Relevance of the retrieval and use of information from the user standpoint of the Agronomy and Veterinary Library. Northeastern National University (Corrientes, Argentina)

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Abstract: In the traditional evaluation of information-retrieval systems, the relevance of a document is determined on a graded scale. At present, relevance is judged from the user's perspective. In this paper, the relevance is measured on documents that are used for any academic purpose by the users of the Agronomy and Veterinary Library of the Northeastern National University (Corrientes, Argentina). Users are specialized in both fields. We will focus on the relevance analysis of the documents obtained and used for different purposes according to their usefulness, originality, accuracy, clarity, authority, and updatedness. Spearman Coefficient Correlation has been used to determine the relationships between the variables. User types studied in the present paper are graduate and postgraduate students, researchers, academic teachers and external users. This study also shows the importance of each criterion to the general relevance of document from the user standpoint. It is believed that an adequate remote connection would permit a better, fluid access to online information resources and will reinforce the online information services by the library. It is also noted that users need a hardly instruction in the use of the available printed and online resources.

Keywords: Academic users; Agricultural and veterinary information; Argentina; Corrientes; Relevance criteria analysis; Retrieved documents; Spearman Coefficient Correlation; Users general relevance.

Relevancia de la información recuperada y utilizada desde el punto de vista del usuario de la Biblioteca Agropecuaria de la Universidad Nacional del Nordeste (Corrientes, Argentina)

Resumen: Se aborda el nivel de relevancia, desde la perspectiva de los usuarios, de la información obtenida para su uso final de la Biblioteca Agropecuaria (BAUNNE) de la Universidad Nacional del Nordeste de la República Argentina. El estudio se centra en el análisis de la relevancia de los documentos obtenidos y utilizados para distintos fines en función de distintas variables como su utilidad, originalidad, especificidad o precisión, claridad, autoridad y actualidad. Para determinar las relaciones entre las variables, se utilizó el Coeficiente de Correlación de Spearman. Los colectivos de usuarios que se estudian en el presente trabajo corresponden a los alumnos de grado, a los alumnos de posgrado de las maestrías, a los doctorandos de las distintas carreras y a los docentes e investigadores y usuarios externos a BAUNNE. Se muestra también la importancia que tiene cada uno de los criterios en la relevancia general dada por el usuario. Se cree necesario contar con una conexión remota adecuada la que permitirá un mejor y más fluído acceso virtual y optimizará el servicio en línea ofrecido por la biblioteca. Asimismo, resulta necesaria una más intensa instrucción del usuario en el uso de los recursos de la biblioteca.

Palabras clave: Argentina; Coeficiente de Correlación de Spearman; Corrientes; Criterios de la relevancia; Documentos recuperados; Información agropecuaria; Relevancia general del usuario; Usuarios académicos; Usuarios finales.

1 INTRODUCTION

From the cognitive perspective, the studies of Dervin (1992) and Caro Castro (2003) prove influential in terms of their conception of *Sense Making* –defined as the strategy of interpreting reality and making it logical, understandable, and meaningful for individuals— based on which the information neither makes sense nor has any meaning by itself, but rather meaning is given and determined by the user. Another researcher in this matter from a cognitive approach, Tom Wilson (1981; 2003; 2006), examines the behavior of the user faced with information, i.e. the user-system interaction. Wilson also developed a theory of the user conduct during a search and the use of the information retrieved, stating that this must be related to factors that generate cognitive and emotional needs in individuals and to their resulting objective-search behavior. This same direction is shared by Carol Kuhlthau, who, after several studies related to the psychological aspect of the information search, formulates what she calls the principle of uncertainty, which has been taken into account in later models of information systems designed on the basis of the cognitive model (Kulhthau, 1993).

Saracevic (1996) focuses on the need for information perceived by the user and on the way the user interacts with the information-retrieval system. Barry (1998), on the other hand, understands users from the cognitive standpoint, giving attention on the criteria used to determine the value judgments that lead users to

consider information relevant, or on the decisions that they must make at the time of obtaining or using the information.

Following Saracevic ideas, the research team led by Ruihua and Song (2011) suggests criteria for assessing the document relevance: authority, content quality in terms of seriousness, substance, currentness and usefulness. Also, these authors highlight the five basic types of relevance proposed by Saracevic (1996): 1) algorithmic relevance that describes the relation between the request and the obtained information; 2) the thematic or subject relevance that is, the relation between the expressed or demanded information and the scope of the retrieved documents; 3) the cognitive relevance means the relationship between the knowledge and the cognitive information that the user needs and the retrieved documents; 4) situational relevance, described by the relation between the information retrieved and the work or task being performed by the user and 5) motivational, affective and emotional relevance, which describes the relations between the needed or requested information and the goals, intentions, and the motivation of the user. Some of these types of relevance have been chosen for the present work.

