

# DEVELOPMENT AND IMPLEMENTATION OF AN ON-DEMAND WIKI SITE FOR TEACHING AT A CHIROPRACTIC COLLEGE

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## ABSTRACT

**Objective:** To describe the process of the development and implementation of a clinical education wiki site at a chiropractic college, and students' satisfaction and experience using this site.

**Methods:** The information technology department and faculty members created the design, layout, navigation, and a list of procedures to go on the site. To evaluate the students' perception and experience using the wiki site, an institutional review board (IRB) approved anonymous classroom survey for student cohorts in each year of the chiropractic program (3rd, 5th, 6th, and 8th terms out of 10 terms) was conducted.

**Results:** The student survey revealed that 92% reported using the wiki site since its creation, 95% rated their overall satisfaction using the site as very satisfied or satisfied, 81% found the site to be user-friendly, and 90% agreed that the site improved their overall educational experience.

**Conclusion:** The development and implementation of a clinical education wiki site at a chiropractic college is a process that requires the collaboration of faculty, administration, students, and information technology professionals. The use of a wiki site is an encouraging approach for improving the educational programs at a chiropractic college. The results of the student survey reveal that most students find the wiki site helpful and easy to use. (*J Contemporary Chiropr* 2022;5:145-149)

**Key Indexing Terms:** Chiropractic; Medical Education; Wikis

## INTRODUCTION

Web 2.0 technology is the current evolution of the internet, allowing users to actively engage, create, and distribute information instead of just receiving information (as in Web 1.0 technology). Examples are social media sites such as YouTube, Facebook, LinkedIn,

Wikipedia, Blogs, podcasts, and online shopping sites like Amazon and eBay.

Ward Cunningham created the first wiki software in 1994. The term "wiki" comes from the Hawaiian phrase, "wiki wiki" which means "quick". (1) Literature shows that many groups have used wikis, including corporations, (2) all levels of education, and in medical and nursing education. (3) Wiki sites are used to prepare research publications, improve teaching and learning, to enable professional development, and produce project management tools. (4- 6) Healthcare professionals use wikis to collaborate, create, and disseminate knowledge. (7)

New publishing models, such as blogs and wikis, continue to influence educational practices by gradually replacing print manuals that can be continually updated and provided on-demand. Wiki sites are collaboratively authored, searchable documents. (2) They are extremely easy to use and edit, requiring minimal technical skills, low costs, and minimal maintenance. (6,9) For educators, wikis can be a way to provide a public forum for students as well as an engaging site for student assignments and expression. (10) According to Leuf *et al.*, a wiki site is the ultimate collaborative tool for a group of users on a global scale. (11) Students in this generation have grown up using the internet and most students spend a significant portion of their lives using various internet-based technologies accessible through various devices. (12)

In 2011, our chiropractic college made the decision to develop an online clinical education manual to be available to all chiropractic students and faculty at the college. The objective of this paper is to describe the process of the development and implementation of a clinical education wiki site at a chiropractic college, and students' satisfaction and experience using this site.

## METHODS

Key faculty are tasked by the dean to develop a clinical education wiki site for students and faculty at the college, with the assistance of the information technology department (IT). The purpose of this wiki site is to

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support the students' education in the classroom and in the clinic. The university information technology (IT) department creates a working group comprised of faculty and IT members. The representative from the IT department determines the necessary resources to achieve this task, including the software, computer hardware and network equipment, camera equipment, and the space needed to film.

