Applying Web-Based Instruction to Food Nutrition Course

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Abstract

An online lesson, entitled "*Vitamins and Health*" was developed for a basic food nutrition course. The web-based instruction (WBI) was used as a self-study tool to complement formal instruction. Food sources and nutrition compositions of foods are also provided with fruitful visual information. The use of images, motions, and dynamic features of the learning tool, also makes the instructional content easily comprehended by learners. To optimize students' involvement and engagement with the learning materials, the task-oriented approach is employed in teaching. Web assignments were also given. Students were required to study the web-based learning materials and complete the assignment on the web. They were also encouraged to learn collaboratively through online discussion. Students' responses toward the learning experience were gathered.

1. Introduction

The appropriate application of the Internet supports the dissemination of skills, and knowledge in a holistic approach, not limited to any particular course, technologies, or infrastructures [1]. The WWW, with its increasing capacity for multimedia, multimode communication and information presentation, easy access to an ever-growing body of information and new way of data representation, has provided educators with exciting opportunities to enhance teaching and learning [2]. This paper reports how a web-based instruction was integrated into a traditional nutrition course. With the already developed resources on food, and a task-oriented approach employed in class, students interacted actively with the instruction. Students' responses toward the instructional materials were assessed.

2. Features for Using WBI

The success of computer-based learning has been demonstrated in the training of dieticians for many years [3]. Complementing formal instruction, computer-based instruction has been applied to meet general didactic curriculum requirements and the American Dietetic Association Standards of Education for Foundation Knowledge and Skills for entry-level dieticians. Other than dietetics, computer-based instruction has been implemented successfully in the training of professionals in some health fields. For example, it has been employed as self-study tools to improve learning and retention of fundamental concepts and clinical thinking skills.

In recent years, the increased availability of design tools has also permitted the design of instructional materials that incorporate unlimited variations and forms of verbal and visual information delivered through Internet to fulfill learners' visual learning needs [4].

To provide learners with a web-based learning experience, an online lesson, entitled "*Vitamins and Health*" (Http://nutri.lins.fju.edu.tw), was developed for a basic nutrition course. With the help of various design tools, the visual representation of *Vitamins and Health* aims to foster potential learning interest and stimulates viewers' attention. Online course animation, hypertext, or click-able diagrams and pictures are used to clarify concepts that a static textbook image simply cannot. The use of images, motions, and dynamic features of the learning tool, also makes a scientific phenomenon easily comprehended by learners. The design of graphical user interface in the web learning environment also plays an important role in determining the nature of the knowledge structures users develop.

It is suggested that the use of students' mental models is enhanced if the appropriate visual interface provided, and there is potential effect on long-term

retention. Research has shown that the knowledge structure of individuals would change as a result of learning and experience [5]. With visual scenario provided, web-based learning creates an interactive laboratory environment that allows students to manipulate lab objects to simulate a laboratory class in microbiological learning [6]. Several medical schools, such as the University of Iowa and Johns Hopkins University, have explored the use of visual materials through WWW in learning various human systems. Students might interact with the visual images presented on the screen in a dynamic way, and learn more efficiently [7].

The learning materials of *Vitamins and Health* cover the introduction of various vitamins, and how these vitamins influence human health. Food sources and nutrition compositions of foods are also provided with fruitful visual information. To optimize students' involvement and engagement with the learning materials, the task-oriented approach is employed in teaching. Web assignments were given. Students were required to study the web-based learning materials and complete the assignment on the web. They were also encouraged to learn collaboratively through online discussion.

The website allowed students to submit their daily food record and assess their own nutrition status according to their daily food intake. With links to digital resources, students could access nutrition related information provided by government agencies, schools, institutions, and hospitals. In fact, the web-based learning opportunity enabled a much more open and less restricted form of instruction in terms of the specific learning outcomes to be achieved within the course.

3. Learning Responses

From open-ended responses, students commented that the assignment encouraged them to apply what they learned in the instruction to practical life. However, they anticipated more immediate feedback for the web assignment. The task-oriented assignments encourage them to go through the instruction in greater detail, because they had to gather sufficient information to solve the problem tasks given. Although the discussion and feedback was often given during the class, students preferred having personal feedback from the web.

The speed of presenting pictorial information was also a main concern among students. Some felt impatient toward the waiting time of loading up food images. However, most students anticipated more pictures and did not agree to read textual information as the only visual information.

A few students had participated in online discussion, "Discussion Forum". From the online data, students drew questions from a wide variety of nutrition related issues. Some students actively provided nutritional suggestions. However, not many students agreed that the "Discussion Forum" helped them learn. Some students even had negative attitude toward the online discussion. They complained that the content of discussion was "boring". Some students were too timid to voice their opinions on the web. Many students would prefer reading the information in the discussion to expressing themselves even though they could choose to remain anonymous.

4. Conclusion

With the web approach of learning, the nutrition course incorporated the use of WWW technology within learning tasks. The tools enhanced and facilitated the process of applying knowledge. During the course, the learners understood how the application worked and how they could utilize the knowledge. However, for future learning, students' knowledge needs to extend to more resources available in the Internet. More effort should be made to encourage the use of resources and online interaction.

5. References

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