CREATING WEBPORTALS FOR ANIMAL HEALTH INFORMATION; EXPERIENCES AT THE ACADEMIC INFORMATION SERVICE, VETERINARY SCIENCE LIBRARY, UNIVERSITY OF PRETORIA

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INTRODUCTION AND BACKGROUND

The Faculty of Veterinary Science of the University of Pretoria is the only faculty in South Africa where students can qualify as veterinarians.
In recent years a new emphasis on production animals was introduced into the curriculum, reflecting the country's primary food needs, the importance of the production of safe food and through the control of diseases transmitted between animals and man, the health of humans.

The growing interest in goats and ostriches, the importance of poultry farming in the developing communities and the impact of the infectious diseases of production animals on the country's economy led the Service Unit Veterinary Science (the Veterinary Library) of the Academic Information Service (AIS) to create portals on these topics for the benefit of its primary user group as well as the wider community.

The Web is the perfect medium for these information products. The Faculty has up-to-date facilities for its computer-assisted teaching programs. The state-of-the-art computer laboratory is located next to the Library and all web-based teaching modules are available on the 120 workstations there as well as on any other computer on the campus including the Library as they are all linked to the Network.

We realised that these web products would not only be of use to the students at Onderstepoort as additional material to their lecture notes, but also to the wider community including farmers and school children working on assignments, and researchers worldwide. By placing these products on the Internet we would enable interested persons in any country to access them.

By including as much relevant material as possible (mainly through links to other websites on related matters) we would be adding value for our users and enabling easy one-stop searching.

DESCRIPTION OF SUBJECT GATEWAYS AND PORTALS

One of our four web products was first developed as a subject gateway whereas the others were planned from the start as webportals.

Subject gateways
Subjects gateways are tools that are designed to help users locate high quality Web resources in a particular subject area.

These resources are selected for their quality and accuracy by subject specialists/information specialists.
Subject gateways provide access to hand selected, evaluated Web resources, chosen by information professionals, or by lecturers in specific fields.
These Web resources are classified by the compiler of the gateway, allowing for both searching and browsing. They are grouped under headings making for easy searching

Webportals
A webportal is a web site that combines an array of content and provides a variety of services such as search engines, directories, news. They have evolved to provide a customisable gateway to Web information.
They offer integrated access to Internet academic resources and access to academic information
They enable the user to search Web-based information effectively
They support research and knowledge networks, enabling new knowledge to be created through Communities of Practice (COPs)
They also provide basic, reliable and relevant information at a primary level for example for new farmers and community outreach projects.
They can serve as a go-between for animal breeders in the rest of the world and the experts in this country (e.g. ostrich breeding, African goats)

Aspects that have to be considered when designing such portals include the following:
- The Need (the subject area to be covered should be relevant and appropriate for the intended audience)
- Audience (junior level interest such as primary school children, or more advanced, such as academic researchers or of tertiary education interest – these considerations will influence the type of material to be placed on the site.
- Level of information (what is the scope? Will the subject be covered superficially of will there be comprehensive coverage?)
- Partners/ cooperation (by enlisting the help of experts in the subject field being covered one will ensure the academic content is of high quality, for instance)
- Content (one must be certain that the subject content is relevant and appropriate for the intended audience, as described under the need as well)
- Design (the webportal should be appealing, clearly and logically presented.
- Access (The information should of course be accessible and the site easily navigable. It should be unencumbered by advertising and other diversions).

These portals can be enhanced by using facilities of the AIS Infoportal (UPportal) such as Virtual Groups, so that the information gathered and made accessible will not be static or become outdated. Members of these Virtual Groups share knowledge and expertise as they form a Community of Practice.

DESCRIPTION OF EACH WEB PRODUCT

AFRICAN GOATS (GOATWEB) www.ais.up.ac.za/vet/goatweb.htm
Background
The idea of a web portal for goat information started in 2002. At that stage web portals were not particularly new, because companies like Yahoo and Excite already

provided their users with the option to customise their sites with personalised information. As one of the lecturers of the Veterinary Faculty was actively involved in the establishment of the SADC-SRNET, the information specialist of this particular field decided to provide a customised subject-oriented portal for accessing goat information via a Web environment. The main purpose of the Southern African Development Community - Small Ruminant Network was to set up a regional network of communication between people involved in goat production, research and development in the SADC Region. This concept was widened at the Workshop in Malawi in 2002 to include sheep as well as goats. Each country will have its own local Network, and these will be linked across the Region. As libraries are a major force in the information market this was a huge opportunity for creating an innovative platform for the dissemination and preservation of existing information and the collecting of new knowledge regardless of format. The official African Goat web portal was launched on 1st September 2002.

Collaboration with lecturer and members
As the long-term goal of the African Goat Webportal (Goatweb) is to support teaching, learning and research at all levels, good communication between the information specialist, lecturer and other members of the SADC-SRNET – Small Ruminant Network group is essential.
The easiest means of communication between the members of the Network is via e-mail. As the information specialist is part of the e-mail address list, she is in an excellent position to recognise potential needs of the members and add new information to the portal. As the members realise the value of the portal for accessing information quickly, they become more cooperative in sharing their articles and tacit knowledge.

Structure of the website
The portal consists of 7 main areas of information**:**

- Conferences and papers on goats
  Information of future and past conferences held worldwide concerning goats. The organizing of conference announcements in one central place is time - saving as opposed to surfing the web to locate this information. Included in this section are also full-text electronic articles and proceedings made available by the lecturers and members. Currently 4 papers are retrievable in pdf-format. By linking of e-articles Goatweb emerged from a gateway to a knowledge portal as knowledge is shared and accumulated by individuals who have a shared interest in goats
- Links to goat websites
  Links to goat bibliographies, full-text books and journals, homepages of goat organizations and associations (African, South African and international ones) and access to various sources of general goat information that have been selected by the lecturers and members of the Network. The full-text books and journals are freely available via the Web in pdf or OpenBook format.
- Lists of African expertise on goats
  This section is divided in 2 subdivisions:
    1. State/Provincial goat research and development facilities
    2. Parastatal and University goat research and development facilities

It provides contact addresses of members who are actively involved in goat research. This is an important feature to provide high quality information by referring inquiries via the information specialist to people with expert knowledge on a particular subject. Tacit knowledge (known, but unexpressed) is made explicit to the inquirer when experiences are shared.

- Goat research centres / departments
  Information regarding goat research centres in South Africa with special reference to their field of expertise. This is an important feature for referring inquiries regarding artificial insemination, vaccination, performance recording, embryo-transfer and export services.
- South African goat associations / organizations
  Contact information about South African goat associations or organisations.
- Information on Southern African Development Community - Small Ruminant Network
  This section provides information about the SADC-SRNET, an applications form to become a member and 2 reports about the outbreak of foot-and-mouth disease in South Africa in the year 2000.
- Links to goat newsletters
  In this section the users have active links to the *IGA newsletter* (International Goat Association Newsletter) available online and *Goat News* from South Africa (pdf-format) that is distributed to members of SADC-SRNET via e-mail.

Marketing of Goatweb
Goatweb has been listed as a source of information in the following publications:
AFMA Matrix 2003 vol. 12 no.1, March 2003
Vetnews/Vetnuus October 2002

After evaluation the goat web page was added to the GADI website (Grootfontein Agricultural Development Institute) in 2002 as a valuable information resource.
The goat web page has been promoted to lecturers, veterinarians and readers of the following internal publications of the University of Pretoria:
OP News, Volume 2, no. 1 Winter 2002
OP News Volume 3, no.1 Winter 2003
Infomania, September 2001.

Goatweb was promoted in various presentations of the Service Unit Veterinary Science of the Academic Information Service and was also featured in displays.

Usage of Goatweb
Inquiries are received via e-mail. Requests about information vary from Angora goat leather, Savannah goat farming, Boer goat milk production, lactation length, and milk fat/ protein content and goat leather tanneries.
E-mail requests are received worldwide from places such as Peru and Texas.

Future plans
Gathering and provision of relevant goat information will still be the main priority of the information specialist concerning Goatweb. The information specialist and the users of the portal will do quality control on an ongoing basis of the selected resources as this will increase the value of the portal. The addition of an archive of

digital goat information resources e.g. slides will be considered. As copyright issues are involved in such a project it will be a complex process.

OSTRICH WEB   www.ais.up.ac.za/vet/newost.htm

Background
The economic importance of the ostrich industry was highlighted during the Avian flu outbreak on 2 farms in the Eastern Cape in August this year.
As reported in the Business section of the *Pretoria News* on 9 August 2004, the Manager of the SA Ostrich Business Chamber indicated that the ostrich export market is worthR1,2 billion.

We first became involved with the ostrich when we produced the *Ostrich Bibliography* to coincide with an Ostrich Conference that was held at the Faculty in 1993. We have updated this work twice since then. The interest in ostrich breeding worldwide made us realise that it would be worthwhile placing information about the topic on the Web.

Website development and collaboration with the lecturer
The audience we targeted comprises both academic and non-academic persons, such as ostrich breeders in rural areas, or school children working on assignments. So the sites we selected cover both academic as well as more basic information.
We did not collaborate with any specific lecturer as occurred with Goatweb as ostrich expertise is thinly spread over a range of lecturers at the Faculty at present.

The website consists of the following topics or sections:
- Associations
- Bibliography
- Books
- Conferences
- Diseases and health issues
- Full text articles
- List of experts
- Newsletters
- Ostrich journals
- Ostrich tourism
- Products
- Research centres
- Websites
- Welfare issues
- What's new?

The web content was dictated by the needs of users who had contacted us for ostrich information over the years.
Our list of topics grew to include not only basic farming information but where they could contact experts, or find information about associations they could join, etc.

E-articles: where possible we place full text articles on the site once permission has been obtained from the author. E-books are also linked if available.

The list of experts appears on the site and they are also registered on the Infoportal Virtual Group facility wherever possible, to enable them to communicate easily with each other in a safe, closed environment, sharing knowledge and expertise.

We included tourism and marketing of ostrich products on this site as the ostrich plays an important role in these areas.

Future plans
Future plans for Ostrichweb include scanning posters that have been presented at conferences and indexing them on the site, and publishing our Bibliography electronically on the site but charging for access by outside users.
The digitisation project of the AIS will include two 19th C. ostrich farming books, making them e-available for use by any researcher worldwide.

Some references from our latest update to the *Ostrich Bibliography* have been placed on the site, such as breeding, as we hoped this would be a clever marketing move, exposing users to this product and hopefully enticing them to buy the entire work.
It also helps us to answer their basic questions about breeding, for instance, quickly and easily.

POULTRY WEB   www.ais.up.ac.za/vet/poultry

Background
The poultry website was started due to the increasing number of requests we received for information on poultry farming.
Poultry production has been recognised as one of the tools for poverty reduction and contributes positively to the nutritional status of low-income farming communities in South Africa. For poultry production to be economically viable certain issues such as housing, disease control and prevention, supplementary feeding of poultry , marketing and product utilisation need to be addressed.
The information must therefore be provided for a low input / low output situation as well as for the high input / high output situation.

Website development
With the experience gained from Ostrichweb and the type of information requested by various outside users we started off with the following sections:
Associations
Here we list and provide access to poultry associations worldwide.
Books
A list of books to support poultry farming. Primarily books for the low to medium input/ output.
Conferences
List of previous as well as forthcoming conferences on poultry and associated issues.
Disease and Health Issues
Information and links to poultry health websites.
Full text articles.
This page provides links to electronically available articles as well as articles where we have copyright clearance for web publishing.
List of experts
This list will be kept up-to-date with the help of the head of the Poultry Section

Newsletters
A list of national and international newsletters
Poultry Journals
A list of printed as well as electronically published poultry journals
Research centres
This page lists national and international research centres with contact details
Websites
Links to other universities' poultry departments and also websites of interest to poultry workers.
Welfare Issues
Links addressing the basic needs of Poultry

Collaboration with the lecturer
It is important to involve the lecturer to assure the quality of the site. They also have a network of expert contacts who can be added to the page.

Future plans ?
After a recent meeting with the lecturer it was decided to expand the webportal to include a student area. This will include access to their poultry study guides, the poultry lecture notes, previous tests and exam papers , their poultry section calendar etcetera. While accessing their student area they will then be exposed to the wider poultry environment
With this poultry webportal we try to provide sustainable support to the development of all the aspects of poultry information and farming in South Africa.

ANIMAL INFECTIOUS DISEASES gateway/portal www.ais.up.ac.za/vet/infdis

Background
Animal Infectious Diseases Portal is a project developed by the Information Specialist of the Department of Veterinary Tropical Diseases of the Faculty of Veterinary Science, University of Pretoria. It started as merely a list of websites to assist students and staff of the Faculty in finding more scientific information on the various diseases without spending hours on the Internet.

In 2003 the Department of Veterinary Tropical Diseases, Faculty of Veterinary Science , University of Pretoria developed a new MSc degree. The degree programme is presented with the support of the Department of Production Animal Studies at the Faculty, the Veterinary Department of the Prince Leopold Institute for Tropical Medicine, Antwerpen, Belgium and the Department of Infectious Diseases and Immunology of the Faculty of Veterinary Medicine, University of Utrecht, The Netherlands.
The purpose of this qualification is as follows:
- To provide national and international learners from diverse backgrounds with knowledge, practical skills and the ability to apply these competencies in integrated animal health management, particularly at the livestock/wildlife/human interface
- To provide graduates who will be able to protect both the environment and biodiversity, and to promote animal health and community development
- To provide learners, particularly from the developed world where many of the important livestock diseases have been eradicated, with an awareness of the

continuous threat many of these diseases pose to their countries because of increased international travel by humans and trade in animals and animal products.

Website development and collaboration with the lecturer

This new degree opened new possibilities for the "List of websites" and so it was decided to expand the subject gateway and develop a webportal. Our goal in creating this site is to bring together some of the diverse international resources available on Infectious Diseases, not only on how they affect animals but their impact on human health as well.
We have only to recall the Mad Cow Disease outbreak in recent years in Britain to realise the severe economic and other implications of animal diseases. This was further demonstrated by the Bird Flu outbreak this year in Asia and its impact on our own ostrich industry. A report in *Nature* of 3 June 2004 mentions that the last major flu epidemic in 1918 which killed more than 40 million people worldwide was probably caused by a bird virus.

The portal contains over a hundred links to websites, documents and presentations devoted in the infectious diseases of animals. Content is selected in consultation with the lecturer responsible for these diseases. The following topics are included: Associations, Books, Conferences, Full text articles, List of experts, Newsletters, Journals, Research Centres, Websites, and What's new.

Future plans
In the future we intend placing more material on the site for students enrolled in this new degree such as past exam papers, e-theses, and the digitised slides of the Department. The telematic education specialists designing this new MSc course are also involved with our future development of this portal.

THE USE OF METADATA

Using metadata to make these web products as accessible as possible to users surfing the Internet is an essential aspect of ensuring their effective use.

By using metadata to describe the web page the quality of information retrieval is improved. Search engines usually locate suitable matches in the main body of the web page and often the result is hundreds of irrelevant hits. The function of metadata is to control how information is described and retrieved over the Internet. Considering these facts the information specialist decided to use the Dublin core Metadata Template provided by the Nordic Metadata Project to assign metadata to Goatweb for high quality retrieval (http://www.lub.lu.se/cgi-bin/nmdc.pl). After creating the metadata the meta tags were pasted into the HTML document between the <HEAD> < /HEAD> elements. Thereafter searches were done to test the results with the assigned metadata. Retrieval was definitely improved as Goatweb was listed within each search in the first ten hits. The search engines used were: Google, AltaVista, Excite and Yahoo.

USE OF THESE WEB PRODUCTS

The use of these portals by non-tertiary groups such as school children, farmers and overseas researchers was soon noted. We receive requests for articles on a regular basis from various users, many based in other countries.
They usually ask for more information on a specific aspect, such as nutrition of ostrich chicks, which we are able to supply from our collection of information sources. However, when they ask for expert advice such as specific disease conditions and treatments we refer them to the relevant lecturer in that subject.

These webportals are also a useful marketing tool as we are able to refer some users to our species bibliographies often leading to sales of these products.

ROLE OF THE INFORMATION SPECIALIST

As creator of a webportal the role of the Information Specialist includes being
- Web Content manager
- Facilitator of COP, helping to create new knowledge
- E-publisher
- Indexer

An important facet of the role is the relationship between the information specialist and the subject expert or lecturer. This is crucial in providing an academically reliable site.
Another important aspect of the role of the information specialist is that of enabling optimum access through the efficient use of Metadata.

To sum up, the role includes: initiating the website, identifying the need, ensuring cooperation with the lecturer or researcher, co-facilitating the Community of Practice, gathering the relevant documents to be placed on the site, finding the tacit knowledge and storing it, and adding value for the user by indexing the information.

PROBLEMS AND PITFALLS
Time is a critical issue - the website has to be constantly monitored to keep the information up-to-date, to check that the links are still working, and to add new ones as necessary

Copyright issues have to be considered when including material from other websites such as illustrations. Permission has to be asked from the relevant copyright holders. Permission has to be obtained when linking to other sites as well.

Access control has to be implemented if requested by the creator of the information. Thumbnails can be placed on the website, but if the user wishes to see the full picture he will be requested to submit a password. In this way unrestricted downloading of visuals can be regulated and also possible income generated for certain sources, such as our Bibliographies or the slide collections of departments at the University.

FUTURE

We intend placing our Bibliographies on these websites if relevant, and giving limited free access, charging for full access through online credit card payment. Placing digitised slide collections on these webportals holds exciting possibilities for sharing knowledge. The same applies to linking to relevant e-theses, both from local South African universities and from others worldwide.

It is important to note that these web portals are never finalised, as new information is developed and has to be placed on the site, or outdated material removed.

In our experience creating these web products is an exciting challenge and opportunities for developing new information sources seem endless. Developing a product with one's client, the subject expert, gives one a great sense of achievement.

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