In addition to the basic importance that the above studies have from the cognitive standpoint, there are other relevant concepts for the present work, such as those that focus on the topical/thematic, cognitive/pertinence, situational/utilitarian, and socio-cognitive relevance referred to below.

Studies by Spink et al. (1998) have demonstrated that the relevance dichotomy –whether or not a document is relevant— does not adequately describe the cognitive processes involved in the choice of documents as part of the information-search process.

Schamber (1994) defined relevance as the central, fundamental concept that explicitly or implicitly serves to evaluate the effectiveness of the information retrieval (IR), despite being a highly debated concept at present. Information use would encompass the relation between the issues of user information or need and the information obtained that could resolve the user's problem. Users express their viewpoint based on the criteria of the relevance that documents have for these purposes. Studies by Vakkari (2000) and Taylor (2009) focus on the empirical data collected and analyzed to apply the relevance criteria chosen by users during the stages of information searches. At these stages, the cognitive changes that occur during the search process and that should be considered in a more dynamic information retrieval system design are implicit.

Another important opinion in this regard is that of Harter (1992), who analyzed the concept of relevance from another perspective. This author has explored the implications of the psychological relevance in information retrieval in the assessment of information-retrieval systems, and in the concepts of information, need of information, and the information-search process. The psychological relevance enables us to discuss information needs and the cognitive context of an individual on consulting an IR system. The subjective information needs of a

given user determine the level of relevance of the information obtained from the system by that user.

The relevance of relevance: Among the various relevance definitions given by authors specilized in this topic, we have chosen the one's by Wang (2003:407) because it directly refers to the matter of this research: **"**Relevance is a major evaluation criterion; researchers in information seeking and use are interested in understanding how the users find and use relevant information for specific tasks at hand in various situations and contexts". In the present work, we analyze relevance from the user's viewpoint, defining this concept as any information that enables the user to find the desired, useful, and precise documents to resolve work in progress.

However, the importance of the concept has another side: the perceptions of users concerning the importance of the documents related to the information need —that is, the multidimensionality of relevance because it varies among users and the dynamics of relevance characterized by its variability or change through time (Schamber et al., 1990; Harter, 1992; Saracevic, 1996; Borlund, 2003; Salvador Oliván, 2008). These authors have considered relevance to be a term that adapts to the perspective of a real world applied to research in the information sciences. For this, judgments on relevance are defined as the process by which the user evaluates the document or the representation of the document, which could prove relevant or not for the user's information needs. Other studies on information seeking behavior focusing on different perspectives of relevance are given by Mizzaro (1997, 2003). Mizzaro gives a whole relevance history along three periods and inside each period the papers are analyzed under seven different aspects as follow: methodological foundations, different kinds of relevance, modes for expression of the relevance judgment, dynamic nature of relevance, types of document representation, agreement among different judges and this latest one the beyond-topical criteria adopted by users which represent the main topic of studying in this research. Four dimensions of relevance are also considered by Mizzaro: 1) information resources are built up by a) a document as a physical entity the user asks and obtains from an information retrieval system (IRS) when he/she searches information; b) the document representation in their different types built up by one or more elements such as the title, key words, author/s and the abstract, among others; and c) the information received by the user once he reads and analyzes. 2) the user problem representation when he needs information. 3) the document or the information which result relevant to the user demand and it is considered as a Perceived Information Need (PIN) o al Real Information Need (RIN) in a defined period of time and the dimension 4) the components which relates and integrates de first three.(Mizzaro, 2003)

From the opinion of several authors, synonyms of relevance concept are usefulness, quality, importance, credibility, etc.as it was mentioned in the

Introduction. All of them have impact on the relevance that the users assigned to the content of the documents. Criteria are merely subjective and the users are the ones that perceive and identify the different characteristics of the documents. The user representation in the information search and retrieval systems –how they demand, how they use the information and their reaction during the search- is another important characteristic of relevance (Caro-Castro, 2003).

Mizzaro (1997) and Saracevic (2007) firmly consider that relevance is a key in information sciences and in information retrieval. Researchers in information retrieval are concerned with the performance and design of IR systems for which relevance is a major evaluation criterion. Other authors have studied relevance from the point of view of the user (Belkin and Cool, 1990; Saracevic, 1995; Barry, 1998).

The study of relevance is one of the variables that could prove basic in order to determine the representation of the user in the information search and retrieval systems. The design and creation of these systems of integral information management require knowledge of user demands, of the use made of the information and, how the user behavior during the search (Caro-Castro, 2003).

