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Web 2.0 in Building Nursing Information Portal

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Abstract

The purpose of the study is to use the web 2.0 concept in developing the nursing Information portal (NIP) in a large medical center with 1800 nurses. The website contents have been created and maintained by end users instead of traditional website manager. The website manager chose Microsoft SharePoint Service 2003 as the portal website developing tool to meet head nurses' information management needs, such as news, documentations exchange and survey taking. According to the study results for users' acceptance, nurses are very satisfied with the NIP.

Key words:

Web 2.0, nursing information, portal

Introduction

Nursing management is a complex work because nurses represent the largest group in hospital. Generally, nursing domain includes clinical and administrator work. As time going, there are many nursing specialist needed in the hospital. They are asked to do special nursing function such as case managers, nursing quality managers, disease control managers etc. The common need for all of them is a useful Information tool to help them deal with their work more efficiently. For example, they usually need to collect data from every unit via paper forms, E-mails and hone calls. Then they do their statistics manually. This manual data collection process is very time consuming. Furthermore, if they would like to deliver newest information to all units or to share documentations to all nurses, they often use the emails. It is important for these nursing managers to overcome these problems and help them work more efficiently.

According to the study, experts think the attitudes toward the computer are the most important computer competency for the nursing profession in Taiwan[1]. However nurses are seldom trained with the skills in computer usage and what IT tools could help them to do their work more efficiently. They often depend on IT people to design the information systems to help their work. Unfortunately, the IT people in hospital have difficulty to satisfy all users' Information needs[2]. In recent years , to solve the nurses' Information problems, some nurses try to develop Information system by themselves in nursing scheduling, discharging plan system etc.[3-5]. But these nurses are few and they still need to resolve the challenges in programming learning and organizational poor support [6]. The nurses' attitude toward developing information systems by themselves is positive[7].

In order to let the general nurses who never take any professional IT programming training, the information tools must be very easy to learn and easy to use. At the same time, collaboration is also important for them. So the web-based platform seems an important tool for these nursing managers.

In the last decade, there are numerous websites created in the world. People use internet for searching information. The creators or managers of websites know how to create and manage the websites. Website users rarely participated in the website content generation and maintenance process. In this old model, the website managers are responsible for almost all website management. The Web 2.0, a phrase used by O'Reilly Media in 2004, refers to a new generation of Internet-based services such as social networking sites, communication tools that emphasize online collaboration and sharing among users[8]. In the new model, the websites are co-managed by all interested users. Many Web 2.0 websites have successfully attracted many users to participate, like Wikipedia for free encyclopedia, YouTube for videos, Blogs for personal web diary etc.

One of the key important factors that Web 2.0 concept becomes so popular is users' participation. Users could easily edit their own information and put their documentations or multimedia materials on the websites. They could share everything to each other if they want. In this kind of sharing mechanism, websites could attract more people and all users could become the authors of the websites. If the users think the website is important for them, they will become aggressive to maintain and keep the information updated. The maintenance of the websites becomes easy and efficient. Therefore, the burden nursing website management might be improved if those who need the websites can participate to help managing the websites.

In this study, we chose Microsoft SharePoint Service 2003 (SPS) as our Nursing Portal platform. SPS is under Microsoft Windows SharePoint Services[9]. It comes with many common components that users can use right away. The web components are based on the technology of 'Web Part'. A Web Part is a modular unit of information that has a single purpose and that forms the basic building block of a Web Page. In order to incorporate the specific requirements of nurses in a user-friendly manner, this platform provides a web components based interface for integrating tailoring functionality. Based on this environment, nurses are allowed modify any application by reassembling components without programming. SharePoint Services can deliver a set of core functions that allow nurses to develop their own specific web application through the web-browser. It offers flexibility, ease of use and can enhance the productivity of applications[10].

In a 2357-bed medical center in Taipei, Taiwan, there are 88 clinical units and 1800 nurses. According to their major work, there are clinical nurses, head nurses, nurse supervisors. Among them, there are nine kinds of special functional nurses serving in this medical center. Some of them are in charge of the disease management like DM, TB, nurse managers, wound care, heart failure etc. Some of them are in charge of the administration like quality assurance, discharge plan. In the old days, they depended on the website manager, who was an information nurse, to help them to design and update the nursing website. However this was not an efficient way to maintain the website. There has been always too for a single website manager to take care of. Therefore, SPS seems a right platform for improvement. The objective of this study was to know if the nurses could accept the Web 2.0 tool like SPS to help their work and how they thought about the SPS as an easy tool for them or not?

Materials and methods

In May 2006, we started to use the SPS to build our new nursing information portal (NIP). The structure is showed in Figure1.The informatics nurse plays a role the initial role to manage and design the website. When the prototype website was created, more nursing managers were assigned to participate in the training courses. There was a 2-hour training course in the first week and 1-hour in the following two weeks. Training materials cover the introduction of the NIP and demonstration of the functions, like how to upload and download files, to created documentations base, to create photo base, and to create a survey etc. After a total of 4-hour training, they were asked to design and to manage their assigned website and if there were any problem they could ask the informatics nurse's for help. Three months later, the NIP was formally for open to all nurse members. The NIP is showed in Figure 2. We introduced the website to all head nurses and clinical nurses in one hour speech to teach them how to use the NIP. After another three months, one questionnaire (5-Point Likert scale) was designed to nursing managers to ask for their acceptance.

