

How to improve an Open Access Books collection's considering user's demands

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Abstract

In modern Libraries one of the most important offered services is the ability for users to use open access books' collection to satisfy their needs and expectations. The improvement procedure of an open access books collection needs specific attention as it is fact that is a vital issue of a modern Library.

This particular work tries to show how Librarians can consider user's demands to improve efficiently an open access books collection. It describes the way of collecting data about user's demands, how can be analyzed properly and how can be considered by Librarians when they try to improve an existed open access books collection or to build a new one. User demands can be applied from respective surveys that can be applied in many ways.

This paper shows the proper ways of conducting surveys for estimation of user's demands. Furthermore it describes a way of collecting users' requests about Open Access Books and finally the methodology combines above information for helping Librarians to build a final priority list of Open Access Books that can be acquired. The goal of presented study is to help Library decision

makers to take right decisions about what actions can do to improve efficiently “open access books collection” in their Library Organization.

Keywords: User needs, open access, book collection, data analysis, decision making, library management, collection management.

1. Introduction

Services will be offered or improved in a Library depend on several factors. One of the most important is users' preferences. All decision makers have to take in mind these preferences as they are expressing not only users' needs but also trends and demands. Collection in the Library is a very important factor that can affect users' satisfaction. If a user believes that the collection meets his needs and expectations can say that Library is good and offers good services in this section. However the evaluation and improvement of collection (e.g. open access books collection) is a major issue and concerns every person that is involved in a Library's Organization Management.

It is fact that Libraries are changing their role in information society as they are changing their initial pattern in order to follow the new demands that are arising. Before some decades we were speaking about Libraries and now we are speaking about Digital Libraries. The classical methods for information and knowledge provision and dissemination are giving their positions to new methods. It is the time where Libraries are implementing and supporting ways for making their services accessible for anyone and from everywhere. It is the time where Libraries are trying to change or improve their collections in order to be openly accessible (Open Access in knowledge). According to all mentioned it is fact that one of the most important things in a Library is Open Access Books Collection it manages.

An important issue is the way this Collection will be improved and kept up-to-date. To do this decision makers and collection developers in a Library have to choose what subjects have to be improved and what factors they will consider to do it?

It is fact that various methods have been used to develop book collections in general, in academic libraries for some time (Enger, 2009). Most academic libraries bring faculty members into the selection process, drawing on their subject expertise in designing a collection and relying on them to represent their research interests through journal

selection and book purchases (Ameen & Haider, 2007). However in a lot of cases faculty members don't help enough in this process because of time they can spend as they have many duties and responsibilities. The curriculum is often also examined and reflected upon before purchasing materials. Collection development librarians examine syllabi and course catalogs, or meet regularly with academic departments to determine the material needed by faculty and students in carrying out the curriculum and meeting course requirements (D.A. Smith, 2008). Librarians may conduct use studies using focus groups or surveys to determine local faculty and student needs or to compare purchases with circulation or interlibrary loan activities (Wallace & Van Fleet, 2001). Through reference and instruction activities, librarians may learn directly what is needed in the collection from interaction with students. The collection, therefore, is developed largely on the local needs of individual campuses (Schmidt, 2004).

In large research universities, blanket orders and approval plans may be established to directly order all of the books in one particular area, or from one publisher. Another common method for collection development is the use of book selection aids such as the American Library Association's Choice, Publishers Weekly, the New York Times Book Review, or Library Journal (Evans, 2000).

While all of these methods contribute to design strong academic library collections, any particular academic collection may represent local user needs at certain points in time throughout the development of the collection, without truly reflecting the disciplines that are represented in the collection. Periodically, the collection may be analyzed to discover existing gaps. When academic collections are evaluated retrospectively, they may show that essential materials representing a discipline are missing. "Materials are selected by different people over a long period of time. Librarians may vary in their conceptions of the general principles of selection" (Curley & Broderick, 1985, p. 297).

