2017 p. 30) puts it: "[...] researchers find it necessary to employ a variety of specific methodologies [...]".

From the literature (Matthews and Ross 2010; Grønmo 2017; Gran 2012) both interviews and surveys are good tools for exploring trends and challenges, and a combination of both tools is even better. We also knew from our experiences (Repanovici and Landøy 2007, 2014) that comparisons and benchmarking will yield an extra layer of information, essential for work with developing libraries. However, there were practical limitations to the implementation of a survey in the University of Bergen library, so we decided to try out a survey as method in Brasov, and

interviews in Bergen. This is why we did not employ both survey and interview in both locations.

2. Methodology

Matthews and Ross (2010), in *Research methods. A practical guide for the social sciences* distinguishes between the qualitative and quantitative approaches to finding and using data. There are several practical and theoretical differences between qualitative and quantitative approaches, but their main message is that the usage of method will depend on what kind of question is to be investigated; what subject is under scrutiny. Matthews and Ross are in favour of "mixed methods", where data gathered by one approach is used to augment data gathered by the other approach.

Similarily, Grønmo (2004 p. 128f) distinguishes between qualitative and quantitative data. Qualitative data has analytically descriptive research questions, while quantitative data replies to statistically generalising research questions. "Flexibility" is the norm for the methodological approach when using qualitative data, and "structure" for quantitative. A researcher using qualitative data will be closer and more sensitive to the data sources, while researching with quantitative data calls for distance and selectivity. When interpreting data the relevance is most important when using qualitative data, and precision when using quantitative (Grønmo 2017 p. 129).

From Matthews and Ross (2010) and Grønmo (2017) it is evident that both qualitative and quantitative approaches and methods have their advantages and disadvantages, and the main point is the planned usage.

Validity and reliability are central concepts in research, especially within quantitative surveys. Validity is defined as "the degree of applicability of the data for the research question", while reliability is defined as "trustworthiness of the data/data collection" (Grønmo 2017 p. 241f; Gran 2012 p. 42).

Validity is concerned with having the correct data in relation to the research questions, while reliability, on the other hand, is concerned with proper data collection. In practical research validity and reliability may include several different aspects:

- Are the respondents the correct ones to be asked about the issue under investigation? Do they possess the knowledge the research is looking for?
- Are the questions formulated properly, so that they elicit answers to the research questions, and not something else? Are they valid?
- Are the data collected and treated in the appropriate way? Are they reliable?
- Is there sufficient flexibility to allow for other research questions that turn up in the process, to be investigated as well? (Gran 2012 p. 42)

In our practical work with acquiring data on students' views on future academic libraries and their perceptions of their needs, we decided to try a survey in one location, and interviews in the other, as described earlier. In the background was our belief, based on Grønmo, Gran and Matthews and Ross, that surveys are good for larger amount of data that can be analyzed statistically. However, they are not very flexible, although they may include open questions, and as such gain a bit more flexibility. On the other hand, interviews are better for in-depth data collections. Interviews, however, are time consuming for the researcher, and may be very flexible. They can also allow a close interaction between interviewer and interviewee.

The two methods can be seen as complimentary, and this was one of the reasons we wanted to try both as an experiment.

2.1 Survey in Romania

As put forward by Grønmo, Gran and Matthews and Ross, surveys are well suited to gathering of large amounts of data, and to get simple, straightforward responses to questions. However, this is depending on how well thought-out the questions in the form are. In our case, we decided to ask about prospective services under three headings: The learning centre; Centre for technological transfer and Centre for documentation and use of information. Under each heading we grouped the services belonging to these aspects of the academic library, and the respondents would then rate how important they found the services on a scale from one (least) to five (most). There was also an option of "other", to open for other services that the authors had not included in the original survey, but this was used only to a small extent.

The authors collaborated on the questions in the survey, which were then translated into Romanian and administered as a web survey through survey-monkey collector to all students from the specializations Mechatronics, Optometry and Medical Engineers from Product Design and Environment Faculty at *Transilvania* University.

There were 105 students responding: 27% male, 73% female. 39% were from first year and 43% forth year. 38% were between 18-21 years, while half were 22-23 years. 12% were over 24 years.

2.2 Interviews in Norway

The Norwegian part of the investigations for this paper took place at the University of Bergen Library in the spring of 2016.

As mentioned earlier, there were practical problems hindering a deployment of a survey in Bergen, but conducting interviews as a means of gathering data and information was possible. The interviews were part of discussions held with the student unions at the faculty level for Faculty of humanities and Faculty of social sciences, and also random students in the library.

12 students from different faculties, both at bachelors- and masters' level were interviewed about what they thought the university library should contain.

In the interviews, the students were one open question: "What do you think a university library should contain?" and one question with some options, but also including an open question "anything else?" The second part of the interview consisted of their comments in the form of "yes, I would use/no, I would not use" to a list of different items that could be found in a library. The list was made from similar items in the survey in Romania. However, as several of the new trends suggested for the Romanians already are implemented in Bergen, the list was shorter. These are the items that were only in the Brasov list:

- Connection to electricity, internet connection;

- Access to the databases to which the university has a subscription;

- Online tutorials on accessing information;

- Access to software for automatically generating a bibliography;

- Copy and printing devices, scanners;

- Online documentation for downloading and using the available licenses and software;

- Online communication with a specialized support IT centre for any technological issues that may arise.