Results

We totally created 28 sub-sites in NIP. There are 24 nursing managers assigned to manage the website, including 13 nurse supervisors, 8 special functional nurses, 3 administrators. After the training course, 7 special functional nurses design their assigned website on their own. Nurse supervisors were too busy to design by themselves and to supply the materials and to ask the informatics nurse to help them in beginning. However, they sometimes needed to collect data form units so they would ask informatics nurse to teach them how to create a survey in NIP. With this regard, the NIP became their useful tool to data collection.

There were 29 questionnaires returned with a return rate of 36.7%. The result of questionnaire survey is shown in Table 1. Overall, they were very satisfied with the NIP and its performance.

Discussion

The NIP appears to be a useful tool for nurses to meet their information needs. They could collect the data more efficiently then before. They furthermore became to ask other nurses who were not familiar with the NIP to learn how to use that. Some head nurses even asked informatics nurse to integrate more functions into NIP, like the documentation records. Some nurses did appreciate this website.

Conclusion

Within few months, the NIP has helped nurse supervisors and special functional nurses in improving different work flow and made their work more productive. The Web 2.0 concept in nursing information portal appears successful from our study. There are still many nurses afraid to use this new website. So in the future study, we would like to encourage them and continuous to integrate more easy but useful functions in NIP like document searching. Besides, we would also like to teach our head nurses to manage their unit websites to improve their wok performance then before and to increase their acceptance of NIP.

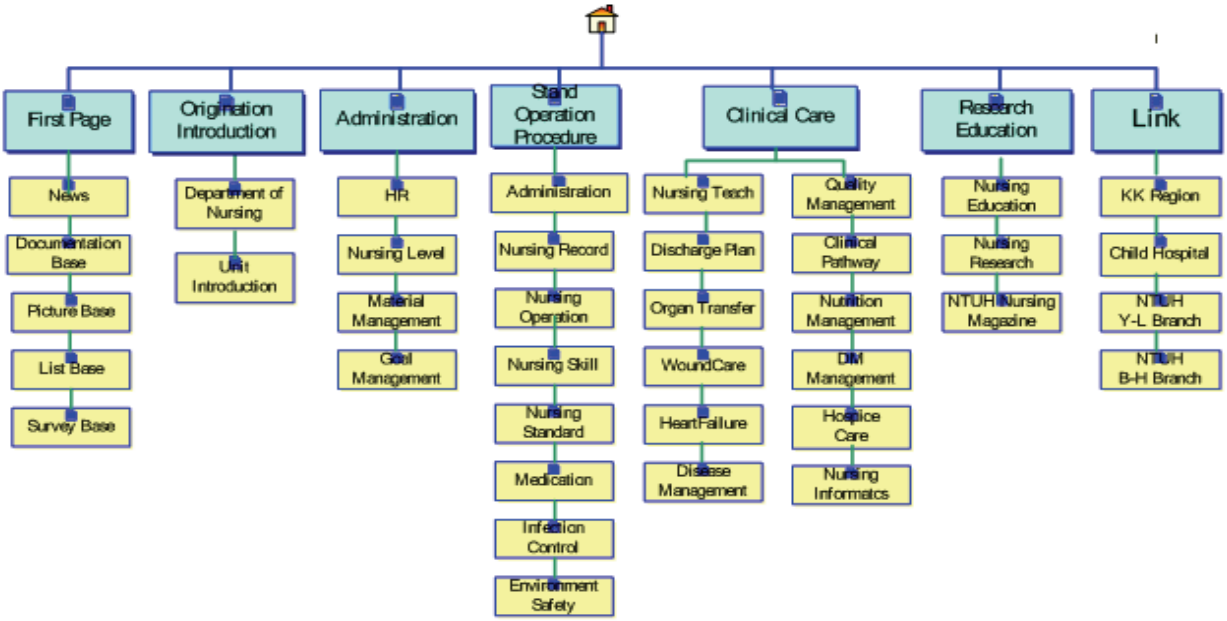

Figure 1-The Structure of Nursing Information Portal

Figure2-The Nursing Information Portal

Questions	Strongly Agree	Agree	Undecide	Disagree
The history data of website can be kept for a long time.	4(13.79%)	10(34.48%)	15(51.72%)	
The website can save of my total working time	8(65.52%)	19(65.52%)	2(6.90%)	
I feel that the website is easy to use.	6(20.69%)	16(65.52%)	3(10.34%)	1(3.45%)
I feel that the website is reliable	3(10.34%)	21(72.41%)	5(17.24)	
I feel that the functions of website are complete.	1(3.45%)	21(72.41%)	4(13.79%)	3(10.34%)
I feel that the data in the website are correct.	3(10.34%)	23(79.31%)	3(10.34%)	
I feel that the website could precisely record the execution time.	10(34.48%)	15(51.72%)	4(13.79%)	
I feel that the data of the website is easy to get.	3(10.34%)	22(75.86%)	3(10.34%)	1(3.45%)
I feel that the functions of the website are easy to understand.	4(13.79%)	16(55.17%)	8(27.59%)	1(3.45%)
I am satisfied with this website	4(13.79%)	20(68.97%)	5(17.24%)	
I feel that the website is useful for my work.	6(20.69%)	21(72.41%)	2(6.90%)	
I feel that the website is friendly to use.	3(10.34%)	25(86.21%)	1(3.45%)	
I feel that the website has improved the working flow.	6(20.69%)	19(65.52%)	4(13.79%)	
I often use the website information.	2(6.90%)	22(75.86%)	3(10.34%)	2(6.90%)
Overall, the website could improve the communication and	5(17.24%)	18(62.07%)	5(17.52%)	1(3. 45%)

Table 1- The results of nurses' acceptance of the NIP

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