Few collection management strategies are applicable across academic libraries; most academic library selection procedures are primarily based on local user needs. Universal and standardized methods of selection that successfully anticipate patron needs would be of great value to those charged with collection development.

Osburn (1983) suggested: A very strong argument could be made that the theory of librarianship does reside in an undiscovered theory of collection development and that

the tardiness of the profession to address collection development matters per se is directly responsible for its inability thus far to arrive at a satisfactory theory of librarianship (p.176).

Another method that Enger (2009) suggests is based on citation analysis. While citation analysis has been used extensively to manage journal collections, it has not been used to develop book collections. It is, however, one measurable way to effectively manage them. Using citation analysis to develop core book collections in academic libraries is discipline centered and goes beyond the walls of individual libraries to include material discussed by scholars in the academic literature. Using citation analysis, then, is most relevant to academic library collections that represent a wide spectrum of disciplines and whose collections are centered on scholarship, as opposed to public or special library collections. Citation analysis gives selectors a tool to recognize important works in a field. However there are a lot of cases where citation analysis in books collection can't be applied: a lot of Libraries don't have the appropriate databases for consulting in citation analysis of books or don't have the necessary staff to do it.

So, another approach has to be examined to evaluate books collection and in our case open access books collection in a simple way in order to be used from everyone in a Library Organization apart from specific knowledge skill and huge staff experience.

Academic libraries build on existing knowledge and bring collections forward. A method has to be adopted in order to provide a baseline for collection management, ensuring that the ideas represented in the scholarly literature are reflected in the college or university library collection. This particular work describes all necessary data resources that can be used to evaluate a Library's open access book collection focused not only in quantitative measures but also in users' needs and demands.

2. Cost, User's demands and satisfaction

It is fact that a modern library, apart from its role (Academic, Public etc.) has to cover a wide range of knowledge subjects that must satisfy not only scholar and education needs but also a set of other specific needs. For example an Academic Library that belongs to a Technical University must not has only books about Sciences, Mathematics etc. but also books about literature, arts, history, medicine. Alike an Academic Library that belongs to

a social science University has to enrich its collection with books about Sciences, Computers and Mathematics. In recent days readers have a wide range of interests and this fact applies directly to their demands from a Library. The degree of coverage of all these additional subjects depends on several factors. The most important are: the allocated budget that Library has every year, the users' satisfaction of existing material in open access book's collection and the demands and expectations of users' about subjects are covered by this collection.

As mentioned it is very important to give the opportunity to users for accessing book material through Internet. So, it is very important for a Library to have the ability to offer access to digital content and open access books. As offered services about books changed dramatically last years and new opportunities for accessing books remotely (electronic books-open access books) is very important Library to focus in development of open access books collection. If we want to answer the major question: "*Why open access books?*" we can give a lot of answer that are expressing the main advantages of them:

- Cost of purchasing : It is fact the an open access book (e-book) is cheaper even 30% of printed
- Easily and rapidly access, extremely less storage space
- Libraries have the potential to store much more information, simply because digital information requires very little physical space to contain it. As such, the cost of maintaining a digital library is much lower than that of a traditional library
- No physical boundary of reading a book. The Library's user need not to go to the library physically
- Round the clock availability. People can gain access 24/7 to the Open Access Books' Collection
- Multiple access. The same book resources can be used simultaneously by more than one users according of course to relevant copyrights and digital rights of the Open Access material
- Fast delivery. An Open Access e-book can be obtained in Library's collection in a few minutes

- Information retrieval. The user is able to use any search term (word, phrase, title, name, subject) to search the entire book in a simple movement
- Preservation and conservation. It is extremely simpler to preserve and conserve an e-book instead of a printed book
- Space. Whereas traditional libraries are limited by storage space, now libraries have the potential to store much more information, simply because digital information requires very little physical space to contain them and media storage technologies are more affordable than ever before.
- Added value. Certain characteristics of objects, primarily the quality of images, may be improved. Digitization can enhance legibility and remove visible flaws such as stains and discoloration
- There are a lot of actions and initiatives about Open Access and especially about Open Access Books (*e.g. Open Access Publishing in European Networks (OAPEN)*)

From above mentioned reasons it is obvious that the importance of open access books collection will start to be vital in a Library Organization and will be a main factor of offering modern and quality services to users.

