Information behavior of the academic community of FMVZ-UNAM

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Abstract

During 2010, at the Facultad de Medicina Veterinaria y Zootecnia of the Universidad

Nacional Autónoma de México (FMVZ-UNAM) we analyzed the influence of metadata over

its website according to the search engines used by the academic community. This

document serves only the second specific objective of the research: to know the academic

profile, the informative behavior and the veterinary information needs of the academic

community of the FMVZ-UNAM. The methodological tool was the design and implementation

of an online survey. We received 215 responses, two thirds answered academic staff, the

rest, undergraduate and postgraduate students. In relation to information behavior, an

Internet-usage index was developed, with which it was determined that 64 % of this

community uses four or five information services on the Internet, This means that the

network is widely used to seek information and as communication media. This community

search for more veterinary information related to dogs, dairy cattle and sheep, compared

to other animal species; while animal welfare, zoonosis and molecular biology are the

topics of greatest interest.

Keywords: information behavior; veterinary information needs; online survey

Introduction

Advances in Information and Communication Technologies (ICT) and mass access to the Internet have promoted the development of new tools and applications that influence the way information is generated, exchanged and stored. In the face of the huge increase in content on the Internet, of multiple origins, two actors have emerged in parallel: searchengines and users.

The purpose of search-engines is to find the most effective method for extracting relevant data from large volumes of information. The user-searches are a dynamic and interactive process that starts from an initial exploration through intuitive interfaces. It is important to remember that information is not a primary need —as it is food, water, shelter, among other—. While the person knows well what is essential for his survival, in the case of information, the user does not necessarily know what he wants; moreover, it is intangible, visceral, unknown and even unspecific.⁽¹⁾

From the perspective of the information behavior of individuals, that is, the set of facts that manifest themselves in the search and retrieval of information on the Internet, it has been found that 80 % of searches on the Internet are made through search-engines; it is also estimated that 95 % of internet traffic is due to the use of these search tools. When users view results pages, most only check the first ten results. Only 1 % reach the third page. (2)

Users' information needs and information behavior change over time and are strongly influenced by their academic preparation. In its evolutionary process, humanity has always moved in search of satisfying its needs to adapt to the surrounding environment. Today, access to information in a timely, suitable, relevant and accurate manner impacts on the development of society; satisfying its need for information allows it to have the elements to approach knowledge, which allows a better interaction with the environment and its society compared to a situation of ignorance.⁽³⁾

In Mexico, the work of educational organizations strengthens national identity; on the basis of the first article of the *Ley Orgánica de la Universidad Nacional de México*, these organizations make fundamental contributions on national conditions and problems, and spread the benefits of culture. (4) This is why these types of organizations are committed to adapting themselves in an analytical and coherent manner to the new processes of information generation, transfer and use. (5)

A key factor for community development is access to information, hence the imperative to manage it, whose fundamental objective is to know the information that is held and follow up with the resources that will impact the development of those communities.⁽⁶⁾

In 2010 in the FMVZ-UNAM we conducted a research on the influence of metadata on the visibility of its websites. Here, we show the fulfillment of the second specific objective, in which we investigate the profile of the academic community, its informative behavior and its information needs on the internet, by analyzing the results of the application of the online survey designed specifically for research (Annex 1)¹. The academic community of the FMVZ-UNAM is made up of undergraduate and postgraduate students and academic staff, that carries out teaching and research activities or specific and systematic tasks of the academic programs.

Material and methods

For the process of designing and adapting the survey, we advised staff of the Educational Guidance and Mentoring Department; for the programming, implementation on a server and collecting the responses of the online survey, the Computer department participated; for the terminological analysis of the answers, we advised with a specialist in scientific writing of the *Veterinaria México* journal

¹ The text of the survey is presented in its original language.

