Peer Reviewed Article   Vol.2(4) March 2001

Learning via the Web: the Virtual Health Care Team

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Abstact
The Virtual Health Care Team is an interactive Web site designed for health-related professionals and students. The multidisciplinary site presents complex cases that could be used as part of a formal curriculum or as interest to practitioners or consumers from many practice disciplines. Currently the site contains 15 interdisciplinary cases representing various health care issues and problems. All cases follow a standard template and style and are reviewed by an editorial board. The case objectives are clearly outlined, enabling readers to decide if the case will meet their expectations. A standard evaluation form is available at the end of all cases to obtain feedback and comments from users. Numerous cases are still in production, making this one of the most unique and highly acclaimed sites on the World-Wide Web in the health sciences area.

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1. **Introduction**

A multidisciplinary Web site, Virtual Health Care Team (www. shc.missouri.edu~shrp/vhcwww/) was initiated by faculty in various health science departments at the University of Missouri – Columbia. Missouri University's School of Health Related Professions is the primary sponsor of the site.

This interdisciplinary site presents complex cases for students, practitioners and the public to

study health problems of individuals and communities. Currently the site contains 15 interdisciplinary cases representing various health care issues and problems. Numerous cases are in production, making this one of the most unique and highly acclaimed sites on the World-Wide Web (WWW) in the health sciences area. There is collaboration with the Faculty of Community and Health Sciences at the University of the Western Cape (UWC) to add a South African perspective to the site. A UWC faculty member recently contributed one case entitled 'Paraplegic rehabilitation in South Africa' to the site. Two of the cases are being translated into Afrikaans to enhance learning opportunities of South African students. One case is also available in Spanish since the initiators aim to add an international flavour to the site.

The aim of this article is to present the rationale of developing a Web site offering interdisciplinary health-related cases. The design process and use of the site as part of the formal curriculum of health-related courses will be addressed.

2. **Initial development of the site**

Initial layout was based on the knowledge of the initiators and technical assistants. The style of the site was subsequently changed to make it more attractive, user-friendly and to improve navigation. Changes to the graphics, colour scheme and presentation of content were made. A uniform style and site design was of importance since contributors are international and from various states in the United States. A style guide was developed by the initiators. Final technical assistance is provided by the information technology expert assigned to the site to ensure uniformity of all cases.

3. **General style of the site**

- The overall organization is as follows:
- VHCT master home page
- Each case has a home page
- Each case has a table of contents page
- Each case has an introduction page
- Each case links to an invitation to participate page where users can suggest how cases can be improved, new topics can be developed, etc.

On the home page is a Disclaimer that can be linked to the entire statement. The Disclaimer reads as follows:
The authors believe the information is accurate and agrees with accepted standards at the time of publication. However, neither the authors, nor the University of Missouri nor any other person associated with the publication or preparation of this work are responsible for any errors or omissions or for the results of the use of this information. The Virtual Health Care Team™ includes references to other sites and is not responsible for the content posted on those sites. The Virtual Health Care Team™ is a trademark of the School of Health Related Professions.

4. **Navigation**

The navigation bars are consistent within and among cases. Each page with obvious

exceptions has a previous page icon and a next page icon at the bottom, before the copyright. Navigation buttons to VHCT home are at the top. Chapter buttons are along the left hand side. The user can get to the master home page by clicking on the balls logo, and can get to the home page of the case by clicking on the title of the case. A user can get to the home page from any page. Headers and logos have different content but are approximately of the same size and have similar fonts.

5. Process of contributing a case presentation

Case topics are reviewed by members of the Editorial Board to ensure the appropriateness of a particular problem or issue. The case titles have a similar format and layout. Authors should have the necessary knowledge and experience to write the case. The professional qualifications of the authors are available on the first page of the case.

Once approved, the contributor develops the content of the case. To enhance realistic, situated learning, the cases are based on real-life situations although the facts are often somewhat changed to avoid identification of the patient. The content author receives a writing guide which presents questions to be answered in the case, such as who is the audience for the case, how does the patient present and what is the patient's history. The content author meets with an educator and the two of them review the case. It is often necessary to obtain approval to review the hospital records of patients. Other specialists may be interviewed to obtain their viewpoints on how their professional skills apply to this case.

In addition the content author also determines the type of artwork that would be appropriate for the case. Drawings, videos and digital photographs are most commonly used for graphical presentations on this site. Permission is obtained from people whose pictures are to be used.

The initiators assume that the author retains ownership of the case. The author approves changes to the case. If the content was written as a 'work for hire', then the author does not retain ownership of the case.

The editorial process is similar to a journal publication. An Editorial Board ensures that all cases are of a similar standard. It assigns reviewers, and contributors can make changes based on the recommendations. If needed, a case editor is assigned. Health professional students are also used to review the case for intent, since they form an integral part of the target audience. Often changes are made based on their suggestions. Once the final draft is accepted, the technical expert converts the text to hypertext mark-up language (HTML) for publication on the Web site.

6. Special features

The initial section outlines the objectives of the particular case. The user can then decide if the case will meet his/her expectations before spending time reading through all the content.

All cases are designed by content specialists working with a team consisting of educators, artists, photographers and computer programmers. Videos and dynamic graphics are included to explain specific phenomena. It is envisaged to include more videos as well as sound in future cases.

Cases present a real-life health care problem from the point of view of different health care

professionals such as physiotherapists, speech therapists, occupational therapists and social workers working together as a team.

Learning theories such as situated learning, problem-based learning, anchored instruction and interactivity are incorporated. Interactive questions are available in most cases and students can determine their level of understanding of a particular topic. This affords students a unique self-learning opportunity.

External links to additional resources are incorporated in all cases. A general resource link is available on the home page, which offers links to a number of sources such as professional association home pages, dictionaries, discipline-specific links, drug information databases, on-line journals and Medline.

External links often present information from different viewpoints that help students to understand the problems. These external links unfortunately present two maintenance problems. The first is that the URL of the link may change unexpectedly, with the tedious 404 error as the result. This type of maintenance may be performed by periodically running a link-validation program. The second maintenance problem occurs when the content of the URL is rewritten in such a way that the desired information may no longer be present. External links that have been recently modified need to be read personally to be sure that the material is still appropriate and correct.

A standard evaluation form is available at the end of all Virtual Health Care cases to obtain feedback from the users. Students participating in the Web teaching sessions are usually requested to complete the evaluation form. Users can also e-mail the evaluation form to the Editorial Board. Responses obtained from the students are generally positive with respect to the use of information technology in teaching.

7. **Purpose of the site**

- The site can be used for distance learning programmes.
- The site encourages life-long learning opportunities.
- It offers students an interactive learning opportunity that can be done at their own pace and in their own time.
- The site can be used for group Web teaching sessions.
- Cases can be used as part of a traditional teaching or problem-based learning curriculum
- Hypermedia characteristics offer students a unique learning method to enhance their understanding of certain concepts.
- Abstracts can easily be downloaded as part of readers for students.
- Use as supplemental or required reading, or instead of reading an article on a similar topic.

8. **Suggestions for using Virtual Health Care Team cases in your class**

1. Use to review previously covered material and apply concepts and principles learned.
2. Use as a basis for class discussion.

1. Review what happened in the case.
2. What specifically did each health care worker do?

3. How might health care workers in other disciplines contribute?
4. What governmental, community and family resources could be used?
5. Assign a small group of students to work through a case and then teach the rest of the class the concepts presented in the case.
6. Assign a small group of students to report how their professional skills would benefit the patient or family.
7. Assign a small group of students to outline a management plan for a person with this problem and present the plan to the rest of the class.

1. **Conclusion**

The Virtual Health Care Team site uses interactive hypermedia and gives access to interdisciplinary case simulations. The interdisciplinary case simulations demonstrate the role of health care disciplines in the diagnosis, treatment and rehabilitation of the patients in various settings. These cases can form part of a formal curriculum and feedback from students is generally very positive.

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