However, another major question could be “what we can use to find all the necessary information about book collection quality and especially about open access book collection?” We can basically consider that the term “quality” means if collection accomplishes all users’ demands. So, one of the major resources we have to use are collected data from surveys about users judgments for “books’ collection” quality. It is very important periodic surveys to be conducted in order to examine users’ opinions and evaluate their satisfaction for all offered services. In these surveys a specific topic must be included about their judgment for books’ collection. It is a very important information source as it is directly connected with Library’s “customer”, that is user.

User’s satisfaction, demands and expectations can be evaluated and measured by methods that can be applied directly from Library. Specifically users’ satisfaction can be measured from data collected by surveys that have to be conducted at least every year. For this purpose it is necessary to make questionnaires that have appropriate questions in order to receive their opinions about books collection of the Library. A questions like

“Are you satisfied from subjects covered from open access book’s collection? If not select what subjects have to be enriched with new titles in order to be satisfied?” After this question a full list of all subjects (Science, Literature, Fine Arts etc.) has to present in order to be easy for user to select. This way is a direct way of estimating coverage of subjects in Library according to users’ judgments. It is very important to notice that if periodic surveys are conducted it is easy to find also trends of users about their demands in subject coverage of book’s collection (Meletiou, 2010). These trends can also help significantly to decide about improvement and enrichment of book’s collection.

After collection of data from surveys we can analyze them using a lot of methods, either statistical or better using multicriteria methods. A method of evaluating users’ satisfaction about a service is described by Meletiou (Meletiou, 2010) and uses non-parametric statistical techniques and multicriteria methods. Using this way we can obtain data that are referred to users opinions about open books collection and specifically to their judgments about what subjects need attention for improvement.

The next data source has to be the proposed lists of titles from the faculty or from librarians. In all modern Academic Libraries faculty plays a major role in collection creation and improvement as they have the most experience and knowledge about curriculum of the Academic Organization. In most cases Librarians are asking them to evaluate new titles and suggest how many of them have to be acquired in order to improve open access books collection. So, final book title lists that faculty give to Library are very important in proposed framework. More details about this procedure are giving in next chapter.

Finally, we are using allocated budget in proposed framework. Unfortunately allocated budget in most cases is a factor that it doesn’t depend on Library’s Organization but in University’s Organization decision makers and has to be respected and remained fixed. This criterion has to be combined with cost of every item. This means that in final lists of open access books material for acquisition, cost of every material is necessary to be noticed. This is the last criterion that can be applied to the lists that refer to open access book material that could be purchased and acquired.

3. Proposed Framework for collection's improvement

As mentioned, presented framework is applied to Academic Library of Technical University of Crete and we used the following data sources: Data from users' satisfaction surveys, proposed titles of open-access books that could be acquired and allocated budget to the Library for improving open-access books' collection. Our purpose is to combine and consider all above for making a final list that will define what titles will be purchased and acquired in order to improve Library's collection.

One of the most important facts is that the customers of a Library are its users and is crucial to be satisfied when are using from a Library's product, that is the knowledge it offers through material (collections) it has and acquires.

To estimate this satisfaction we are using results of relevant users' surveys about their satisfaction for coverage and completeness of Library's books collection. As mentioned, it is very important, periodical surveys to be conducted in order to evaluate not only the satisfaction and opinions of users about Library but also to find trends and demands. In our case study (Meletiou, 2010), a questionnaire was completed by Library's users and there were specific questions in it about the open access books collection. Specifically there were the following questions:

OPEN ACCESS BOOK COLLECTION: "Are you satisfied from subjects covered from open access book's collection?":

YES NO

"If your answer is NO, what subjects do you believe that have to be enriched with new titles in order to be satisfied?"

After this question, a detailed list of all relevant main subjects (e.g. Philosophy, Psychology, Science, History, Social Sciences and Technology) was existing. We used "Library of Congress Classification" to describe all main subjects and secondary subjects of an item. We can increase or reduce the list with main subjects or secondary subjects in order to be easy for user to select. This way is a direct way of estimating coverage of subjects in Library's open access books collection according to users' judgments.

In our case study the following table shows the satisfaction of users for specific subjects and the percentage value that shows how many of the survey users (percentage) are not

satisfied for specific subjects. These users believe that collection needs improvement in relevant subjects in order to satisfy their needs.

Subject	% of not satisfied users
Science: Computer Science	35,0%
Science: Chemistry	21,0%
Science: Mathematics	17,0%
Science: Physics	14,0%
Technology	32,0%
Philology and Linguistics	15,0%
Literature (general)	18,0%
History (general)	14,0%
Social Sciences	28,0%
Fine Arts	10,0%
Education	5,0%
Library Science	2,0%

According to results of the survey we found that 63% of the participated users were satisfied from open access book collection but 37% were not satisfied. It is possible users were not satisfied with more than one subject of the open access books collection. According to their judgments, all subjects of Table 3.1 have to be improved. For example, 28% of users that were not satisfied with collection believe that Social Arts Subject has to be improved. At this point we have to notice that it is very important the sample that participates in surveys to be relevant to the population of the University. For example if the students belong to department A are 25% of the population of the University then survey users that are students from department A has to be around 25% of the survey sample.

Using this way we can have a detailed ranking table about subjects that users believe need attention and improvement. Furthermore, we can define a threshold and focus in subjects that have values above it. Presented results can help Librarians to have a clear perspective what happens with user’s opinion about specific subjects of open access books collection.

The next data source we are using is the set of proposed titles made from faculty members or responsible Librarians for collection improvement. In our case an on-line web based system is responsible for collecting applications for acquisitions (order new titles requests). This system is accessible only by faculty (Professors and Teaching Staff) of the University Organization (by giving the appropriate credentials) and from Librarians that are responsible for collection's improvement. So, it is very easy for the Librarians to have any time a detailed list with proposed open-access book titles for purchasing. In most cases faculty is a group that plays the most important role in selection of book material (Ammen, K., & Haider, S.J., 2007). Librarians and specifically Collection Management Staff, takes in mind very seriously the faculty's requests for new titles orders.

At this point we have to notice that faculty must be well informed by booksellers/publishers for new editions and titles in order to be able to decide what books can use for their needs (educational or research). But this is also a responsibility of a Librarian to inform faculty for all new editions in every subject using either modern methods like Internet (email, alerting systems) or classical methods (post brochures or catalogues by mail).

Last factor we are using is the allocated budget for acquisition of new titles of open-access books. Unfortunately in most cases depends on external factors where Library is unable to be involved and is a constant value that is given form central authorities of the University Organization. In most cases Library accepts a standard amount of all its needs and has to allocate it in all cost centers (e.g. operational costs, database subscriptions, journals costs, reference and special collections costs, acquisition of new titles or collection's improvement). It is fact that like most academic institutions, budgetary limitations do not allow purchase of all desired materials. Thus, one of the initial imperatives of the Collection Development and Management position was to develop a rational materials budgeting process. While there are no written collection development policies in place, the Library's intent is to support the University's goals by collecting and maintaining materials in all formats at the appropriate depth and breadth to support the degree programs offered by each department and school. Deciding on how to allocate the material budget was no small task given that is the primary tool for collection

development; collecting priorities are necessarily reflected in the funds assigned to each academic department (Smith, 2008). In our case a method like PBA (Percentage based allocation) used in order to allocate initial budget that University Organization gives in Library at the beginning of the year, in all related cost centers that Library includes and in all Academic Departments that serves. So, a specific amount is allocated to improve open-access books collection and will be used in final decisions as will be described in next paragraphs.