Mizzaro (1997) and Saracevic (2007) claim to be certain that relevance has a key function in information sciences in general and in information retrieval in particular. Other authors have studied relevance from the vantage point of the user (Belkin and Cool, 1990; Saracevic, 1995; Barry, 1998).

In the present work, we consider what is relevant for users in a set of documents retrieved to a particular question to the information system; that is, we are interested in understanding how the users find, identify and use relevant information for specific tasks at hand.

It should be emphasized that in this study, we consider relevance in relation to the user, and therefore as a social and human cognitive phenomenon of some complexity.

The aim of this research is to study the degree of relevance of the information in documents retrieved from the Agronomy and Veterinary Library of the Northeastern National University from the standpoint of its users. Research reveals what is relevant to users. A set of documents is given in order for them to take into account in order to carry out specific tasks.

2 MATERIALS AND METHODS

Materials

The universe or the studied population on which is intended to generalize the results of this study are the actual users of the Agronomy and Veterinary Library of the Northeastern National University in Argentina (BAUNNE). Data were taken from BAUNNE's database records where four users strata have been determined as it will be detailed in the Methodology.

Users categorization

According to the above mentioned data, the studied population is composed of two main groups:

- Internal (intramural) users, such is the case of undergraduates, master and PhD students, professors and researchers in their role of users of information in Agronomy and Veterinary Sciences.
- External (extramural) users from outside BAUNNE and/or the University, as project managers, university extension managers, etc.

Methodology

General methodological characteristics of the research

A quantitative and qualitative analysis was undertaken in order to conduct this research.

a) A descriptive-exploratory study was carried out. This approach helped in analyzing the user interactions with the system, identifying their categories and establishing the possible relations between the demanded documents and the level of relevance of the retrieved information.

b) It is a prospective study, since data were recorded while they were occurring. It is also a transversal research because the variables are collected once, at the same time and simultaneously. (Hernández Sampieri, 1998)

c) The stratified random sampling was used because *users* had gradients in their definition. This population is subdivided in strata which show a certain variability been of great value at the time of determine the final sample. Its distribution in strata allows a more representative sampling because of its variability. In this research, the finally identified four groups of users (undergraduates, teachers-researchers-postagraduate students, interdisciplinary users and specialized users) are considered as strata. (Di Rienzo, 2008).

Identification of the users

Firstly, the group of the studied users was identified. Data from users have been obtained from the printed and electronic records of BAUNNE. Then, data from each user group were obtained. Finally, these data were classified in different homogeneous groups according with their provenance and/or their institutional role.

Determining the population sampling size and statistical analysis

It was conducted a stratified random sampling that it consisted of grouping the total population of individuals in categories of users or strata. Then we proceeded to select the sample using stratified random sampling within each stratum. Taking into account the population size, sampling size was determined using the

following formula for the finite populations that is known size/small populations (Morales Vallejo, 2009):

Figure 1. Sample size formula

$$n = \frac{N}{1 + \frac{e^2(N-1)}{z^2 pq}}$$

n = sample size that we wish to know.
N= known size of the population divided into 4 strata.
eL=margin of error allowed, given by the researcher (error between 3 and 8%)
z=confidence level, Z value, generally 95% or a=0,05
(i.e. Z=1,96).
p=proportion of responses in a category (probability of some success) 0,5.
q=proportion of responses in another category (probability of failure) 1-p.

The total population of users to November 2012 was 4.221. Taking into account the population size and following the formula in Fig.1 in Materials and Methods the sample size was finally 526 users. Obtained data are shown in Table 1.

Table 1. Categories, number of individuals per strata and sample size strata

Categories	Number of individuals per strata	Sample size Strata
Teachers/Researchers (inside users)	411	53
Postgraduates (inside users)	70	11
Undergraduates (inside users)	3665	451
Subtotal	**4146**	**515**
Outside Users	75	11
Total	**4221**	**526**

Two main groups have been identified: A) Internal users and B) External/Outside users. These two groups were in turn distributed proportionally in strata, as it can be seen in Table 1.

A) Inside or internal users, individual as well as institutional, from the academic environment under study that were later grouped in the following strata:

1. *Undergraduates*. Their behavior toward information is conditioned by the learning process. They come from central parts of the provinces of Chaco, Corrientes and others of the argentine areas of the northeast and in general, they belong to families with low incomes. They come from a region with deep cultural roots. They are interested in textbooks suggested by professors and texts issued by national veterinary and agricultural institutions. They have problems to read in another language than the Spanish and they are not much familiar with the Library online system, although they are gradually getting used to it.
2. Teachers, researchers and postgraduate students. They need comprehensive and very specialized information. These users are interested in agronomy and veterinary information and they prefer primary resources, mainly scientific journals, revision papers and online requests.