Online survey

Procedure for the online survey

- 1. Designing the information scheme to know the profile of the academic community of the FMVZ-UNAM that search for veterinary information on the internet. It was determined that it was necessary to know the academic level, his main activity within the faculty, the animal species of his interest and his specialty in veterinary medicine and zootechnics. In relation to its informative behavior: what are the main uses of the Internet?, what search-engines are used to locate veterinary information? How does the user set out their search strategies? and what does the user do with the results that the search tool delivers?
- 2. Exploratory study. First, we submitted the battery of questions to the scrutiny of some members of the academic community, asking them to tell us if the questions were intelligible and if the objective of knowing the profile and the informative behavior of the community was covered. Then, with the advice of the Department of Educational Guidance and Mentoring of the FMVZ-UNAM specialized in survey development, the questions were adjusted.
- 3. Implementation of the online survey. The FMVZ-UNAM network infrastructure was used to launch the online survey, which would optimize time and resources, achieve greater outreach and immediate response; as well as, reduce errors in the capture of answers and maintain the confidentiality of information. In this process the resources were identified, for this, it was considered that the trend for the development of applications in institutions of higher education is the use of open source. The technological resources were the Apache version 2 web server, the PHP version 4 programming language and a database with the relational database management system Mysql version 5.

Based on the information scheme and considering the survey questions, a database was designed consisting of a series of tables, each corresponding to a survey question; this is because most of them have multiple answers.

Subsequently, the operation was tested locally. That is, it was checked on a personal computer to check the consistency and integrity of the responses that were stored in the local database. Once the tests were completed, the application was hosted on the FMVZ-UNAM intranet, that is, it was installed in a directory of the Faculty's server, the database was created on the server and the permissions were assigned to store the answers.

Then it was also checked that the application was working on the server, for this the access was confirmed and the integrity of the database was eventually released the application. Annex 1 shows the full text of the online survey in its original language.

Survey users

In order to encourage the FMVZ-UNAM academic community to respond to the online survey, support was sought from the Academic Secretariat, the Professional Studies Division and the Graduate Studies Division, bodies that provided updated e-mail lists of academic staff, undergraduate and postgraduate students. By e-mail, the academic community was invited to reply to the survey, were told that the aim was to learn about the search strategies used by the academic community of the Faculty to retrieve veterinary information via the internet and, that the result would be used in a research on visibility of the FMVZ-UNAM websites.

In the collection of responses, each of the tables in the response database was taken and exported to spreadsheets to be integrated into a single table.

Enquery

To know the information needs, we standardize the search strategies of question seven ("7.- Escriba uno o varios ejemplos que usted emplea para realizar sus búsquedas de

users could

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información en internet, see Annex 1). The question was configured so that users could respond with the words they usually use to search for veterinary information on the internet.

Given the diversity of forms that people proposes their search strategy, we begin with an orthographic revision in Spanish, for which we rely on the Dictionary of the Spanish Language (DRAE) and, for those raised in English, verified its correct writing with the Google translator (http://translate.google.com).

In order to suppress meaningless words of veterinary information (pronouns, articles, conjunctions, etc.) the grammatical nexus were removed. In strategies that contained references to an animal species, the name was left as a noun and in singular. It was joined with dash the words that constitute nominal phrase, for example, "cuerpolúteo", "fauna-silvestre", "tortuga-marina", "rural-development", "medicina-interna", "planta-medicinal". This was done because if each word of the nominal phrase were to be isolated, it would not give the expected meaning to the terminology of veterinary medicine and zootechnics; so, as suggested, the grammatical units of the whole acquire the required meaning.

On the other hand, the derivations (from plurals, adjectives, verbs) were converted to noun, for example: "parasitaria" and "parasitología", they remained as "parásito"; "virología", such "virus", "équido", such "equine", "ganado-bovino", such "bovino", "ganado-ovino" such "ovino". This standardization allowed word groups to have more frequency, rather than many infrequent word groups. At this stage, the thesaurus of the National Agricultural Library of the United States Department of Agriculture was used to standardize words.⁽⁷⁾

Categorizing the strategies

In accordance with the current Veterinary Medicine and Zootechnics curricula of the FMVZ-UNAM ⁽⁸⁾ and the academic training related to this area of knowledge of the

author, search strategies were categorized in the five generic work objects of the profession (Table 1), with the aim of obtaining fewer groups of strategies that could be more frequently.