The first step is to estimate a rank list with all subjects that will be involved in the procedure. To do this the factors have to be considered are:

1. The results that show the satisfaction of users, that is expresses the coverage of collection for each subject (Table 3.1)
2. The proposed title lists that are ranked and can be transformed in order to show subject of every requested title. So final rank list will have all requests classified by subject.

Proposed methodology considers that the most important factor is users' satisfaction. So the procedure starts by making a list that shows the priorities about the subjects will be focused and have to take more attention. Furthermore we are giving a score value in every subject according to its position in the lists. In our case Table 3.2 shows this ranking:

Subject	% of not satisfied users	Score
Science: Computer Science	35,0%	12
Technology	32,0%	11
Social Sciences	28,0%	10
Science: Chemistry	21,0%	9
Literature (general)	18,0%	8
Science: Mathematics	17,0%	7
Philology and Linguistics	15,0%	6
Science: Physics	14,0%	5
History (general)	14,0%	4
Fine Arts	10,0%	3
Education	5,0%	2
Library Science	2,0%	1

Table 3.2 Ranked table for satisfaction of users for each subject

Subjects that have biggest score need immediate attention. So, actions have to be focused on improvement of these subjects.

In next step we are considering the proposed lists about new title orders. We are merging all these lists and are making a final one that has the title, the subject and the cost of it. A typical table could be the following (Table 3.3):

Proposed Title	Subject	Cost
Applied Enhanced Oil Recovery	Technology	23 €
Blow Out prevention	Technology	32 €
Ground water pollution control	Technology	21 €
Knowledge engineering for expert systems	Technology	45 €
Operations management : a policy framework	Social Sciences	22 €
Flight stability and automatic control	Social Sciences	12 €
Fluid mechanics	Science: Physics	45 €
Solid state physics	Science: Physics	25 €
Advances in Evolutionary Algorithms	Science: Mathematics	45 €
Nonlinear phenomena in science and engineering	Science: Mathematics	67 €
Introduction to applied mathematics	Science: Mathematics	20 €
Computer Architecture	Science: Computer Science	22 €
The C++ programming language	Science: Computer Science	34 €
Operating Systems: Concepts and design	Science: Computer Science	13 €
Computer system architecture	Science: Computer Science	77 €
SQL Fundamentals	Science: Computer Science	30 €

Table 3.3. Typical table about new titles requests

By making a table like this we are able to have all requests and relevant information that will help the Collection Developers to have a perspective of all requests.

Next step refers to the decision of what percentage of this amount will be allocated for every subject of the books collection. So, we are considering the Table 3.2 that shows the results from Users' satisfaction surveys and we are using the score column that expresses the priority that we will use to decide about subjects' improvement. As it is known from Library's budget allocation the amount for acquisition of new open access books' titles (e-books) we are using it (in our case):

Initial budget allocated from University to Library for this year: 300.000€

Allocated budget from Library to "e-books Collection" improvement: 30.000€

To allocate the budget in every subject we are doing a normalization of ranking values to estimate the ratio of the budget to be allocated in every subject. For example to find the normalized value of “Technology” we do: $11/(12+10+9+8+7+6+5+4+3+2+1) = 0,1410$ that is 14,10%. So, the new tables will be the following:

Subject	% budget	amount
Science: Computer Science	15,38%	4.615 €
Technology	14,10%	4.231 €
Social Sciences	12,82%	3.846 €
Science: Chemistry	11,54%	3.462 €
Literature (general)	10,26%	3.077 €
Science: Mathematics	8,97%	2.692 €
Philology and Linguistics	7,69%	2.308 €
Science: Physics	6,41%	1.923 €
History (general)	5,13%	1.538 €
Fine Arts	3,85%	1.154 €
Education	2,56%	769 €
Library Science	1,28%	385 €