B) Outside or external users. They come from academic, governmental, and educational areas outside BAUNNE. They belong to two different segments:

1. The *interdisciplinary* users that hold interesting characteristics in their needs of information related to the field of agronomy and veterinary sciences, as members of research projects, teachers and students from other universities, and educational institutions at the level of elementary and secondary schools.
2. The *specialized users* as agronomy engineers, veterinarians, managers, consultants of consulting firms and technicians of agricultural sciences and related sciences without any institutional relationship with the university.

External users are few and this is the reason by which are not stratified in Table 1. Despite its numerical under-representation, they were included in the present research for their important and permanent contributions to the academic activities performed during the interaction with the institution.

We use two online questionnaires for collecting data from May to August 2013.During this period, questionnaires have been sent twice because some of them were not answered and others have returned with error. Questionnaires have been designed to

determine on one hand, user satisfaction and on the other, the general relevance of the information retrieved which is displayed in the Anex section. At the same time, the obtained results were also used to improve the quality of the bibliographical services offered by BAUNNE.

The first questionnaire was devoted to know the level of satisfaction of users with the search and retrieval services of BAUNNE. It consisted of sixteen questions. Most of them were multi options and some others open questions. The

second questionnaire that included nine questions had the purpose of determining the relevance of the requested documents according to the users' viewpoint in order to improve the information retrieval service. The aim of this survey is to determine the relevance in relation to the user and therefore as a social and human cognitive phenomenon. It is about the latest time the user has read a document for academic use. It was also asked to mention the web site if he/she has read an online document. Both questionnaires included instructions to facilitate responses and to eliminate possible misunderstandings. In the same way, the different numerical options to answer the questions were explained. For instance, the rank goes from 1 (least important) to 5 (most important). In the case that you are not sure about the answer respond NS/NC (I do not know/No comment). Confidentiality was also guaranteed.

A partial example of the relevance questionnaire –questions 3, 4, 6 and 9-, is given on Fig.2. though it is a part of a major study being demonstrated in the Relevance survey questionnaire given below. Questionnaires were distributed by email to the selected users according to the sample size formula mentioned above. Users responded the on line questionnaire after they had an academic assignment to carry out. Users answered questions included in the survey after they read the documents previously retrieved from the system. It is noted that most of the academic moments belong to postgraduates, academicians and researchers but moments develop by graduate students are also included because of their active participation in the survey. On behalf, BAUNNE assists to everyone in their information demands in spite of the way of preference, postgraduates prefer the virtual way while graduates students have demonstrated their trend of personal librarian assistance.

Figure 2. Questions taken from the on line questionnaire of Relevance which direct the present work

3. Do you think you would use this document to do your final work. Mark your response. No……Yes……..Do not know/No comments	
4. If the response to point 3 was affirmative, please score from 1 (least important) to 5 (most important) the criteria that led to your answer for its:	
Usefulness	Represented in the analysis by **X**
Originality	Represented in the analysis by **Y**
Accuracy	Represented in the analysis by **Z**
Clarity	Represented in the analysis by **AB**
Authority	Represented in the analysis by **AC**
Updatedness	Represented in the analysis by **AD**
6) At what stage of the work are you? Choosing a particular topic. Formulating the aims/purposes. Writing to publish. Preparing exams. Writing a project. Competitive evaluation. Writing a thesis. Preparing a final presentation, thesis defense. Tutoring. Other (Please explain)	Represented in the analysis by **AN**
9. Finally, score the general level of relevance of the information obtained for the use desired. **1. 2. 3. 4. 5.**	

Tools used to process data

Spearman's correlation coefficient (rs) is used for ordinal data and enables an evaluation of the correlation between two variables. The correlation values vary between -1 (strong and inverse associations) and 1 (strong and direct associations). When the values approach 0, it is assumed that there is no such association between the two variables. In the present work, we used the Spearman correlation coefficient to determine the relations between the variables.

Of the statistical packages available, we have chosen the software INFOSTAT due to its ductility and because it allows the application of the above named coefficient.

The *multivariable analysis* (MA) is a set of statistical and mathematical methods to analyze, describe, and interpret the multidimensional observations; the statistical material that comes from the observation of more than one variable. For some authors, the purpose of MA is to measure, explain, or predict the degree of relation between variables. Thus, in this research the MA was used with a wide scope that is, no multivariate technique was used and the information treatment was done from a whole variable sight.

The information treatment and the discussion were analyzed from a multivariate perspective though correlations are evaluated every each two variables, a graphic shows all the pairs of analyzed variables.