Typically, the interviewer did not comment at the responses given to the first open question, but just made notes of what was said. For the second question, there were some explanations for the terms used, but the full flexibility of the interview situation was not used. This was deliberate, to

gather the students' own impressions and not interfere from the interviewer's own point of view.

There were 5 male and 7 female students interviewed, 3 from bachelor and 9 from master level. 8 from Faculty of humanities, 3 from Social Sciences and 1 from Law, and all were users of the library. They were invited to participate in the interview, and rewarded with a coffee from the library coffee shop.

In addition to the data used in this paper, the interviews also contained other suggestions for the Library for the humanities that were implemented (or in one case not implemented) in 2016 and 2017.

3. Results

The SurveyMonkey program (and other similar software) allows for immediate and systematic presentation of results from surveys in tables or figures of different kind, typically in the form of percentages instead of actual numbers. It also lets the researcher combine responses to more than one question in the same table. This can facilitate uncovering of deeper conjunctions; if one group of students (for ex. 4th year level) are systematically more interested in one feature.

On the other hand, interview-based research will typically have quite small amounts of data, and tables will be made manually by the researcher. More often, though, the interview responses will be presented in plain text and with actual numbers instead of percentages.

Another issue when it comes to the results from two different libraries in separate countries is how to present data from each library: All results from each library together, or as comparisons on each set of questions? In this paper we decided to compare on each set of questions, as we imagine this will yield the most interesting results.

Findings

In this research we were looking for what the students saw as new and interesting trends in academic libraries, and their perceived needs and wishes, in Brasov, Romania and Bergen, Norway. In the survey the suggestions were formulated in the questions, while in the interviews there were some pre-formulated suggestions based on the same lists as the survey.

Comparisons

One set of questions concerned what we called "The learning centre" in the library.

Table 1. *Responses from students in* Transilvania *University of Brasov to the question* Which of the following facilities should be provided by the Learning Centre. Responses 1 to 5, *where 1 is "least required" and 5 is "most required"*

Which of the following facilities should be provided by the Learning Centre, on a scale from 1-5, where 1 - least, 5 - most							
Answer Options	1	2	3	4	5	Rating average	Response count
Furniture - tables and chairs - which can be moved	1	7	25	35	37	3,95	105
Mobile walls to create various private spaces for individual or team study	8	15	32	25	25	3,42	105
Boards, video projectors connected to laptops for video projectors connected to laptops for presentation	3	1	9	19	73	4,50	105
Connection to electricity, internet connection	1	0	4	7	93	4,82	105
Others							1
						answered question	105
						skipped question	0

The students in Brasov were asked about what facilities should be provided by the learning centre, and gave "connections to electricity, internet connection" as the most desired, followed by "boards,

video projectors connected to laptops for presentation", "furniture - tables and chairs which can be moved" and "mobile walls to create various private spaces for individual or team study" as least interesting. We can see the same order when we look at the responses with "5" or "most".

From the Bergen students we see that all 12 would use "boards, video projectors connected to laptops for presentations", and half (6) would use "furniture - tables and chairs - which can be moved" and "mobile walls to create various private spaces for individual or team study". Interestingly, internet and electricity is not mentioned, and we think that this is because it is considered fundamental by students in a Norwegian academic library.

Table 2. *Responses from students in* Transilvania *University of Brasov to the question* Which of the following facilities should be provided by the Centre for Technological Transfer? *Responses 1 to 5, where 1 is "least required" and 5 is "most required"*

Which of the following facilities should be provided by the Centre for Technological Transfer on a scale from 1 to 5, where 1 - least important, 5 - most important?							
Answer Options	1	2	3	4	5	Rating average	Response count
An area with 3D printers, supplies and related software	2	1	20	32	49	4,20	104
Gaming space - Lego, chess for stimulating creativity	7	17	34	29	17	3,31	104
Copy and printing devices, scanners	0	2	8	26	69	4,54	105
Laptops and mass-media technology for tomorrow	0	5	12	30	58	4,34	105
Online documentation regarding the use of the	0	4	29	35	35	3,98	103
Online documentation for downloading and using the licences that university bought access to	1	4	15	28	55	4,28	103
Online communication with a specialized support IT	1	7	12	38	46	4,16	104
Training courses for using the various technologies	0	3	15	37	50	4,28	105
Exhibitions of new products by different companies	2	6	19	32	46	4,09	105
Workshops on various topics of interest	0	4	13	26	62	4,39	105
Others							2
						answered question	105
						skipped question	0

Another set of questions dealt with the idea of a "Centre for technological transfer" in the library.