Our software criteria include:

1. Low-cost software that allows hosting videos, pictures, text, links, and references
2. Software compatible with the operating system software on the college's server
3. Software allowing faculty to easily edit and update the pages to keep the content current

The criteria for the computer hardware and network equipment includes:

1. Identifying the available storage space on the current college server(s) for a new website
2. Evaluating the current network infrastructure including the wired and wireless internet and intranet to ensure all students and faculty would be able to view the wiki site both on and off campus

The criteria for the camera equipment includes:

1. Purchase a high-definition video camera with high-quality sound and the ability to take high-definition still pictures
2. An adjustable tripod

The criteria for the space includes:

1. A dedicated space on campus to film all videos over a 2-to-3-year period
2. A sound insulated room
3. Direct lighting
4. A chiropractic table, exercise equipment, and various cushions, balance boards, and towels
5. The room should have a background that is pleasing to the eye and will remain uniform for all videos

Faculty members that are content experts in their area of instruction create the design, layout, navigation, and a list of procedures to go on the site. During the research to find the best software for this project, the working group learned that wiki software uses Common Gateway

Interface (CGI) script and Hypertext Preprocessor (PHP) programming to provide an interface between the web server and the wiki software to generate web content. The wiki software allows edits, keeps track of edits, contains a list of authorized users and administrators, allows redirects from one page to another, and allows searches. The site Administrator must be able to write CGI scripts and use PHP programming (a type of programming language different than Hyper Text Markup Language (HTML) used by most websites).

The working group chose one faculty member with computer programming and web development experience to be the Administrator of the wiki site. The Administrator is responsible for creating the site navigation, filming, uploading the videos and pictures to the site, using CGI and PHP to create links on each page, adding the written content on each page, and corresponding with the IT department to convert each video to multiple file formats to ensure they could be viewed on PC, Mac, and mobile devices. Student actor-volunteers sign a written informed consent granting the chiropractic college a non-exclusive, non-terminable, royalty-free license to use and display their name, image, likeness, picture, voice, and video image. Student volunteers and graduates also help with written content, proofreading and editing the pages. The site Administrator conducts a final review and approval of all wiki site pages.

The working group develops a 2-phase plan for implementation. In phase I, we create videos, pictures, and content for all procedures taught in the diagnosis and chiropractic procedures courses. Phase II links these procedures with common clinical conditions, and evidence-guided care pathways developed by our university.

To evaluate the students' perception and experience using the wiki site, an institutional review board (IRB) approved anonymous classroom survey for student cohorts in each year of the chiropractic program (3rd, 5th, 6th, and 8th terms out of 10 terms) was conducted. The authors used The Statistical Package for the Social Sciences (SPSS) software to analyze the data descriptively using percentages.

## RESULTS

After considering the above criteria, the IT department installed the wiki software on the school server, purchased a video camera, and reserved an existing video room on campus. Phase I of the wiki site started in 2011 and was completed in September 2013. The goal is to offer students online videos to supplement their classroom and laboratory education in areas of physical examination, neurological and orthopedic testing. It also includes adjustive techniques, soft tissue therapy,

palpation, and rehabilitative care. The site is organized by body region such as cervical, thoracic, lumbar, pelvis, upper extremity, and lower extremities. There are additional categories for physiological therapeutics, vascular tests, neurological tests, specialized chiropractic procedures such as instrument assisted adjusting, and review materials. As of June 2022, there are 2,742 total pages (all pages in the wiki including video, photo, and text content pages, and redirects to other pages on the site), 1,240 content pages, and 1,183 videos and 982 pictures. Additionally, each page contains step by step instructions for all the procedures including references. The main page of the wiki site has a search box. The user can type in a key word or even speak into a mobile device or microphone to search the entire site. The site has had a total of 2,866,189 visitors since 2011. This includes the creation of each page with multiple edits plus new visitors.

Phase II will consist of the common clinical conditions. This would include the requisite history and exam procedures along with related diagnostic tests as needed. After a literature review, the working group estimates there will be between 40 and 50 common clinical conditions. These conditions will link to evidence-guided care pathways, outcome assessments, diagnostic guidelines, and all related procedures already on the wiki site. The site design will allow students to navigate quickly between these conditions.