Variables considered in this analysis

For the present study, the following variables or criteria are considered:

a) Document relevance from the user standpoint

The relevance of retrieved documents is measured using the following variables: usefulness, originality, accuracy, clarity, authority, and updatedness of the documents obtained and used by users for different purposes. Users have assigned a given level of relevance to the information retrieved from each used document.

b) Relevance in relation with the current user academic moments

This study has also considered the different academic tasks or activities that users were involved in at the moment of the search and information retrieval. These moments are as follow: competitive evaluation for teachers, thesis defense, final work, writing to publish (original papers), preparing exams, formulating objectives or aims, writing projects, selecting a topic for an exam, preparing practical work, a presentation or defense, writing a project, among others, and writing a thesis. These data were taken from the online questionnaire.

3 RESULTS AND DISCUSSION

In coincidence with Majid y Anwar (2000) as Kuruppu and Gruber (2006), results show that BAUNNE's users are interested in agronomy and veterinary issues. Their preferences for these documents and their needs to be assisted in searches online, allow us to define with much precision their information needs. Specialized data base access, rarely occurs because they are not renewed due to the national politic decisions that prohibit external purchases in foreign currency. On the other hand, postgraduates have free access to the Electronic Library of the

Ministry of Science and Technology of Argentina that provides useful information though in most areas, results are scarcely found.

We also have the external user who asks for general information in order to give technical and scientific advises to governmental institutions, writing reports, proceedings, manuals and extension projects, among others.

Identification of relevance

As it was said in the Methodology, the relevance was measured in terms of usefulness, originality, accuracy, clarity, authority and updatedness. Users have evaluated these criteria and they have also perceived and identified them in the document at hand. Thus, Dervin (1992) and Caro Castro (2003) have referred to this fact when the *Sense Making* highlights the perspective that the information neither makes sense nor has any meaning by itself, but rather meaning is given and determined by the user. These same criteria were in turn related to the moment or activity in which users were involved at the moment of the searching and retrieving information in coincidence with one of the four dimensions of relevance given by Mizzaro (2003). This author states that the document or the information result relevant to the user demand and it is considered as a Perceived Information Need (PIN) or a Real Information Need (RIN) in a defined period of time. This perspective, coincide with that of Harter's (1992) who has analyzed the concept of relevance from the psychological information which enables our users to discuss information needs and the cognitive context of an individual at the moment of consulting an information retrieval system.

Results will show only 8 of the 10 options included in the questionnaires. The reason is that two of them (Tutoring and Others), have obtained no answer.

Strata sample size was 526 though 483 (92%) were the answered questionnaire. Figure 3 shows that, of the total of 483 questionnaires answered, the *general relevance* of the information used for academic purposes was evaluated as very high (83% assessed very high relevance and satisfactory relevance), while the 0.1% and 15% considered the information obtained of little or medium relevance. Documents that were requested by the users who responded to the online questionnaires came from searches made by library employees, from the existing collections as well as from the search service and electronic transmission of documents in addition to the interlibrary loans.

The general relevance that users attribute to the information available in the studied library corresponds to variable 9 of the questionnaire. The highest values scored were between 3 and 5 (Table 2).

Figure 3. Opinion of the respondents concerning general relevance of the information

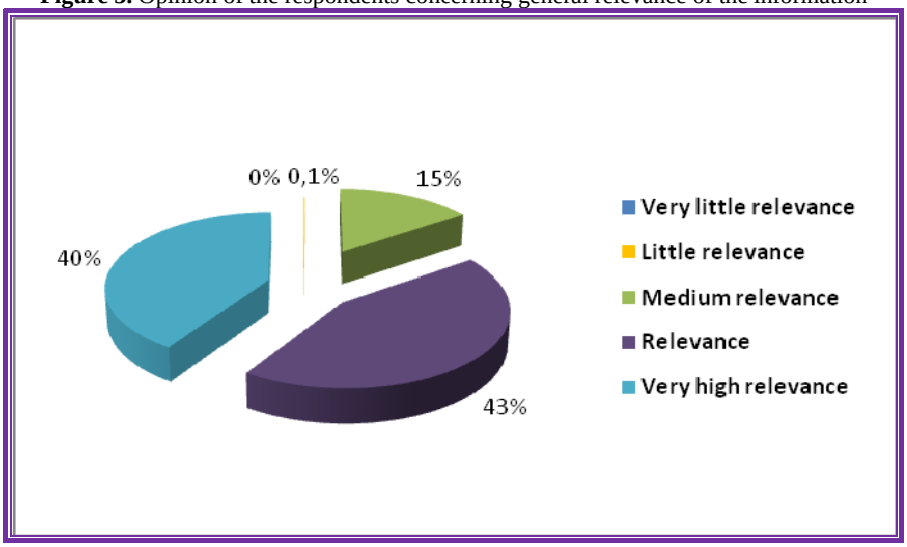


Table 2. Evaluation and total percentage of the general relevance

Variable	C	AF	RF
9	1	1	0.03
9	2	6	0.01
9	3	73	0.15
9	4	210	0.43
9	5	193	0.40
Total		483	