Table 1. Generic working objects of veterinary medicine and zootechnics

Animal medicine and health
Livestock production and economy
Food quality and safety
Public health
Environmental protection and ecosystem care

Results

215 surveys and 351 standardized search strategies were obtained.

Profile

Sixty-three per cent of the respondents were academic staff of FMVZ-UNAM (Table 2), and the majority of them were post-graduate (Table 3).

Table 2. Question 1: Main academic activity in the Faculty

Total number of students	78	36 %
Total Academics	135	63 %
People who did not answer academic level or activity	2	1 %

Table 3. Question 2: Academic level

Total number of surveys	215
No level or activity answered	2
Academics who did not indicate their level	3
Number of undergraduate students	43
Postgraduate students	35
Academics with bachelor's degrees	23
Academics with bachelor's degrees	109

Information needs

According to the survey, there is a greater proportion of members of the FMVZ-UNAM academic community who are interested in or specialize in dogs, dairy cattle and sheep. The topics of greatest interest are animal welfare, zoonosis and molecular biology, while

those of least interest include equine gastroenterology, ornate-fish medicine and fish production.

From the 215 surveys, 351 search strategies were obtained and categorized by generic working objects of veterinary medicine and zootechnics. Table 4 shows the frequencies at which we classify search strategies, giving an idea that the most needed topic for information is animal health and medicine.

Table 4. Frequencies of the categorized strategies according to the generic objects of Veterinary medicine and zootechnics

Category	Working objects of veterinary medicine and zootechnics	Frequency
Α	Animal medicine and health	156
В	Livestock production and economy	113
С	Food quality and safety	10
D	Public health	26
E	Environmental protection and ecosystem care	46

Information behavior

For the diagnosis of the informative behavior of the academic community of the FMVZ-UAM in the search for veterinary information on the internet, we asked "3. You use the internet to". Seven options were offered; one or several of them could be selected:

- 1. Check your email account
- 2. Review the bibliography
- 3. Consultation of bibliographic databases
- 4. Visit sites of interest
- 5. Download programs and updates for my PC
- 6. I never use it
- 7. Other use of

Internet-use index by the FMVZ-UNAM community

In this research project, an Internet-use index was created to provide an overview of how much the academic community used the Internet. To this end, the options offered in question 3 of the survey are given the same importance and value = 1. Subsequently, values were added in each survey and with the additions in the options of this question

four categories were created for the index of use given to the internet: much, medium, little and not specified.

It was found that 64 % of the users who responded to the survey used the Internet extensively as they selected from four to five uses. 29 % make average use of the Internet (selected two or three of the options), 6 % use a little the Internet (selected one option), and only three surveys (1 %) did not specify whether or not to use the Internet. In no case was selected the option "I never use it".

On the other hand, Google is the most used search engine, and the search-engine is decisive for the user to enter a page. According to the answers to question 8, 140 of them selected the first option (the short description is appropriate to what you are searching for). The FMVZ-UNAM community has become accustomed to the use of these search tools, because it attends the data of the results page that the search-engine gives it, 114 users responded that they enter a page because they identified it as academic site.

In question 9 "From the results presented to you, the information most useful is because", 139 answers were for "I can get the full text". That is, an electronic page is useful for the user when it offers the facility to obtain the complete information of what is published, either because the resource is open access or because the computers from which the users connects to an editorial site, or because it belongs to a network with free access.

From question 10 "From the information presented to you by the search-engine, the one that DOES NOT COVER YOUR OBJECTIVE is because of"; 134 answered "They charge for having access to the full text". From question 11, "about On average, how many results appear in your search engine you enter?", it appears that the academic community of the FMVZ-UNAM reviews quite a few sites because of the search results pages 36 % visit more than ten results, and 31 %, between five and ten. Finally, most of this academic community tracks text and images.