After one year of use, students were surveyed to determine their level of use and satisfaction with the wiki site. A cohort of students from 3rd, 5th, 6th, and 8th term out of 10 terms were chosen for the survey because they had completed the courses both before and after implementation of the wiki site. The results are in Table 1.

Table 1.

	Students
Number of Students	178
Gender	61% (Male) 39% (Female)
Reported Using the Wiki Site	92%
Wiki Site Usage	34% (Few times/month) 29% (Few times/trimester) 15% (Few times/week) 11% (Once a week) 3% (Daily)
Overall Satisfaction With The SCU Wiki Site	95% (Agreed)
Overall Educational Experience Improved	90% (Agreed)
Website Was User-Friendly	81% (Agreed)
Descriptions Including The Procedures, Indications And Contraindications Are Well Defined In Site	79% (Agreed)

Supporting Pictures Are Helpful	86% (Agreed)
Videos Are Helpful	91% (Agreed)

## DISCUSSION

Wiki sites are easy to implement, edit, and maintain, and provide a way for many people to collaborate on a specific topic. For example, Neuhaus *et al.* examined the impact of wiki-based clinical practice guidelines and found that it enables iterative, ongoing, and interactive development and revision processes and provides a cost-effective, efficient methodology and transparent assessment of the available evidence. (13) Brulet completed a systematic review of 25 medical wikis dedicated to clinical practice in 2015 and found that only two were being used at universities. (14) Archambault reviewed wikis and collaborative writing applications in health care and found 23 surveys about wiki use in healthcare, their impact as knowledge translation (KT) tools, and the factors that affect their use. The authors concluded that future research should study the effects of using embedded media such as pictures and audio and video recordings within collaborative writing application (CWA's) such as wiki sites. (15) Taveira-Gomes *et al.* completed a systematic review of computer-based learning (CBL) technologies using multi-media and text in medical education and concluded that future research should focus on implementing reusable software platforms for specific learning contexts, tracking online activity, and creating a more student-centered model within the computer-based learning platform. (16) Our wiki site records detailed statistics on viewer usage, and page edits.

Rasmussen studied the application of wiki technology in medical education in 2013 and concluded that with proper planning and instructional design, wiki technology can be usefully employed in medical education. (17) Wiki sites stimulate collaborative learning in online health science courses for nursing according to Zitzelsberger. (18) Cabrera *et al.* found that wikis are particularly useful in the creation and management of asynchronous and multi-author knowledge dissemination, collaborative learning, and social interaction in graduate medical education. (19)

The results from our survey suggest that students use the wiki site on a regular basis and agree that it plays an important role in their educational program. All health care educational institutions should consider implementing a wiki site to support student learning. Wiki sites are used to distribute medical information and in the educational setting. We did not find literature describing the use of a wiki site to support student learning at a chiropractic college.

Overall, students were satisfied with the wiki site. The site helps them review the materials taught in class as well as prepare for examinations. The information is centralized in a single site and is accessible at any time and from any place with internet service. The navigation structure of the site makes it easy for the students to move from one topic to another.

From an administrative standpoint, the wiki site is maintained by designated faculty with minimal workload on the IT department. The content, videos, pictures, and references are easily updated. A log of changes and statistics for the entire site are also easily accessible to the site Administrator. The site can also be used by faculty, alumni, and private practice doctors to review and to complete their continuing education.

#### Limitations

No prior references exist to cite as a comparison to our wiki site, and little literature exists regarding online education within the Complementary Alternative Medicine (CAM) spectrum.

## CONCLUSION

The development and implementation of wiki site at a chiropractic college is a process that requires the collaboration of faculty, administration, students, and information technology professionals. The use of a wiki site is an encouraging approach for improving the educational programs at a chiropractic college. Once Phase II is completed, analysis will be conducted to determine the characteristics of students who received the greatest benefit from the wiki site, and whether the wiki site has improved student learning. The results of the student survey reveal that most students find the wiki site helpful and easy to use.

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