Using web quests to enhance work based learning

John Sandars MB ChB (Hons) MSc FRCGP MRCP CertEd ILTM
General Practitioner and Senior Lecturer in Community Based Education,
Medical Education Unit, The University of Leeds, UK

ABSTRACT

Web quests offer a structured inquiry-orientated learning method that takes advantage of the vast range of information resources that are available on the internet. An important aspect is the development of transferable skills that are required for the effective retrieval and appraisal of information obtained from the internet. The work based learning potential of web quests can be increased by modifying the original approach to include tasks related to identified learning needs.

Keywords: e-learning, continuing professional development, webquest, work based learning

Introduction

The internet offers a vast and ever increasing range of information resources. A recent estimate suggested that there are now over 33 million websites, and in excess of one billion web pages.¹ Most of these resources are free and available ‘any time and any place’. ‘Surfing the net’, in which websites are accessed to meet self-directed learning needs, is a popular activity. In 2000, surfing by Canadian men at home was 11.5 hours a month.² Almost all healthcare professionals in the United Kingdom have access to the internet, either at home or at work, and two recent surveys of primary healthcare professionals note that they are making increasing use of it as a method for self-directed education, but measures of the full extent are not available.³ ⁴

The importance of the internet to enhance work based learning in primary care can no longer be ignored. The ‘web quest’ approach uses internet resources
as an essential, and integral, component, and in this article I suggest that this approach can offer a useful method that has not been previously described for work based learning.

What is a web quest?

The guru of web quests is Bernie Dodge of the Educational Technology Department at San Diego State University. He defines a web quest as ‘an inquiry-orientated activity in which some or all of the information that learners interact with comes from resources on the internet’. The basic structure of a web quest was developed in 1995, and since that time several thousand have been developed and used by millions of learners throughout the world. Numerous examples are provided on Bernie Dodge’s extensive website. All are from the area of primary or secondary education, with no examples of its use in further and higher education.

The structure of a web quest, as originally described, consists of several components (see Box 1). The teacher initially identifies a clearly defined area of study and a related task. This task requires the learner to perform several activities in which information is accessed from several websites. An important aspect of all web quests is to engage the learner in a task that elicits higher order thinking, rather than simple information searching and recall. These tasks should involve problem solving, judgement, synthesis and analysis of information. Another important aspect is working within a group of learners, thereby developing cooperative learning.

**Box 1 The main components of a web quest**

- Title
- Introduction
- Task
- Resources
- Conclusion

The web quest is usually presented as a printed sheet and given to a group of learners, with each learner working on a separate activity within the task. However, group members can have the same activities and occasionally a web quest can be only undertaken by an individual.
Writing a web quest

This requires a structured process.

- **Title**: this should provide a concise description of the web quest.
- **Introduction**: a short paragraph provides background information and context for the activity. The learning objectives can also be stated in this section.
- **Task**: the activities required by the learner/learners should be clearly described. For example, this may include a series of questions, a summary to be created or a problem to be solved.
- **Resources**: key internet resources should be given, including the title and the URL and hyperlink.
- **Conclusion**: this summarises what the learner/learners are expected to have accomplished or learned by completing the activity. Often there will be a question to stimulate further thought.

An example of a web quest suitable for an individual learner is shown in Box 2.

### Box 2  Example of a web quest suitable for an individual learner

**Title**
Web quest on teamwork

**Introduction**
Teams are important for the effective delivery of health care. However, a successful team does not suddenly exist. This web quest will help you to identify the main factors that are required to enable a team to work effectively and how a team can be developed.

**Task**
Please access all three online resources.

Each resource will give you a different perspective on team work.

After reading through all of the resources, consider:

- what is a team?
- what are the features of an effective team?
- what are the implications for building an effective team?
- what is the role of the individual in the team?
Educational rationale of the web quest approach

The structure of a web quest closely follows Robert Gagne’s theory of instruction. Gagne proposes that there is a rational relationship between the methods of instruction, their effects on the learning processes, and the learning outcomes that are produced. An important aspect of both this model and a web quest is the use of a structured stepwise model. The expectation of this structured approach, rather than simply ‘surfing’ of the internet, is that increased learning will occur.

An important aspect of a web quest is the use of co-operative activities to enhance the learning experience. Co-operation produces increased learning for both individual members of the group and the group as a whole. The main advantage of co-operative learning is that there is active sharing of information and, in addition, there are often challenges to underlying beliefs and assumptions.

Inquiry based methods are associated with increased comprehension and learner satisfaction. A key component of all web quests is the clear set of activities that the learner is required to perform.

Two important transferable skills can be developed while undertaking a web quest: retrieval of information from a website and the appraisal of information obtained from a website.

---

Box 2 Continued

Resources
1 Gemmy Allen. Supervision  
http://bmj.bmjournals.com/cgi/content/full/321/7269/1141 (accessed 1 July 2005).

Conclusion
On completion of this web quest, you should have a clear action plan on how to develop your team. What is going to be your action plan?
Modification of the web quest approach to enhance work based learning

The original web quest approach can be modified to ensure that it is more applicable to work based learning in primary care. The modified approach can involve the interdisciplinary primary healthcare team in identifying the topic and then co-operatively undertaking the subsequent activities. A fictional illustration that highlights the educational potential is presented in Box 3.

Box 3 A fictional illustration of how a web quest can be developed and used by a primary healthcare team

Yearly educational appraisal for all practice staff was an important method to identify the learning needs of individual staff members, but also for the practice. An overall practice learning need about improving the care of older people with dementia was identified, and a small group of healthcare professionals in the practice decided to develop and use a web quest for the next practice learning day.

Developing the web quest

- One of the doctors mentioned that she had found a website that offered help in the diagnosis and treatment of dementia. This was provided by the Scottish Intercollegiate Guidelines Network (SIGN). www.show.scot.nhs.uk/sign/guidelines/published/index.html.
- The practice nurse stated that the practice needed to offer care that was a partnership between healthcare professionals, older people with dementia and their carers. She remembered a resource on the Royal College of Nursing website. www.rcn.org.uk/downloads/scotland/caring_partnership.pdf.
- The practice manager was concerned about how the practice could ensure consistent information care to older people with dementia and their carers. Carers often asked the receptionists for information. He had already looked at the Alzheimer’s Society website: www.alzheimers.org.uk.
- It rapidly became apparent that neither the doctors, nurses nor receptionists were aware of a ‘good’ source of patient, and carer information, and that the doctors and nurses were unsure of the current trends in diagnosis and treatment.
- A web quest was written in preparation for the practice learning day and this had two main tasks:
  1. all members of the primary healthcare team would look at, and evaluate, the patient and carer information on the Alzheimer’s Society website
Developing skills in website access and appraisal

Anybody can launch a website, and there is no overall control over the quality of its content. The information provided by a website can be excellent, but it can also be poor, and even downright wrong or dangerous. However, there is help at hand. Virtual Salt is an excellent website that offers help in the access and appraisal of internet sources of information.

The main appraisal criteria are:

- **Credibility**: it is important to consider the author’s credentials and any evidence of a quality control system, such as origination from a peer-reviewed publication.
- **Accuracy**: a judgement of the timeliness of the presented information is essential since often websites are not frequently updated.
- **Reasonableness**: a good website should offer a balanced view of the available information.
- **Support**: this is concerned with the source and corroboration of the information.

---

**Box 3 Continued**

2. All the doctors and nurses of the primary healthcare team would look at, and evaluate, the advice on diagnosis and treatment that was provided on the three websites that had been identified by the small group.

**Using the web quest**

On the practice learning day, there was a focused discussion on the ‘best’ patient and carer information sheet. The doctors and nurses noted that the SIGN guideline was under review (since it was produced in 1998) but the Alzheimer’s Society website offered more updated advice on current best diagnosis and treatment. The doctors and nurses also had a brisk discussion on the role of partnership working.

**Evaluating the learning experience**

The primary healthcare team reviewed the practice learning day, especially the use of the web quest. Everyone stated that they had found it extremely useful. Information could be obtained from several sources, then compared and synthesised. An important aspect was the interdisciplinary discussion between the various members of the primary healthcare team. In addition, everyone felt that it had increased their skills and interest in using web based information resources. They were all eager to start another web quest.

---

**Developing skills in website access and appraisal**

Anybody can launch a website, and there is no overall control over the quality of its content. The information provided by a website can be excellent, but it can also be poor, and even downright wrong or dangerous. However, there is help at hand. Virtual Salt is an excellent website that offers help in the access and appraisal of internet sources of information.

The main appraisal criteria are:

- **Credibility**: it is important to consider the author’s credentials and any evidence of a quality control system, such as origination from a peer-reviewed publication.
- **Accuracy**: a judgement of the timeliness of the presented information is essential since often websites are not frequently updated.
- **Reasonableness**: a good website should offer a balanced view of the available information.
- **Support**: this is concerned with the source and corroboration of the information.
Conclusion

Web quests appear to offer an exciting approach to enhance work based learning by providing a structured learning experience that utilises the vast repository of information based on the internet. There is a lack of firm evidence to support their effectiveness in improving learning, including additional benefit over self-directed ‘surfing’. However, web quests are based on sound educational principles, and there is a ‘common sense’ appeal to this approach. It is surprising that there has been no description of this approach in the healthcare education literature. When will you consider developing a web quest?

USEFUL RESOURCES

General information on the web quest approach
- Bernie Dodge has an excellent website with numerous examples of how to develop effective web quests. http://webquest.sdsu.edu/ (accessed 1 July 2005).

Resources for use in a web quest
- Google Scholar enables specific searches for scholarly literature, including peer-reviewed papers, theses, books, abstracts and technical reports from all broad areas of research. www.scholar.google.com/ (accessed 1 July 2005).
- An excellent resource of medically related websites can be found at www.rsmpress.co.uk/bkkiley2.htm (accessed 1 July 2005).

Internet search and appraisal skills
- The RDN Virtual Training Suite is a set of free online tutorials designed to help students and lecturers improve their skills in the search and appraisal of internet sources of information. Users can work at their own pace and there are quizzes and interactive exercises to lighten the learning experience. An important feature of this resource is that there are separate tutorials for a range of healthcare, social care and management professionals. www.vts.rdn.ac.uk/ (accessed 1 July 2005).

REFERENCES
5 www.webquest.sdsu.edu/ (accessed 1 July 2005).

CONFLICTS OF INTEREST
None.

ADDRESS FOR CORRESPONDENCE
John Sandars
Medical Education Unit
The University of Leeds
20 Hyde Terrace
Leeds LS2 9LN
UK
Tel: +44 (0)113 343 4193
Fax: +44 (0)113 343 4181
Email: j.e.sandars@leeds.ac.uk

Accepted March 2005