The Brasov students found "copy and printing devices, scanners" as most interesting, followed by "workshops on various topics of interest". They also would like "training courses for using the various technologies", and "online documentation for downloading and using the licences that university bought access to". "Gaming space - Lego, chess for stimulating creativity" was least interesting, and we can see in the table that this item received the most responses of "1 - least important", "2" and "3").

In the University of Bergen Library copy and printing devices with scanners are already implemented as standard equipment, and therefore was not on the list of suggestions in the interviews. However, 11 of the respondents were interested in attending "exhibitions of new products by different companies acting in the industry of our specialization". As the main group of students came from the humanities, there was certain insecurity about what this could be, and "book fair" was given as one example from the interviewer. One of the students mentioned that this had to be subject-relevant, and another said that it should not be advertising.

A majority of the Bergen students (7 of 12) agreed that "Lego, chess, GO for stimulating creativity", "photo and film cameras for borrowing" and "training courses for using the various technologies" would be of interesting. Only 25% (4 students) were interested in trying "3D printers, supplies and related software".

Other items that were mentioned in the interviews relating to this heading: Art exhibitions;

newspaper archives digitally available on a big screen; exhibiting older material and fiction; shorter practical and inspirational workshops from the professors or the library staff.

When asked about what would be the most important feature of the University library, the students from *Transilvania* University of Brasov rated "Centre for documentation and use of information" highest.

Table 3. *Responses from students at* Transilvania *University of Brasov to the question* How important are the following facilities? *Responses 1 to 5, where 1 is "least important" and 5 is "most important"*

INFORMATION COMMONS will include three centres: learning, documentation and use of information resources, and technological transfer by software and equipments. On a scale from 1 to 5, where 1 - least important, 5 - most important, how important are?							
Answer Options	1	2	3	4	5	Rating average	Response count
Learning centre	0	4	12	33	55	4,34	104
Centre for documentation and use of information	0	0	5	28	70	4,63	103
Centre for technological transfer	0	1	14	47	42	4,25	104
Comments							2
						answered question	105
						skipped question	0

And the Norwegian students agreed. "Relevant books, journals, media, databases (both printed and electronic)" were mentioned by all 12 students, "study spaces in different kinds of zones (more or less quiet; with or without computer)" by 9 and "accommodating and knowledgeable library staff" by 8.

In the open part of the interviews, the 12 Bergen students had a wide range of requirements for the university library. The requirements differed quite significantly between the students. Half of them stated that they would take the library as they know it as their starting point, but still, there was a difference in what was mentioned.

Table 4 gives an overview of future library requirements mentioned in the interviews.

Table 4. *Future library requirements mentioned in interviews with students from University of Bergen*

Item	Mentioned by number of students
Relevant books, journals, media, databases (both printed and electronic)	12
Study spaces in different kinds of zones (more or less quiet; with or without computer)	9
Accommodating and knowledgeable library staff	8
Newspapers	5
Group study rooms	4
Inter Library Loan services also for students	3
Computers/printers/scanners	3
Coffee shop	3
Events (book launches, debates etc)	2
Reference works	2
Trainings and instructions	2
Water fountain	1
Chat	1
DVDs also for leisure	1

The very traditional item of "resources" was mentioned by all.

4. Conclusions

- Both interviews and surveys are good tools for exploring trends and challenges for building future libraries from the student point of view, and a combination of both tools is even better. Comparisons and bench marking will yield an extra layer of information for developing libraries. Practical limitations where the reason why we did not employ both surveys and interviews in both locations.

- Our Bergen and Brasov students are traditional and don't have a lot of imagination when it comes to suggestions for new services, but are enthusiastic when we suggest.

- There are differences in what they prefer.

- We suspect that the differences originate in different existing services in the two libraries, but it can also be caused by them studying different subjects.

Note

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References

Connaway, L.S. and Radford, M. (2017) *Research methods in library and information science*, 6th ed., Santa Barbara, California: Libraries Unlimited.

Gran, T. (2012) *Vitenskap i praksis : Metoder i forskning på harde og sosiale fakta* [*Research in practice: Methods in research on hard and social facts*], Oslo: Abstrakt.

Grønmo, S. (2017) *Samfunnsvitenskapelige metoder* [*Methods in Social Sciences*], Bergen: Fagbokforl.

Matthews, B. and Ross, L. (2010) *Research methods : A practical guide for the social sciences*, Harlow: Pearson Longman.

Repanovici, A. and Landoy, A. (2014) Digital Library in a Collaborative Context: Romania and Norway 2003-2012, in Chakraborty, S. & Das, A. (eds.), *Collaboration in International and Comparative Librarianship*, Hershey, PA: IGI Global, pp. 257-272, available: https://doi.org/10.4018/978-1-4666-4365-9.ch021.

Repanovici, A. and Landoy, A. (2007) Information literacy applied on electronic resources, practices from Brasov, Romania and Bergen, Norway, in *Proceedings of the World Library and Information Congress: 73rd IFLA General Conference 2007*, Durban, South Africa: IFLA, available: http://hdl.handle.net/1956/3522 [accessed August 1, 2018].