The last step is to decide from lists of requests what titles we will purchase according to above budget allocation tables. So, we are dividing the table with all requests for new titles in separate tables for every subject. As it is known the allocated amount that will be spent for every subject, it is easy to decide about the final list of new titles that will be acquired:

Proposed Title	Subject	Cost	Remaining amount	Initial amount
Applied Enhanced Oil Recovery	Technology	23 €	4.208 €	4.231 €
Blow Out prevention	Technology	32 €	4.176 €	
Ground water pollution control	Technology	21 €	4.155 €	
Knowledge engineering for expert systems	Technology	45 €	4.110 €	
Operations management : a policy framework	Social Sciences	22 €	3.824 €	3.846 €
Flight stability and automatic control	Social Sciences	12 €	3.812 €	
Fluid mechanics	Science: Physics	45 €	1.878 €	1.923 €
Solid state physics	Science: Physics	25 €	1.853 €	
Advances in Evolutionary Algorithms	Science: Mathematics	45 €	2.647 €	2.692 €
Nonlinear phenomena in science and engineering	Science: Mathematics	67 €	2.580 €	
Introduction to applied mathematics	Science: Mathematics	20 €	2.560 €	
Computer Architecture	Science: Computer Science	22 €	4.593 €	4.615 €
The C++ programming language	Science: Computer Science	34 €	4.559 €	
Operating Systems: Concepts and design	Science: Computer Science	13 €	4.546 €	
Computer system architecture	Science: Computer Science	77 €	4.469 €	
SQL Fundamentals	Science: Computer Science	30 €	4.439 €	

As it is known the allocated budget for every subject it is easy to decide the list of e-books to be acquired by subtracting from the remaining subject's amount the cost of book until amount will be 0€

Below there is a list of all necessary steps that described in proposed methodology:

1. Collect data from users' surveys about their satisfaction and demands about covered subjects in collection, analyze them and make a rank table with all subjects that users are not satisfied with. Put a score in every row.
2. Receive lists with requests for the acquisition of new open access books titles and put them in a single table by adding a column with cost of every item and the relevant subject of each one.

3. Estimate using budget allocation methods the amount will be used for improvement open access books collection.
4. Decide the amount that will be allocated in open access books collection's improvement
5. Normalize the rank table that shows the satisfaction and demands for every subject and allocate % of the budget to relevant subject
6. Considering the final budget allocation tables for each subject make the final selection of open access book titles will be acquired from relevant request lists.

4. Conclusions

Modern Library systems are giving the ability to collect all necessary data in order to find useful information about collection. All these data can be analyzed using a lot of tools and useful results can be presented to help Librarians to see what the weak points in books collection are and what they have to improve in it.

The main objective of the study presented in this paper was to demonstrate a framework and propose a methodology for improving Books Collection in a Library according to *Data from users' satisfaction surveys, proposed order lists from Faculty and Librarians for titles that could be acquired and Allocated budget to the Library.*

This particular work explained what the necessary data sources are and how data from them can be collected, analyzed and interpreted. It described in detail all necessary steps that have to be followed in order Collection Developer Librarian to be able to decide about the titles that has to be purchased. Proposed methodology gave a perspective of how a collection could be improved according not only to allocated budget and items costs but to users' satisfaction and demands, too.

Furthermore, it gave the ability to the decision maker to realize what are the subjects that need immediate attention and defined priorities that would be followed in order to manage an efficient and productive improvement of Open Access Books Collection.

However, the development of decision support system software tool may also be considered in order to further support the presented methodology.

The final purpose of this work is to make the exported information useful for decision makers and specifically Collection Developers in such way to help them in taking decisions and planning strategies and actions in order to improve the Books and E-Books Collection of Library Organization.

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