Discussion

Educational organizations serve as providers of information and, in some way, organize their academic production, so they become research subjects in information management, as Kurtz ⁽⁹⁾ shows in his analysis of institutional repositories. These organizations generally have the task of disseminating their academic information, thus taking responsibility for processing, representing and storing it to ensure its availability and facilitate its access when needed, with which they fulfil their mission by contributing to social communication;⁽¹⁰⁾ in this regard, we consider that the FMVZ-UNAM, as an educational organization, should promote research on information management to influence dissemination policies, which would benefit its community by publicizing its academic output, as to whether the educational organization provides information to society; and as indicated in its accreditation page⁽¹¹⁾ in the constant evaluation process to which it is committed, it would continue to adhere to international quality standards.

Although requiring information is a secondary necessity, it is recommended that it would be contextualized on the basis of its meaning and scope in order to adapt the recovery systems to the interconnection of knowledge generated in educational organizations with the search for information.⁽¹⁾

According to Calva González⁽³⁾, the online survey is a resource to capture information and to be able to describe the profile, information needs and information behavior of a community; on the other hand, as stated by Hellriegel *et al.*⁽¹²⁾, surveys are a method of exploring the environment to value an organization's interests.

Conclussions

During the analysis of the academic profile, information behavior and veterinary information needs of this academic community, an indicator was created to estimate the internet-use index, which represented an opportunity to explore alternatives to evaluate the use of the Internet as a media of information search and communication.

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It is considered that the academic community of FMVZ-UNAM is accustomed to different communication resources available on the Internet, as a good number and quality of responses were obtained when they were invited to reply to the online survey via e-mail.

From this work, the profile of the FMVZ-UNAM community, its needs for veterinary information with specific interests and, in general, its informative behavior were better known. This enriched our professional experience, because it analyzed a reality in the face of the organizational policies to which most research in educational organizations is subjected.

Aknowledgements

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El objetivo de esta encuesta es conocer las estrategias de búsqueda que utiliza la comunidad académica de la FMVZ-UNAM en la recuperación de información veterinaria en internet. El resultado se empleará en una investigación sobre visibilidad de los sitios Web de nuestra Facultad lo que redundará en mejorar la calidad de servicios de internet para su comunidad académica.

IMPORTANTE: La encuesta es anónima.

1 Seleccione cual es el nivel academico que actualmente tiene o cursa				
0	Licenciatura			
	Diplomado			
	Especialidad			
	Maestría			
	Doctorado			
C	Posdoctorado			
C	Otra Especifique:			
2¿Cu	ál es su principal actividad académica en la Facultad?			
0	Alumno de la Facultad			
0	Alumno (Intercambio Académico)			
0	Profesor de carrera (Medio Tiempo)			
0	Profesor de carrera (Tiempo Completo)			
0	Profesor de asignatura			
0	Ayudante de Profesor (por horas)			
0	Ayudante de Profesor (Tiempo Completo)			
0	Técnico Académico			
0	Profesor (Intercambio Académico)			
0	Estancia Académica			

3Uste	ed utiliza internet, para					
	Revisar su cuenta de correo electrónico					
	Revisar bibliografía					
	Consulta de bases de datos bibliográficas					
	Visitar sitios de interés					
	Descargar programas y actualiza	acion	es para mi PC			
	Nunca lo uso					
	Otro uso Especifique:					
ا 4¿Qu	ié especies animales son las de su	ı inte	rés o en cuále	es es Usted especialista?		
		П		•		
	Abejas		Gatos			
	Aves de compañía			o tradicionales (hurón, iguanas, etc)		
	Aves de producción		Ovinos			
	Bovinos de carne		Peces de co			
	Bovinos de leche		Peces de or	nato		
	Caprinos		Perros			
	Conejos		Porcinos			
	Equinos		Venados			
	Fauna silvestre		Otra Espe	ecifique:		
5 - i Ou	ıé temas son los de su interés en	su hú	saueda de in	formación en internet?		
J¿Qu	ie temas som los de su interes en	su bu		iormacion en internet:		
	Acupuntura			Ciencias Médicas Básicas		
	Administración de clínicas y farmac	ias		Cirugía de grandes especies		
veterin				Cirugía de mascotas no tradicionales		
	Administración y economía pecuar			Cirugía de pequeñas especies		
	Alimentos orgánicos de origen anin	naı		Dermatología de pequeñas especies		
	Anestesiología			Desarrollo rural		
	Bienestar animal			Economía y administración		
	Bioética			Educación veterinaria y didáctica		
	Biología molecular			Enfermedades emergentes y re-emergente		
	Cardiología de pequeñas especies					