Class or Categories (C represents the scores given by users to the general relevance)

Absolute Frequency (AF)

Relative Frequency (RF)

Variable 9: General relevance

Results of data analysis in the present paper show that the variable relevance (p=valor <0.0001) is positively influenced by the selected criteria of usefulness, originality, accuracy, clarity and authority. Users considered that these parameters contributed to the general perception of relevance of the retrieved documents in order to fulfill actual tasks. This viewpoint was focused by Saracevic (1996) and Barry (1998) when they determine the need for information perception by the users eventhough their cognitive standpoint in order to determine the value judgments that lead users in the right moment they consider an information as relevant at the time of obtaining or using the information for different purposes.

Thus, the information obtained was of great help for their purposes, either for its original content and the scientific and technical interests, for its level of thematic specificity, for the clarity in the development and transmission of knowledge or for the authority and intellectual note of the author or authors of the works in the scientific community.

A low score received the criterion updatedness of the information compared to the rest. The perception that emerges is that if there were unrestricted access to the titles of the periodical publications and the online books of greater use and weight in agricultural disciplines, the values given for the relevance in relation to currentness could be higher. This should go accompanied not only by the availability of technological resources in good functioning state but, above all, by an adequate remote connection that would permit the fluid access to virtual information resources.(Figure 4)

Figure 4. Spearman correlation coefficient. Relations of general relevance (AQ) of the information: the criteria usefulness (X), originality (Y), accuracy (Z), clarity (AB), authority (AC), updatedness (AD) and academic moments (AN).

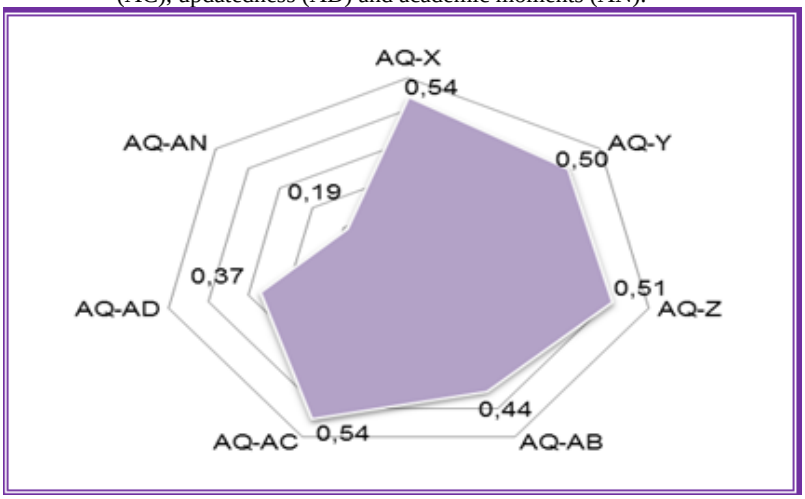


Table 3 shows the Spearman correlation coefficient and the p-value indicates a relation between the general relevance and the criteria affecting relevance. We found a rather low relation (0.19%) among the variables *relevance* (AQ) and the documents read that would be used in the academic activity under way (AN: preparing exams, writing to publish, among others).The p-value (<0.0001) indicates a relation between the two variables (AQ and AN)

Table 3. Spearman correlation coefficient. Relations of general relevance (AQ) of the information: the criteria usefulness (X), originality (Y), accuracy (Z), clarity (AB), authority(AC), updatedness (AD) and academic stages (AN).

General relevance	Criteria	N	Spearman	p-value
AQ	X	338	0.54	<0.0001
AQ	Y	315	0.50	<0.0001
AQ	Z	336	0.51	<0.0001
AQ	AB	329	0.44	<0.0001
AQ	AC	364	0.54	<0.0001
AQ	AD	346	0.37	<0.0001
AQ	AN	407	0.19	<0.0001

As noted above, the criteria been considered to find out the levels of relevance were related to the academic and others tasks undergone by the users at the moment of retrieving information. This means that Table 3 also shows the importance of each criterion to the general relevance of document from the user standpoint. Thus, we have X (usefulness) and AC (authority) with the highest coefficient 0.54 which means that they both are the most important criteria for the user to consider that a document is relevant. In order of importance, it follows Y (originality) y Z (accuracy related with precision or specificity) with the coefficients 0.50 and 0.51 and at last, data related with AB (clarity) with the coefficient 0.44 and 0.37 for AD (updatedness).

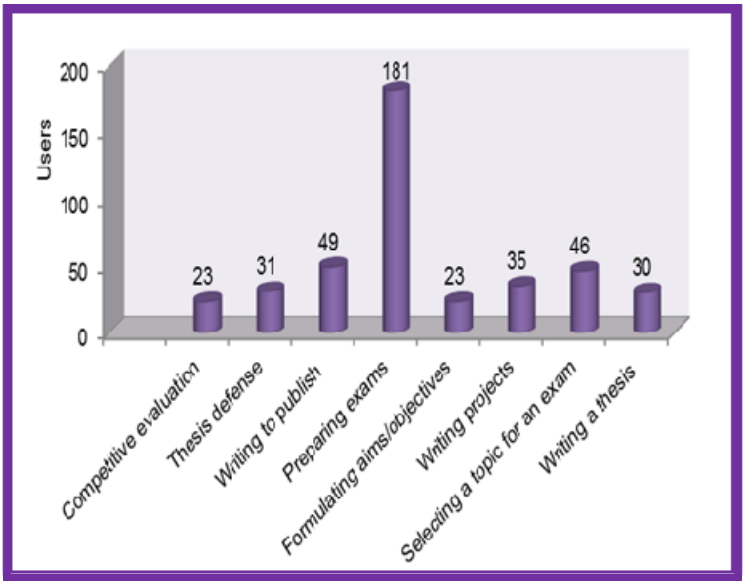
The dynamic nature of relevance. As it is known, relevance is dynamic and multi-faceted. This has been demonstrated by Schamber (1994) and Vakkari (2000) in different groups of users pursuing various activities. It was observed that the users made different judgments on the relevance of the documents used, depending on the context and the time. That is, a document may be considered more or less relevant during the initial research phase, while the same document may not be considered relevant in a later phase of the research. Another case refers to considering information as hardly relevant to write a research project but very relevant to write an extension project or to prepare a class or a presentation.

Tasks that users were involved in when searching information are shown in Fig. 5. It can be seen that competitive evaluation for academicians received 23 responses; thesis defense, final work, etc. received 31; writing to publish (original papers), 49; preparing exams, 181; formulating objectives or aims, 23; writing projects, 35; choosing a particular topic, preparing practical work, a presentation or defense, selecting a topic for an exam, 46; and writing a thesis 30. It reflects that most users were seeking information in order to prepare exams and to write papers. On the other hand, we should also mention, the quest for information

needed for competitive evaluation, for preparing a Master's thesis or a PhD dissertation, for writing a research project or an extension project thereof, or else for selecting a topic for a class, to present a dissertation, among other purposes.

Activities in which users were involved at the time of the search that match a high general relevance from their perspective are preparing exams and writing to publish.

Figure 5. Stage of different academic moments of the user



4 CONCLUSIONS

In the present study, we have analysed the relevance of documents retrieved by BAUNNE users to perform and to resolve current academic and research tasks. Relevance is here considered from the standpoint of the user that is, the user-oriented in contrast with the system-oriented. We have arrived at the following conclusions in spite of some current strengths and weaknesses:

A) In regards to BAUNNE users

We have found a formula to reduce the high number of actual users (4.221) to a sample size (526) that has facilitated the development of this study. Users could also been identified according to their involvement with the Northeastern National University at Corrientes, Argentina. So, we can conclude that BAUNNE has two main groups: internal users, which in turn could be classified in teachers/researchers, postgraduates and undergraduates, and external users who are grouped into two classes: specialized and interdisciplinary.

It has been possible to identify users' preferences for the information sources used, these being primary information resources, mainly books, journals and reviews.

Regarding the users' information needs, we have found that internal users need information related to the tasks that they are involved at the time of a search. That is, preparing exams, writing to publish a paper, writing PhD thesis and preparing research projects, among others. On the other hand, external users ask for general information in order to give technical and scientific advices to governmental institutions, writing reports, proceedings, manuals and extension projects, among others. On top of this, there are two sectors that are clearly differentiated when they ask for information: undergraduates ask for rapid responses with adequate usability, and teachers/researchers look for an in depth, accurate information.

B) In regards to the relevance

A major strength of this study is the satisfaction of users regarding the high relevance of the documents retrieved to fulfill their tasks, taking into account that 83% of the respondents consider that the retrieved documents are relevant (40%) or very high relevant (43%). We believe that the assistance provided to users by the librarian staff has positively influenced the high level of general relevance detected.

Criteria that have been used in this study to know which aspects can influence the general relevance (usefulness, originality, accuracy, clarity and authority) are perceived by users as important. They considered that these parameters contributed to their perception of general relevance of the retrieved documents On the other hand, these criteria have an unequal weight for users. Out of the seven criteria used, X (usefulness) and AC (authority) got the highest coefficient (0.54). A current weaknesses is the lower score obtained by updatedness (AD) shows in Figure 5. Other found weaknesses is the online information services offered by the library to all users not only the virtual one which is directed to researchers, academicians and posgraduates. We believe that an adequate remote connection would permit a better, fluid access to online information resources. By now and due to the national governmental politics of commercial restrictions, it is not possible to purchase neither books nor on line journals. This situation, badly affects the library service even the users behavior during searching and retrieving information. On the other hand, users need a better instruction on how to handle databases and other electronic resources on Agronomy and Veterinary Sciences, as well as those been available in the Electronic Library of the Science and Technology Ministery of Argentina.

A relevant relationship between the criteria used and the academic moments in which users are involved at the moment of the search, are determined. Our

aim in a future work is to relate each criterion to each academic moment of the users in order to identify possible modifications of the importance of each criterion in relation to the academic moments of users.

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ANEX

ONLINE QUESTIONNAIRE 2 (translated version) ABOUT THE RELEVANCE

In order to improve the information retrieval service offered by the Agronomy and Veterinary Library (BAUNNE) from the National Northeasten University (UNNE), we are carrying on this study to determine the relevance user judgment given to the information available in different supports and formats and eventhough, the use they do of this information.

Relevance is here defined as any relevant information that allows the user the desire, useful and precise documents to use in the current academic moment or task.

Thus, we would very much appreciate if you answer the following questions considering THE LAST TIME YOU HAVE READ AN ACADEMIC DOCUMENT and the RELEVANCE you give to it. If you answer for an electronic document, please mention the web site. Confidentiality is also guaranteed and we are grateful for your spent time.

1. From the documents offered by BAUNNE, indicate which one or ones you have read for your current task. Please, rank from 1 (least important) to 5 (most important). In the case that you are not sure about the answer respond NS/NC (I do not know/No comment).

1.1) Book 1 2 3 4 5
1.2) Data base 1 2 3 4 5
1.3) Monograph 1 2 3 4 5
1.4) Final graduate production 1 2 3 4 5
1.5) Printed journal 1 2 3 4 5
1.6) On line journal 1 2 3 4 5
1.7) Minor thesis 1 2 3 4 5
1.8) Thesis 1 2 3 4 5
1.9) Final professional production 1 2 3 4 5
1.10) Subject tutorial 1 2 3 4 5
1.11) Others (e.g. collection of books, journals, etc.)

2. Mention the bibliographic reference of the chosen document.
First author:
Abbreviated title (book, article, etc):
Journal Title:
Congress or Meeting Denomination:
Year:
Volumen:
Number:
Pages:
Web site:

3. Do you think you would use this document to do your final work. Mark your response.

No Yes Do not know/No comment

4. If the response to point 3 was affirmative, please score from 1 (less important) to 5 (most important) the criteria that led to your answer for its:

Usefulness 1 2 3 4 5
Originality 1 2 3 4 5
Accuracy 1 2 3 4 5
Clarity 1 2 3 4 5
Authority 1 2 3 4 5
Updatedness 1 2 3 4 5
Other reasons (Explain):

5. If the answer to question 3 was negative, please point from 1 (less important) to 5 (most important) the reasons why you do not use this document in your final work. Because of its less:

Usefulness. 1 2 3 4 5
Originality. 1 2 3 4 5
Accuracy. 1 2 3 4 5
Clarity. 1 2 3 4 5
Authority. 1 2 3 4 5
Updataness.1 2 3 4 5
Other reasons (Explain):

6) At what stage of the work are you?
Choosing a particular topic.
Formulating the aims/purposes.
Writing to publish.
Preparing exams.
Writing a project.
Competitive evaluation.
Writing a thesis.
Preparing a final presentation, thesis defense.
Tutoring.
Other (Please explain)

7. Explain what part of the document have told you that it would be of your interest before reading it completly.

The title.
The abstract.
Key words.
Informal comments.
Other Option/s.
None

8. ¿How do you feel when writting and eading english?

No Yes NR/NA

9. Finally, score the general level of relevance of the information obtained for the use desired.
1. 2. 3. 4. 5.

SUGGESTIONS
Comment and/or suggest a proposal of improvement in relation with BAUNNE.UNNE.

Thank you very much for your good willingness!!!