Epidemiología	Patologías no infecciosas
Etología	Prevención de enfermedades
Farmacología de grandes especies	Producción bovina en el altiplano
Farmacología de pequeñas especies	Producción bovina en el trópico
Gastroenterología de equinos	Producción caprina
Gastroenterología de pequeñas especies	Producción ovina
Genética	Producción piscícola
Geriatría y tanatología	Reproducción de bovinos
Homeopatía veterinaria	Reproducción de equinos
Imagenología (radiología y ultrasonido)	Reproducción de porcinos
Inmunología y vacunas	Reproducción de pequeñas especies
Legislación	Salud pública
Manejo y contención de fauna silvestre	Técnicas diagnósticas
Manejo de pastizales	Tecnologías de la información (cómputo)
Medicina alternativa	Toxicología clínica
Medicina de aves de compañía	Urgencias médicas y terapia intensiva
Medicina de fauna silvestre	Virología
Medicina de grandes especies	Zoonosis
Medicina de mascotas no tradicionales	Zootecnia canina y felina
Medicina de peces de ornato	Otra Especifique:
Medicina de pequeñas especies	
Medicina preventiva	
Microbiología	
Neurología de pequeñas especies	
Nutrición de monogástricos	
Nutrición de rumiantes	
Oftalmología	
Oncología	
Ortopedia	
Parasitología	
Patología de enfermedades infecciosas	

6¿Qu	é buscadores emplea para realizar sus búsquedas de información en internet?
	Excite
	Altavista
	Google
	MSN
	Yahoo
	Google scholar
	Otro Especifique:
7Escr	iba uno o varios ejemplos que Usted emplea para realizar sus búsquedas de información en et.
Ejen	nplo: Enfermedades toxico infecciosas de las aves [enter]
	▼
8 De (accesa	los resultados que le muestra el buscador, seleccione el motivo por el cuál decide activar
	Su breve descripción es apropiada a lo que busca
	Porque aparece en los primeros resultados
	Porque conoce el sitio
	Porque el sitio es de índole académico
	Porque el sitio proviene de un editor conocido
	Otro motivo Especifique:
9 De	la información que le presenta el buscador, la que le resulta útil es porque
	El sitio se actualiza constantemente
	Puedo obtener el texto completo
	El sitio mantiene comunicación con sus lectores
	Publican artículos de investigadores reconocidos

	El sitio tiene ligas de sitios relacionados a mi tema de investigación
	Otro motivo Especifique:
10 D€	e la información que le presenta el buscador, la que NO CUBRE SU OBJETIVO es porque
	La información del sitio no es vigente
	Cobran por tener acceso al texto completo
	Tiene publicidad comercial
	La información que presenta no está aprobada por comité editorial
	El sitio es muy confuso al desplegar su información
	El sitio está plagado de ventanas emergentes o tiene pornografía
	El sitio es inaccesible
	Otra causa Especifique:
Eغ11	n promedio a cuántos resultados que aparecen en su buscador entra?
C	Máximo 3
0	De 3 a 5
C	De 5 a 10
0	Más de 10
12 Se	eleccione qué tipo de información busca:
	Documentos de texto
	Presentaciones de diapositivas
	Videos
	Imágenes
	Otro tipo Especifique: