Nurse Knowledge Sharing Portal

by

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Dissertation submitted in partial fulfillment of
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CERTIFICATION OF APPROVAL

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Approved by,

_____

(Ms Mazeyanti Mohd Ariffin)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

January 2008

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

NOR SAFWAN AMIRUL BIN SALLEH

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'In the name of Allah, Most Gracious, Most Merciful'

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My family and friends deserve my wholehearted gratitude. Thank you for trust, encouragement, words of inspiration and love given all the time. Once again thank you.

ABSTRACT

This study will be focusing on the Nurse Knowledge Sharing Portal. The purpose of this project is to use Knowledge Management in order to have good information sharing system among the medical staff. The project will be based on Knowledge management and web based development. By doing so, it will support and improve distributed information sharing among hospital staff especially nurses. Nurses can easily find the information of technique, procedure and way how to deal with disease by using this system it implement this project, and Joomla is used as the e-learning model. Besides, the information about new disease technique, procedure and way how to deal with it is provided in this system and will represent in informational data. The scope of study of this proposed project is within nurses' community itself. The target users of course are among nurses as the designed of this sharing system will be within hospital local area network. To gather information for this project I have do some research according to the problem that faced by medical staff. These are some methods, which I use to gather the information such as survey form, journal, health magazine, and also internet. Methodology to be used in executing this project will be incremental and prototyping life cycle model where the development of the site will be based on prototype of component or module per module. To accomplish this project I will develop an online sharing work space like blogs, and forum. Information Sharing System will help medical staff especially nurses to efficiently do their job while doing it safely.

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LIST OF ABBREVIATIONS

UTP	Universiti Teknologi PETRONAS
PHP	Hypertext Preprocessor
HTML	Hypertext Markup Language
IP	Internet Protocol
URL	Uniform Resource Locator
NKSP	Nurse Knowledge Sharing Portal

CHAPTER 1
INTRODUCTION

Nurse Knowledge Sharing Portal is an online site that will be designed as an approach to introduce nurses to community sharing. Nurses' especially in government hospital is believed not very keen towards this kind of system. It is hope by having this site; they may experience the realm, seductiveness and get familiar this cyber system environment themselves. Forum site has been evolved rapidly couple of years ago and we certainly do not want to leave nurses behind in this advantages brought by internet technology. One of the criteria for a good information sharing system is the reliability and the availability of the system. These two criteria are important in order to ensure the quality service of the nurse and customer satisfaction.

1.1 Background study

Presently, most knowledge management has incorporated many components or technologies to stimulate information or knowledge sharing process. More recently social computing tools (such as blogs and wikis) have developed to provide a more unstructured approach to knowledge transfer and knowledge creation through the development of new forms of community (.These components are added to provide diverse options for information sharing in order to support traditional face to face teaching. Examples system that used the knowledge management is e-learning and web conferencing. E-learning has become the medium of sharing the content of lessons for learning purposes .This method not just used to handle ideas of employees but the other reason using this kind of method is also for handle communication between the employee and employer. It is intended using sound pedagogical principles; to assist educators create efficient online learning communities.

Since there are so many components being integrated, e-learning provides lots of potential learning resources to the students For example, in Moodle itself, several features such as blog, forum, wiki, workshop and glossary are included. The features included in Moodle are excellent resources for students to assist them in learning process. By using this idea I would like to make the system concerning the information sharing system and will be implementing in the hospital. Therefore, based on e-learning system I will build system that we called Nurse Knowledge Sharing Portal would be a significant source of knowledge resource for nurse by providing the communication platform between nurse.

1.1.1 What is Knowledge Transfer?

Knowledge transfer is a sub of the organizational development and organizational learning is practical problem in order to get a packed of knowledge from one part of organization to another part of organizational. The problem that always been occur at the hospital it is the knowledge not been share properly among nurses so it would make the knowledge is loss. That why knowledge transfer is very important to make sure that knowledge is can be reused or share with systematic framework. So the result from it is quality and services can be improved. Health services and population health innovations advance when knowledge transfer occurs among researchers, practitioners, policy-makers and consumers using high-quality evidence. In nurse daily life when comes new term or new disease appear they need to know or learn it, so the knowledge transfer between the experience nurses to the new nurse must successful in order to keep that knowledge or lesson learn can be implement it again or develop by other nurses.

To have an effective knowledge sharing we must have complete cycle of knowledge sharing, knowledge transfer , knowledge application, knowledge discover also including effective communication plus technology. (*See figure 1*)

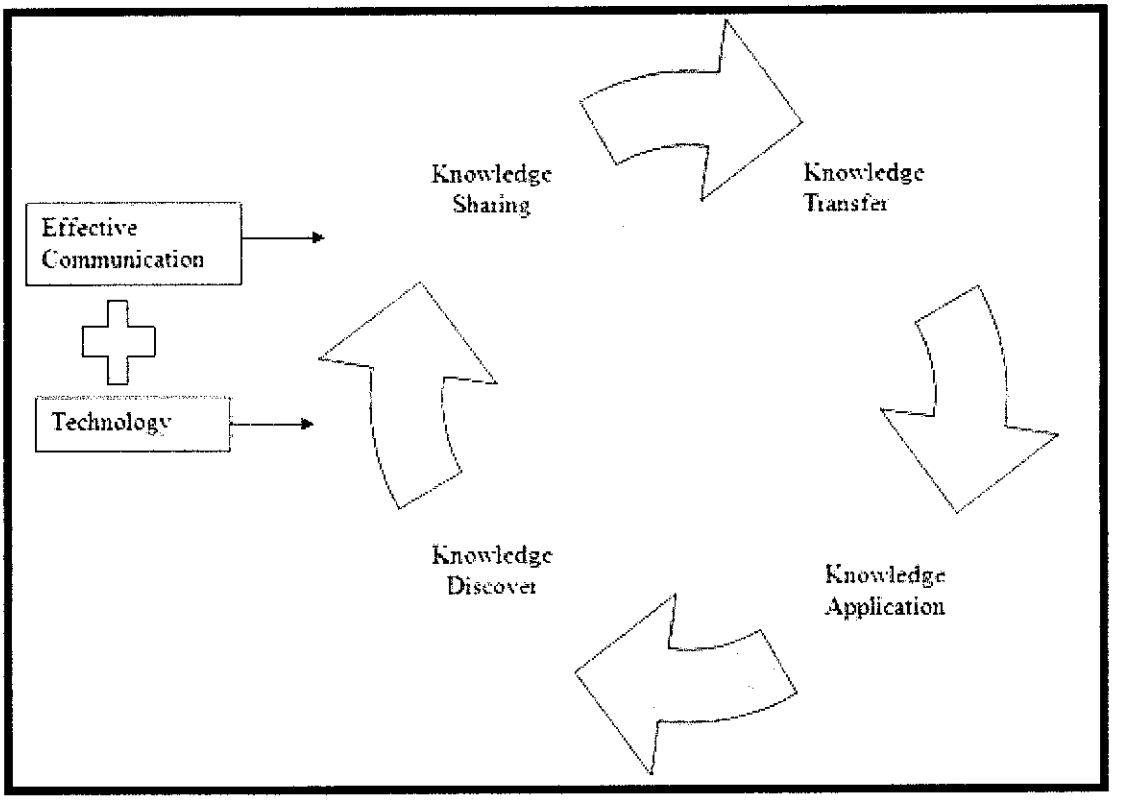


Figure 1: Criteria of knowlege transfer using research model.

Resource : (elias awad, hassan ghaziri, 2004)

The knowledge transfer process is like this , firstly one nurse implied hypothesis that suggest and when the high quality of experience placed into context discernable to others and support are in place to facilitate the sharing and translation of knowledge or gained by some into actionable steps bye other nurse, whether it is the practice , or policy making or maybe can be for research so that could changes and will lead to improvements in delivery of health care and it outcomes on the population.

1.1.2 Type of Information Knowledge Transfer

The set of information knowledge whether it completes or incomplete is depend from senders or receivers.

There are four representative types of information structure in knowledge transfer.

- Symmetric complete information
- Sender-advantage asymmetric information
- Symmetric incomplete information
- Receiver –advantage asymmetric information.

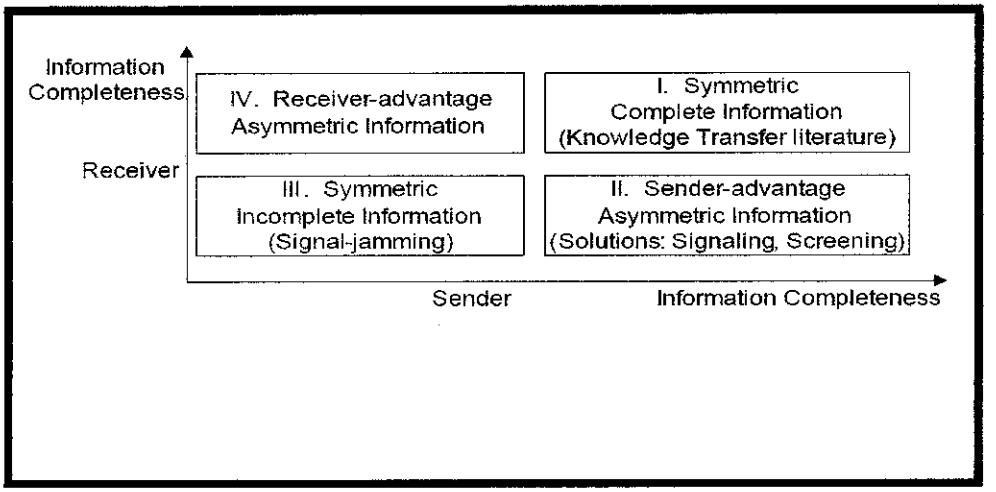


Figure 2: Information Structure in Knowledge Transfer.

Source: (Lihui Lin, Xianjun Geng , Andrew B. Whinston , 2005)

1.1.2.1 Symmetric Complete Information

This kind of information set is complete between the knowledge of sender's and receivers. Much of the knowledge management literature implicitly assumes that knowledge transfers occur under this structure. But limited in it scope only and it usually will used when the situations where the parties have close connections and frequent contact. Example like, when one group member who work together closely and every one of them know the level of expertise every member in the group.

1.1.2.2 Sender-Advantage Asymmetric Information

For type of information is have the complete information from sender but the receiver information is not complete.

Example, Suppose a Malaysia firm is planning to expand its business to China by partnering with a local firm and expects to acquire knowledge of local markets from its partner. A potential Chinese firm knows its own capabilities it has acquired through business experience. Since the knowledge to be transferred from the Chinese firm to the Malaysia firm is very specific and will be used in developing business in China, it is reasonable to assume that the Chinese firm is aware of how valuable its knowledge is. However, it is very difficult for the Malaysia firm to verify the claimed value of the knowledge before an alliance is formed and business is underway, due to its lack of information regarding the context and its unfamiliarity with the Chinese firm. The two firms may fail to reach an agreement because of the asymmetry of their information. If we using in health service example, when one department try to combine with another department, let's say department ICU combine with Ward 3. ICU is normally deal with critical patient and machines that using terminology of knowledge advance. In mean while Ward 3 only deal with normal patient and not using a high technology machine compare to ICU. Therefore Ward 3 have some problem to receive information example like jargon with terms have been used by ICU, So in this situation ICU is a sender have an advantage for having a additional knowledge compare to Ward 3 as a receiver.

1.1.2.3 Symmetric Incomplete Information

In this situation both side the sender and receiver information set are incomplete.
Example,
Malaysia firm try to considering outsource their development project in Indonesia. The project is so isolated because the combination of technology,

domain knowledge and geographically sensitive knowledge. While a potential firm is experienced in the technology, it is unsure about the fit between its knowledge and this project, thus uncertain about the expected value of its knowledge. The potential Indonesia firm may still try to get the project, and the Malaysia firm must be aware that it may be impossible to learn the expected value of this outsourcing project

1.1.2.4 Receiver –advantage asymmetric information

For this case, the sender doesn't have a complete of information set but the receiver have the complete information set. In this structure, this particular information set the receiver has advantage with having the highly valuable knowledge to make sure it easy to understand the sender information. As a result, the receiver can always choose the best source from which to acquire knowledge. For this situation we can refer the example like at Sender-advantage asymmetric information but only change the knowledge level between ICU and Ward 3. Ward 3 has more knowledge level than ICU. So at this particular time can choose the best information source for them to use it.

1.2 Problem Statement

Nowadays medical staffs are faced with and technologically relation problem, this is because due to the rising number of new diseases and the way to treat such decease is not usually known to all. The lack of these, information sharing system may result to the loss of time or money and make also cause unneeded mistake that are being done by nurses. This can be seen by the number of usually cases such as the baby that his hand amputated because of nurse or doctor error.

Hospitals do not have a specific or proper system on how to share their knowledge. So, the system is initiated as a medium to assist nurses on how to share their knowledge with others. The traditional way is like having a meeting and discussion is not very effective

because each nurse have their own schedule. So it's hard to find a suitable time for the nurses to discuss or share their knowledge among them.

Beside that this system is also needed to enhance the cooperation between hospital in this country and other country. The reason for this is there difference country maybe familiar dealing with different kinds of disease or health problem. By promoting communication between the familiar hospital treating a certain disease to the unfamiliar hospital that never treat that kind of disease the hassle of the staff to refresh their skill on treating the patient will be less time consuming, does proving enhances of treating the patient.

The system will have a forum function similar like other forum website. Here, nurses can create a new topic so that each of them can share the knowledge and understanding about the topic. In that forum they are freely to ask anything regarding the medical. So, the nurses can anytime access the forums for free to say and the discussion can be continuously continued. The forum also is not only being shared among of specific nurses, but others can also get the knowledge so that can expand their knowledge and understanding. In example, one of the nurses wants to ask about how to deal with patients who have cancer, so he / she can easily open a new topic in a forum so that anybody can discuss it. Using old way, the nurses can ask their senior that master in the specific knowledge. But using this system, not only the specific nurses can ask the question but any nurses are freely to say about their knowledge, understanding also experience on new idea. So that the knowledge can be shared and expand among them.

Last but not least, a nurse that is has years of experience and skill treating numerous kind of health problem, if not store or shared within the system may loose important technical to handle this kind health problem by other hospital members. If the system is already been implemented this priceless information can be easily access and run through to treat patient.

1.3 Objective of Study

Nurse Knowledge Sharing Portal is primarily concerned with the development of web-based application. Below are the lists of objectives that need to be accomplished at the end of the research:

1.3.1 To produce an online information sharing system that can help users to monitor the information remotely.

This system also will act as a medium to share or transfer knowledge among the nurses. This is because all nurses can easily and freely to ask and say anything through the forums and chat box in the system. All chat messages will be archived and the nurses can use the search engine to refer back the logs and archive messages. So the knowledge and experience from nurses can be shared and be discussed.

1.3.2 To improve effectiveness of hospital new and inexperience nurses.

Instead of gathering the new knowledge from senior nurses, this system also can be the other resource for a new nurse to refer.

1.3.3 To centralize information sharing.

This system also can be a database for knowledge to be store. It also available for any nurse to used it.

1.3.4 Give nurses more time to collaborate

By using this system, nurses can collaborate among themselves anytime anywhere. They do not have time limitation because the system is 24 hours run in the day. So that nurses can get more free times to do their own work.

1.4 Significant /Benefits of the Project

1.4.1 Allow authorize user to access the system

The system will only allow the authorized user to access to the system. All the nurses can have their own account and the system administrator and moderators will have an inspection time by time to prevent unauthorized personnel.

1.4.2 Easy access without connection to the Internet

The system is run in a local area network. So that nurse can easily access to the system although the computer do not have connection to the internet.

1.4.3 Easily to host and manageable

This system is run using a free scripting file and server. So, it can run in any platform of operating system like Windows, Free BSD, Linux and et cetera depends on the system administrator.

1.4.4 Medium of communication

This system also can act as a medium of communication among nurses. Information can be transformed into knowledge when the system is fully utilized.

1.4.5 Search function from the chat logs and show only necessary things

All chat messages will be archived after period of time. The logs can be viewed by the end users. There is also a search function to look for the only necessary things and will eliminate all the pointless things.

1.5 Scope of Study

Nurse Knowledge Sharing Portal will have a concept of from nurses to nurses. The system of online forums will be developed under one wad scope only. It will cover the users which are the Hospital Kajang nurse. As it is a nonprofit website, designed of the site will be for used within the department only. The administrators and users of this system are among the nurses themselves. As this online system will focus on nurses, the interface and the functions will also need to be essential to medical environment. Add-ins functions will be created based on nurses need and necessity.

The purpose of minimizing the scope to only Hospital Kajang nurses is to accommodate the time frame dedicated for the research project. It is also a relevant with the expertise and knowledge of the developer. Besides, it also based on the objective of the research itself. It is a nonprofit system site which designed for educational purpose, thus it is irrelevant if the scope is out site or to the public.

CHAPTER 2
LITERATURE REVIEW AND/OR THEORY

2.1 Knowledge management

The definition of Knowledge management is range from the practical to the conceptual and philosophical. Knowledge Management ('KM') comprises a range of practices used by organizations to identify, create, represent, and distribute knowledge for reuse, awareness and learning (Alavi, M., Leidner, D., 2001) .Knowledge management usually related among the business, learning, medication or whatever thing that is using the collection of data or information.

There are two types of knowledge which are explicit and tacit. In the field of knowledge management the concept of tacit knowledge refers to a knowledge which is only known by an individual and that is difficult to communicate to the rest of an organization. Knowledge that is easy to communicate is called explicit knowledge. The process of transforming tacit knowledge into explicit knowledge is known as codification or articulation. Usually, tacit knowledge can be obtained from other people based on their past experiences which direct to spontaneous thought human experts (tacit knowledge). Example like someone shared their experience, so that knowledge of experience is a tacit knowledge.

The second type of knowledge is explicit knowledge that has been or can be expressed, codified, and stored in certain media. It can be readily transmitted to others. The most common forms of explicit knowledge are manuals, documents and procedures. Knowledge also can be audio-visual. Works of art and product design can be seen as other forms of explicit knowledge where human skills, motives and knowledge are

externalized. Within these two types of knowledge computer technology can present the balance view. A successful KM program needs, on the one hand, to convert internalized tacit knowledge into explicit codified knowledge in order to share it, but, on the other hand, it also must permit individuals and groups to internalize and make personally meaningful codified knowledge they have retrieved from the KM system (Nonaka, I. and Takeuchi, H, 1995).

2.2 Knowledge Management in Hospitals

According to a report dated November 5, 2003 by the Institute of Medicine (IOM), the current nursing environment, which includes lack of information about some diseases and how to deal with new disease that can threat to patient safety. Additional IOM reports indicate 7,000 people die each year from medication errors, and almost 100,000 patients die annually due to other medical errors. Healthcare IT systems can help sharply reduce medical errors by alleviating the workload of staff, by connecting departments within the hospital and by creating real time electronic medical records that can be shared throughout the hospital, making the most current patient data available anytime to anyone who needs it, according to Kennedy. IT also helps reduce the burden of patient and work-related paper documentation by nursing the areas of concern in the IOM report. (Siemens AG, 2002)

Health care management services are delivered by a team of medical review specialists, case managers, and physicians. The medical review specialists and case managers are registered nurses by training. The health care management providers combine general clinical expertise with the specialized skills needed to effectively deliver affordable health care. The desire to capture this expertise in an automated system led to the decision to build expert systems. Expert systems provide a natural way to capture expert knowledge, making the experience of a few available to all users and preserving corporate knowledge (F. Hayes-Roth, D.A. Waterman, D.B. Lenat, 1983).

One example of Knowledge management is implementing in Public health .The Association of State and Territorial Health Officials (ASTHO) have done the publication on knowledge management and provide a broad conceptual framework for Public Health professionals in order to make sure public health can understand and implement it. Knowledge management is the process of organizing and analyzing information to make it understandable and applicable to solve the problem or when the decision making do.
Most of organization including public health has encounter challenges in attempting to manage knowledge. One of the challenges is volume of information - Public health agencies have manage vast quantity of information, most of which is collected for specific purpose but not intend to re-use it "information re-use". Most of agencies always got the strong incentive level of information as well as impediment to being able to manage knowledge.

The second challenge is information security – public health information is derived from many sources and is frequently considered private and confidential. Though individual datasets may not reveal personal information, combining information from different source might accidentally reveal personal information about individual. Agencies must ensure access control to preserve information security and confidentiality.

The third challenge is quality – In knowledge management the difficult part is to ensuring and understanding data quality but this part is the critical requirements. Standardized method for processing data are needed in order to have a good documentation (or metadata).Data collected for one purpose and integrated with other data or used for another purpose may no longer meet data quality parameters established during initial data collection.

Last but not least challenge is ability to access and use information – while many agencies collect and compile large volumes of information, few have established the means to access and analyze the data with appropriate tools. This challenge is related to challenge of maintaining security and the means for users to understand the quality of the data.

Other example, that using knowledge management in medical health care is semantic medical services. In medical research, there is a need to exchange valuable information between different researchers or research groups. However, it is difficult to build automated procedures for resource sharing (e.g., patient records or images), analysis across organizations, which follow different data models and document structures. Most existing health care infrastructures are based on legacy components. Thus, interoperability across such different services from different organizations becomes more difficult. We need to have some common "data medium" for information interchange between the applications so that heterogeneous data can be easily converted into formats understandable to respective applications. As practical approaches to resolving these issues, work flow solutions have been successfully implemented in many health care enterprises1. Workflow technology offers several advantages, including automation and streamlining of processes and significant cost reductions. Also, ongoing research efforts (Health Level 7 (HL7) and Digital Imaging and Communications in Medicine (DICOM)) provide standards for the exchange, management and integration of medical resources that support clinical patient care and the delivery and evaluation of healthcare services. As these solutions are not at a level sufficient to resolve all relevant issues, additional research is required on how to handle them (Yugyung Lee, Chintan Patel, 2004).

2.3 Knowledge Management in Online Services

Why I choose online learning, one example of using web is to reduce manual discovery and usage of Web resources (documents and services) and to allow software agents to automatically identify these Web resources, integrate them and execute them for achieving the intended goals of the user (Yugyung Lee, Chintan Patel, 2004).Such a composed Web service may be represented as a workflow, called service flow. Current Web service standards are not sufficient for automatic composition.

2.4 Sharing Information

"Those who cannot remember the past are condemned to repeat it" (George Santayana). The quote from George Santayana reflects the underlying assumption pertaining to the traditional approaches for KM. The major goal is to achieve "knowledge" from the past so that lesson not will be forgotten. This is rather limiting view of KM because it implies that the information needs of future will be necessarily be the same as they were in the past. Subsequently, those who need information for the problem at hand are treated as simply passive consumers of information (Fischer, 2002).

Knowledge of the past represent an attempt to articulate knowledge gained from previous experiences in order to anticipate future problems and to inform future actions. In organizations, it takes the form of best practices, scenarios; technical and directive documents and report that are generated by specialists based on previous experience as well as anticipated and interpreted future needs. The goal is to provide efficient ways for user to access and share such explicit knowledge, although it alone is most likely to be insufficient to help in solving the problem at hand. Two distinct problems thus arise from this view. One is the assumption that this static and somewhat limited notion of knowledge can handle the complex and dynamic nature of real-life problem. The other is that it relies on existing understanding of the work practice intends to support (Orr, 1990).

The advent of the Internet brought with it further enabling technologies, including e-learning, web conferencing, collaborative software, content management systems, corporate 'Yellow pages' directories, email lists, wikis, blogs, and other technologies. Each enabling technology can expand the level of inquiry available to an employee, while providing a platform to achieve specific goals or actions. The practice of KM will continue to evolve with the growth of collaboration applications, visual tools and other technologies (Nonaka, I. and Takeuchi, H, 1995).

Distributed cognition holds that knowledge does not necessarily reside solely in a person's head, but is often created by and revealed in social practices, and mediated by Sociotechnical artifacts situated in a social environment. One major contribute of this framework is to expand the unit of analysis for cognition from merely focusing on cognitive processes in an individual's head toward a systemic view of cognition delimited by functional relationships of the element that participate in task situated in a Sociohistorical context. Another important contribution is to bring culture, context and history back to the study of cognition. According to distributed cognition, all human activities are embedded in Sociohistorical contexts, which are not solely created by local cultural and historical practices, but also to create by each participant's own history and life-experience (Holland, 2001).

2.5 Effective communication

To make sure knowledge transfer successful implemented. That is we need to derive the expected value of the knowledge transfer, the sender's and the receiver's information sets should contain at least the following components:

- The nature of the knowledge, such as the knowledge being tacit or explicit, proven or unproven.
- The context in which the knowledge is put to use (whether the context has personal features)
- The fit between the knowledge and the receiver based on the receiver's declared usage of the knowledge;
- Ties between the sender and receiver, such as their frequency of interactions and trust.
- Last but not least is must have the sender and receiver in one communication.

The proper way of knowledge sharing or knowledge transfer will make the knowledge sharing more effective and efficient (Nonaka, I. and Takeuchi, H., 1995).

2.6 Knowledge Transfer Implement in Developing Country.

The knowledge is very powerful especially nowadays we are in 21 centuries , and many country is compete each of them in developing technology .Despite, developer also want make sure their country to be leader of the technology. It also needs a technique to make sure that knowledge not loss or be wasted. (Kogut and Zander, 1995; Das and Teng, 2000) says that knowledge is mostly protected through intellectual property rights and because of its fluid nature, it is not easily imitated by competitors. These make country compete between them to make sure the technology is evolve so, they describe the learning that occurs between them and normally using as asymmetric because the other country normally learn with different intentions. (Freeman and Hagedoorn, 1994; Tsang, 1999)Says that developing country partner learns the skills , knowledge , technology and management system is not gain from their counterparts but the developing country partner only learn from the alliance experience. There is a contained assumption says that the developing country partners have no technology and know-how worth learning.

We can see instead using knowledge transfer in developing country it also can be implementing at hospital especially among nurses. Used the right way how to manage the knowledge using this kind of theory can make health services be more efficient. Usually nurse gained the knowledge through traditional health care research, patient's satisfaction survey and some info gather from intelligent gathering. Intelligent gathering is how the brain evolves offers insight into the mind. Thus, a transferor (person that transfer the information) will harmonize knowledge from this knowledge stock (pure knowledge) and transfer to the transferee. Muller (2003) says that Knowledge is one of the constituents of technology. For this case, any technology transfer would also include the knowledge about the principles on which the technology is built and structured. Technically embedded knowledge may also include knowledge implanted in products. Alliances that transfer product-manufacturing capability to their partners would inevitably transfer the knowledge encapsulated in the product. Such knowledge may include design knowledge, assembly knowledge, application knowledge, market

knowledge and knowledge about how to solve problems likely to be encountered by users.

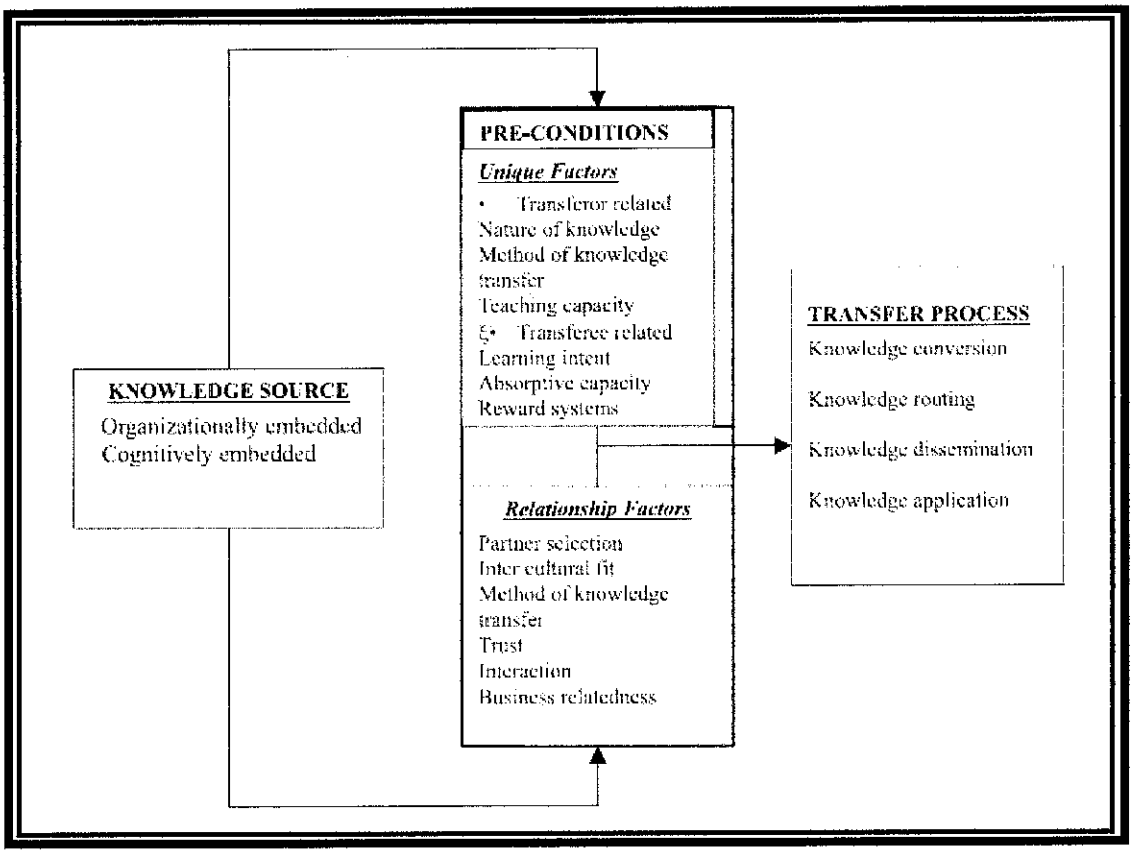


Figure 3: Knowledge Transfer Model

Source: (Bedman Narteh, 2008)

2.7 What Is Cognitive/Individually Embedded Knowledge?

We know that the tacit knowledge can not be codified so the part of an organization's knowledge stock can not be codified because it is tacit and implanted in it people. The people may be the company's own employees or expatriates hired elsewhere who possess such knowledge. Any knowledge transfer process must involve core personnel example like when in one organization who are familiar with the knowledge who are try to transfer the some knowledge with people are hired from outside but have a same knowledge bases . Narteh (2006) indicated that they were critical to small and medium-

sized firms who due to their own internal labor constraints may not have enough personnel to be sent abroad for the knowledge transfer.

2.7.1 Pre-conditions

That the flow of the knowledge could be proceed by two sets of factors. One set relates to the characteristics of the transferor and transferee as unique entities and therefore is called unique factors. The other set of factors relate to the interaction between the transferor and the transferee and is called relationship factors. These factors should be clearly understood and separated as they impact on the effectiveness of the knowledge flow between transferors and transferees. (Bedman Narteh, 2008)

2.7.2 Unique factors

Unique factors as already stated, are peculiar to either the transferor's ability to transfer the knowledge or the transferee's ability to absorb the knowledge. Accordingly, unique factors have been further classified into transferor related and transferee related factors. The factors are only illustrative but not exhaustive. (Bedman Narteh, 2008)

2.7.3 Transferor related factors

These are factors within the transferor or developed country partner firm that affect its ability to transfer knowledge to the recipient firms. These factors include the type of knowledge to be transferred, the method of transfer adopted as well as the teaching capacity of the transferor. (Bedman Narteh, 2008)

2.8 Dimensions of Transferred Knowledge

Knowledge is an asset that comes from many different perspective and levels of analysis, I have read from the several authors they says that knowledge transfer is a very subjective and have many way how to make the knowledge be more effective to be receive . Winter (1987) says that knowledge is more easily transferable when it is teachable, articulable, observable, simple and independent of a system. In other word, when Actions undertaken to facilitate voluntary transfer may well also facilitate involuntary transfer. Taxonomic dimensions of knowledge assets according to how difficult it is to transfer. More complicated the knowledge more approximation we need in order to gather the knowledge. Example like in hospital have many different partition of ward, And each ward has their own capability. When we compare between ward for children is simpler than ICU (intensive care unit) ward. So the approximation for the worker in ICU ward is more difficult because they need to have a more experience and knowledge in order to do the service for ICU patient. Many researchers have used dimensions to analyze the effect of the characteristics of knowledge in internal and external knowledge transfer.

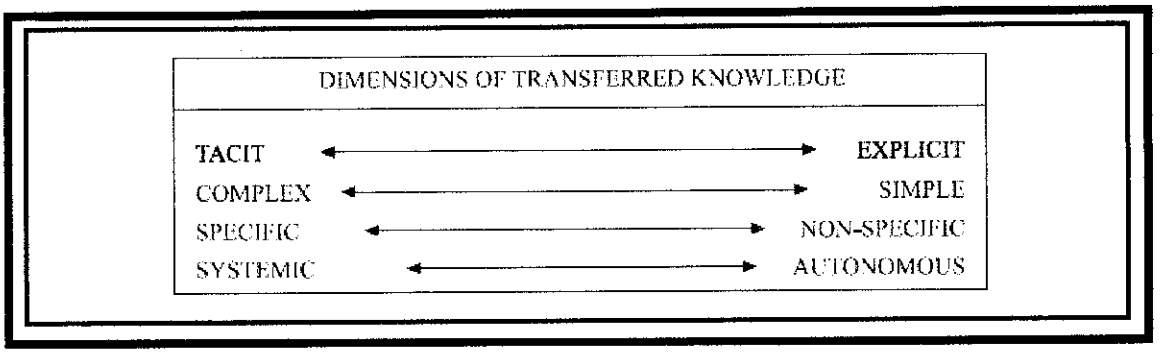


Figure 4: dimensions of transfer knowledge

Source from: (Juan Carlos Bou-Llusar and Mercedes Segarra-Cipre´s, "2006)

This figure shows how dimensions compare between tacit knowledge and explicit knowledge. Tacit is more complete compare to explicit. Despite, we know in health services more tacit knowledge is being used because the quality of nurses services is depend on their experience and knowledge. So to manage with health services we need

focus more to tacit knowledge. By using this dimension of transfer knowledge we tend to manage the tacit knowledge with more systematic and effective.

2.8.1 Degree of complexity

There are two type of complexity it is technical and social. When we derive the meaning of complexity in term of dimensions that shows increase the difficulty of comprehending how a system functions or produces some outcome. Rogers (1983) defines complexity as the level of hard to understand and to use in order to make the improvement.

2.8.2 Degree of specificity

A specific asset has different implications if we analyze it from different speculative perspectives. The resource-based view holds that asset specificity is a source of causal ambiguity. Barney (1991) says Causal ambiguity meaning the difficulty for competitors to understand how a firm creates a competitive advantage. In health care perspective degree of specificity we can see from the level of difficulty for nurses to understand and implement the knowledge. The specification of the knowledge will be the important thing to do before transfer it to the new nurses to understand it. Because some knowledge is not appropriate for them learn it.

2.8.3 Systemic and independent nature of knowledge

The systemic or dependent dimension is related to the dependence relationships that knowledge has with other systems of knowledge. (Chesbrough and Teece, 1996; Gopalakrishnan and Bierly, 2001) found out that the more systemic knowledge is, combination between this knowledge and the knowledge base of competitor firms, and the more difficult involuntary knowledge transfer will be.

The more tacit, complex, specific and systemic the knowledge, the easier it is for a firm to generate a sustainable competitive advantage.

2.9 Knowledge Assets

This is a very important component as they play major role in all decision making. They need to be exploited internally in order for full value to be realized by the owner. Teece (2000 p.36) says that the nature of knowledge itself makes organizational knowledge difficult to transfer as it is embedded in the organizational processes, procedures, routines and structures. With reliable knowledge assets, knowledge can be transferred to the respective person at the tight time and at the right place with great accuracy. The performance of knowledge transfer depends heavily on the availability and the accessibility of the knowledge assets.

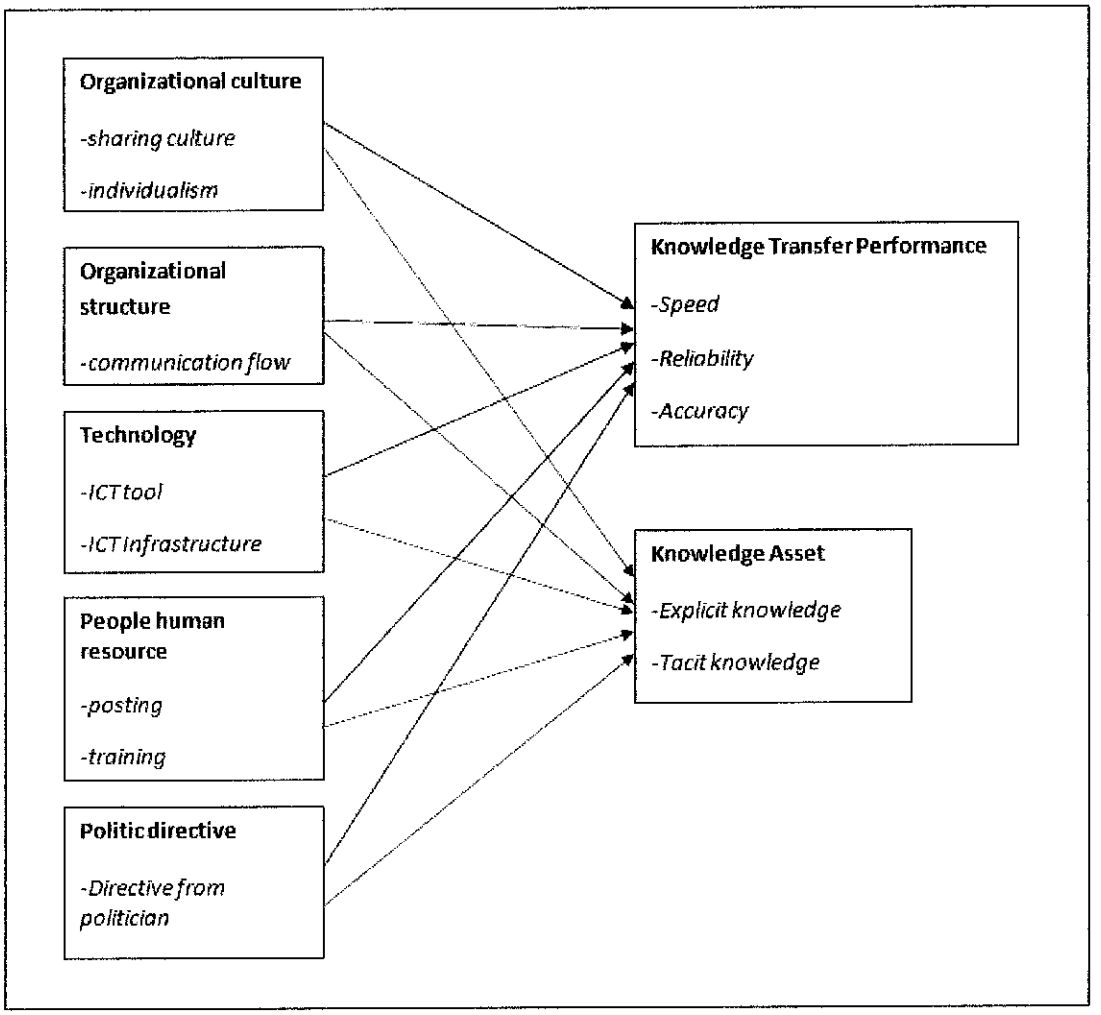


Figure 5: Conceptual framework of knowledge transfer

Source from: (Syed Omar Sharifuddin Syed Ikhsan and Fytton Rowland, 2004)

CHAPTER 3
METHODOLOGY AND PROJECT WORK

3.1 Project Methodology

For this research project, the System Development Life Cycle (SDLC) models being chosen is both incremental and prototyping life cycle model. Incremental development product life cycle was chose as the system will be develop bit by bit, function by function according to the users or actors functionality in the system. The reason of implementing prototype model together with the incremental model is because, whenever functionality has been fully developed, the function unit or class can be treated as a small prototype that will be later added up and integrate to accomplish the final complete system. Basically, the development of Nurse Knowledge Sharing Portal will go through main stages or phases. The stages are Planning, Requirement Analysis, System Design and Development, Implementation and Testing and System Maintaining.

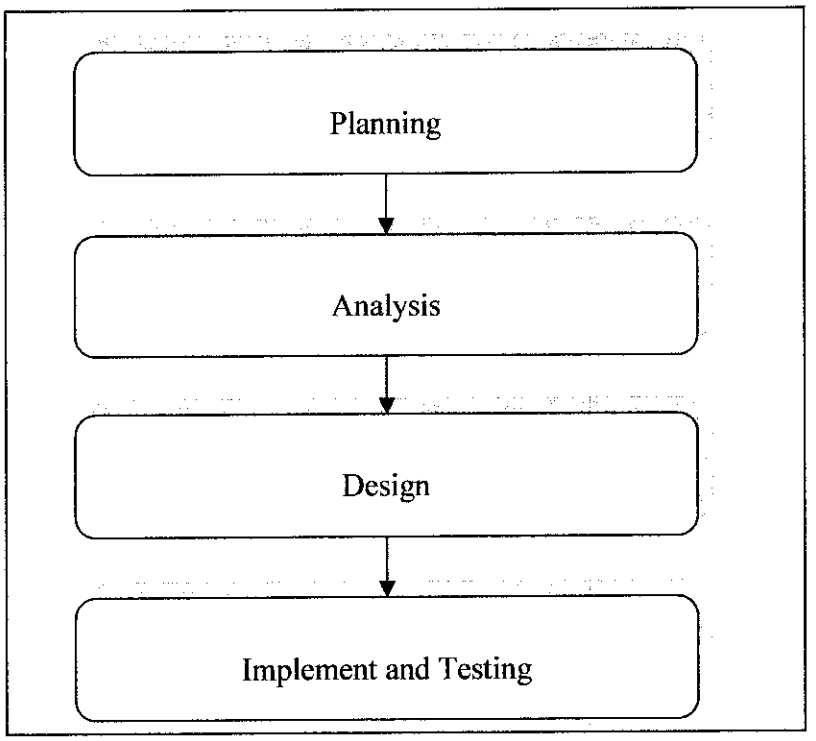


Figure 6: Software Development Life Cycle

The methodology of conducting this project involves multi phase process. The first phase of the project is identifying the problem and defining the scope for this project. Constrains for this project are also defined in this phase. The scope for this project is defined to focus on information sharing only in one hospital wad by using Knowledge management concept.

The next phase is where the research is conducted to gather information on the information about the knowledge management, why we need to sharing knowledge, why using online system and also some example of implementation of knowledge management in hospital. This research focuses on several approach and frameworks identified in the earlier stage. Data gathered from using survey form, journal, health magazine, and also by using internet.

Then, the designs are translated to a working prototype. The scope of this phase includes the development of the software or system and the testing of the developed software or

system. Learn how to run the template of the web page by using Apache, PHP and MySQL. The system is programmed using and then being integrated with the hospital web site.

Finally, the Nurse Knowledge Sharing Portal will be evaluated by assessing the performance of the developed system in the sharing space environment. The series of testing for targeted users will be done in the evaluation process. The result of the evaluation concludes whether the knowledge sharing system is really improving the quality of nurses services compared to results in the previous.

3.2 Methodology of Study

Research is conducted to gather information on the information about the knowledge management. I have do some research for the template that I will use for this system. I have learned how to use the Apache server by asked from my friend and some tips I got from internet. This research focuses on several approach and frameworks identified in the earlier stage.

3.2.1 Data gathered

Data gathered from the feedback of system's primary end users (Nurses) was compiled, analyzed and summarized to justify the feasibility of implementing Nurse Knowledge Sharing Portal to ensure that the system's goals is met which is to further meet the specific needs of system's users. Results from the attempted data collection techniques, namely, questionnaires *(see appendix)* and feedback from prototypes will serve to determine user requirements and used as a basis to measure the effectiveness and usability of the system. The feedback analyzed through the questionnaire is as shown below in the form of bar charts.

3.2.1.1 Survey form

A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. As the data was analyzed the developers has develop a rough idea on how the system should be working. For this project, one set of questionnaire have been create consist 9 type of question and the respondents is 40 nurses including health services worker at Hospital Kajang.

3.2.1.2 Interview

An interview is a conversation between two or more people (the interviewer and the interviewee) where questions are asked by the interviewer to obtain information from the interviewee. I have done interview with one of the Information Technology department committee at Hospital Kajang. This interview is regarding what is problem that is always been trough by nurses during their working time. And the interviewer also ask question regarding the level of implementing computer facilities in hospital Kajang.

3.3 Development Tools

This Nurse Knowledge Sharing Portal is proposed to be developed using web based technology and adopting the Hypertext Preprocessor (PHP) as a scripting language. In web based technology, the powerful of PHP programming language associated with the open source technology will be used to develop the system control. PHP also is a reflective programming language that is high level scripting language for producing dynamic Web pages. For the database, My SQL Server will be used as it is stable to be configured and free to use. The server that is used to host this system is Apache server which also is an open source platform that can run in any platform of operating system. The researcher uses the Wamp5 as a choice of Web Server installation

The software that will be used is Joomla version 1.0.13 Joomla is open source software released under the GNU licensed. It is a CMS (Content Management System) that integrates in its inside all the instruments that are used to create, in a broad sense, an information portal. The tools that are used to configure and develop the system are Microsoft FrontPage, and also Adobe Photoshop CS2. The hardware that are used to develop as well as hosting the system as follow: *(this is not minimum requirement)*

- Intel P4 2.4GHZ
- 768 GHZ DDR RAM
- 80GB PATA Hard disk
- DVD-ROM drive
- 17" CRT Monitor
- Network Card

3.4 Comparative Study of Available Tools

Research on technical matter explains the reasons as to why the programming language, database server and other relevant technical matters are chosen. This section explains to the reader in detail what made the developer chose and why it was chosen to help with the development and implementation of the system at hand.

3.4.1 WAMP5

WAMP5 is a full-featured of Apache, My SQL, PHP, and PHP MyAdmin. WAMP5 has combined all the technical advantages of utility computing with a highly intelligent business management structure. WAMP5 provides you with a streamlined and fully-managed IT platform comprised of:

- Desktop Application Services which provide a standard operating environment for all users.
- Housed Application Services to manage the business applications which are specific to your organization's needs.
- Internet Security Services which provide secure web browsing, Internet email, policy management, virus control and remote access services.
- Network Services for the design, installation and management of a Wide Area Network ("WAN"), along with a range of remote access (Virtual Private Network or "VPN") solutions.
- Client Site Services for simple and reliable on-site user equipment.

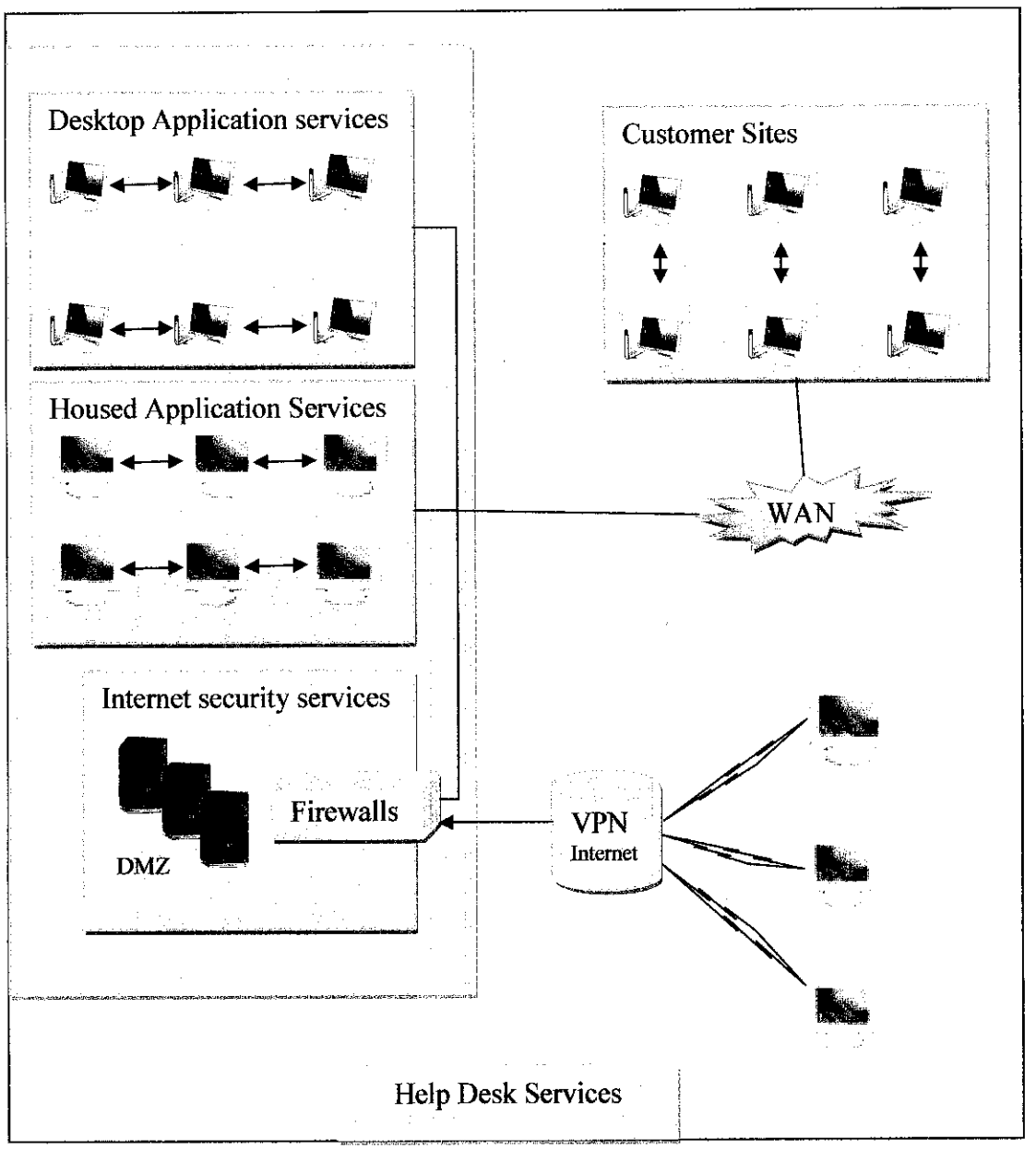


Figure 7: Wamp5 Model

WAMP5 comes with a service manager as an icon tray. By using WAMP5 we can fully control server and local projects. WAMP5 is not designed for production but as a development environment. With WAMP5, you will be able to create you scripts locally on your computer, test them and then upload them on your production server. WAMP are configured Apache and MySQL servers with default configuration files to have the most standard platform.

CHAPTER 4
RESULTS AND DISCUSSION

4.1 Discussion

Nurses have lots work need to do and do not have the effective way on how to share their knowledge. Using this system they can collaborate among themselves as well as an entertainment for them. Any issue can easily discuss without meet each other. Current way that nurses use to discuss or collaborate is by having a meeting. This method is not very effective because the meeting usually only involved by nurses that have a free time on that time.

Refer to the functions that the researcher wants to implement into this system, the system can be effective if using as much as possible. The system only allow the authorize personnel to browse the system and make the system private from third party. Using forums, users can easily discuss and share any topics they want. This can create a good environment where all the information can be transferred into knowledge and can expand user's knowledge. Besides, new things can be explore and share by all the users.

Other main function is a chat box. Users can easily chatting in a section provided in the forum. All chat messages will archive and will be saved after period of time. There also search function where the users can search from the archive log the necessary things from the entered keyword. This functions acts like an intelligent system so that the final results will only show the necessary things. All unnecessary things will be eliminated from the final results. Nurses also can have informal meeting where there can discuss and share everything in a real time anytime without time limitation.

Other function like download section is just for entertainment or share any file to other users. Users can easily upload and download the file using the download section in the

system. Function like survey and poll is just to have an opinion from all users about some question and can be changed by the administrator. Users can view the current results of the survey or poll.

4.2 System Architecture

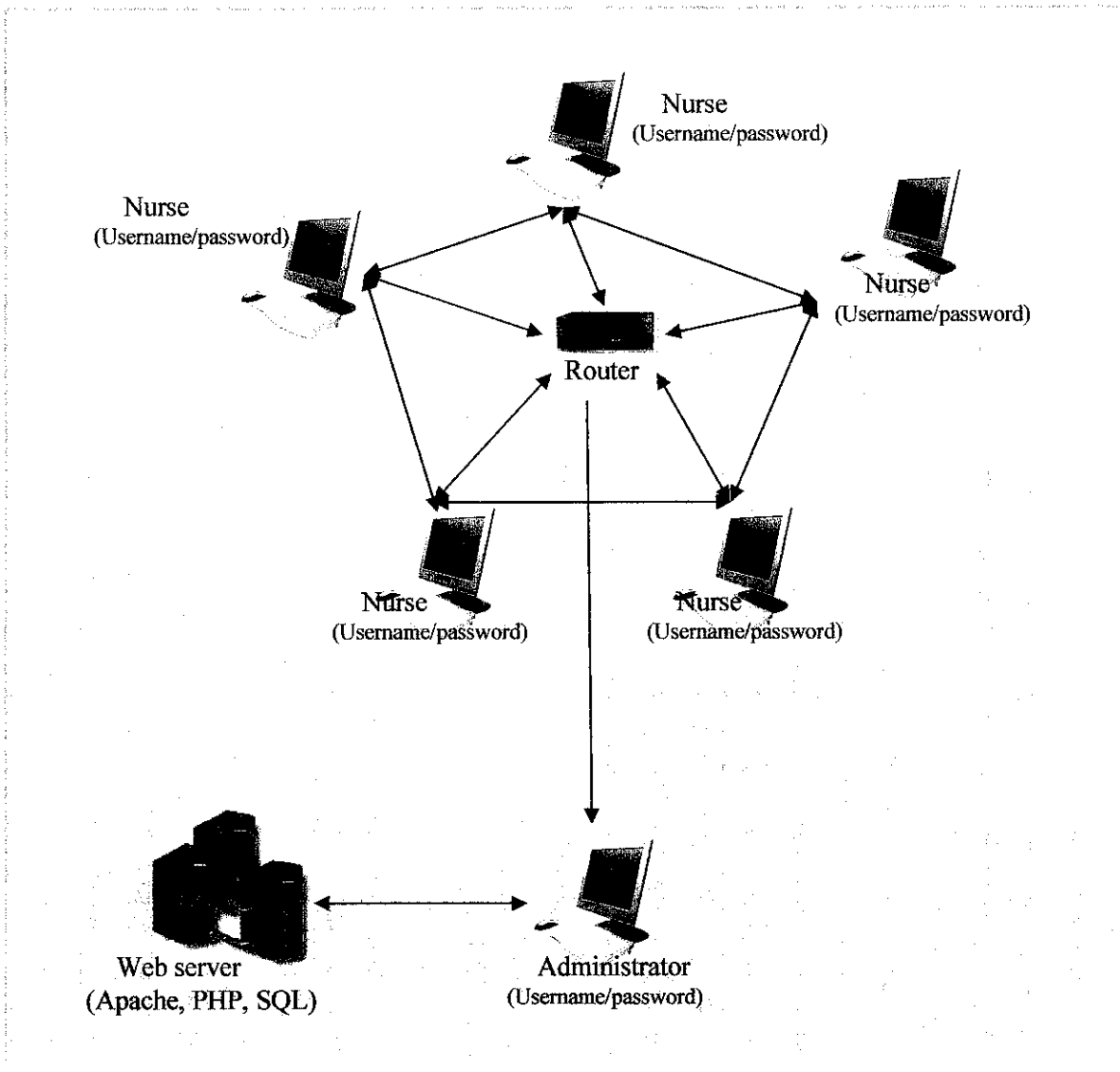


Figure 8: Nurse Knowledge Sharing Portal Architecture

4.3 System Functionality

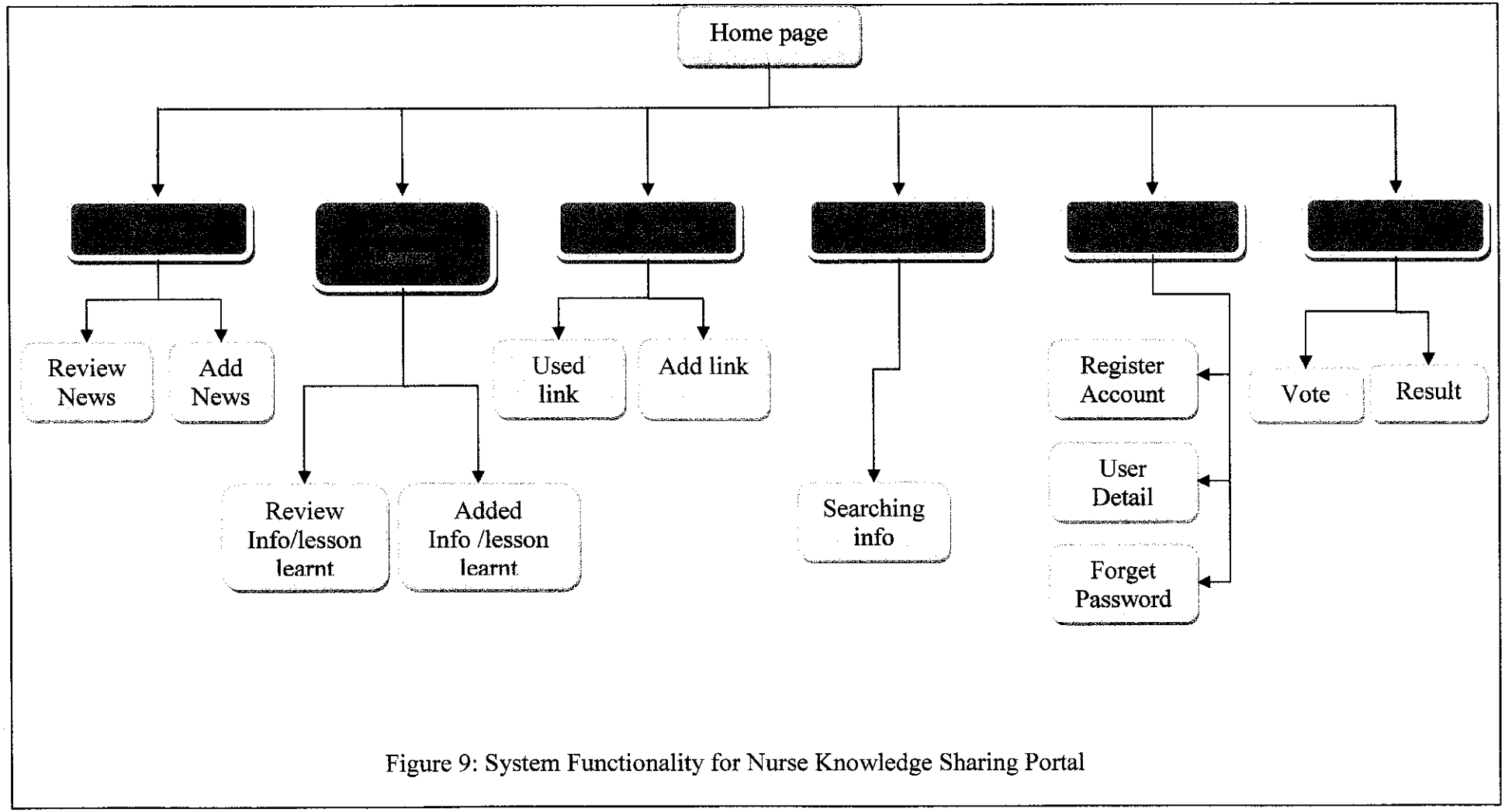


Figure 9: System Functionality for Nurse Knowledge Sharing Portal

4.4 Flowchart

The flowchart of how the approach works is presented in the diagram below

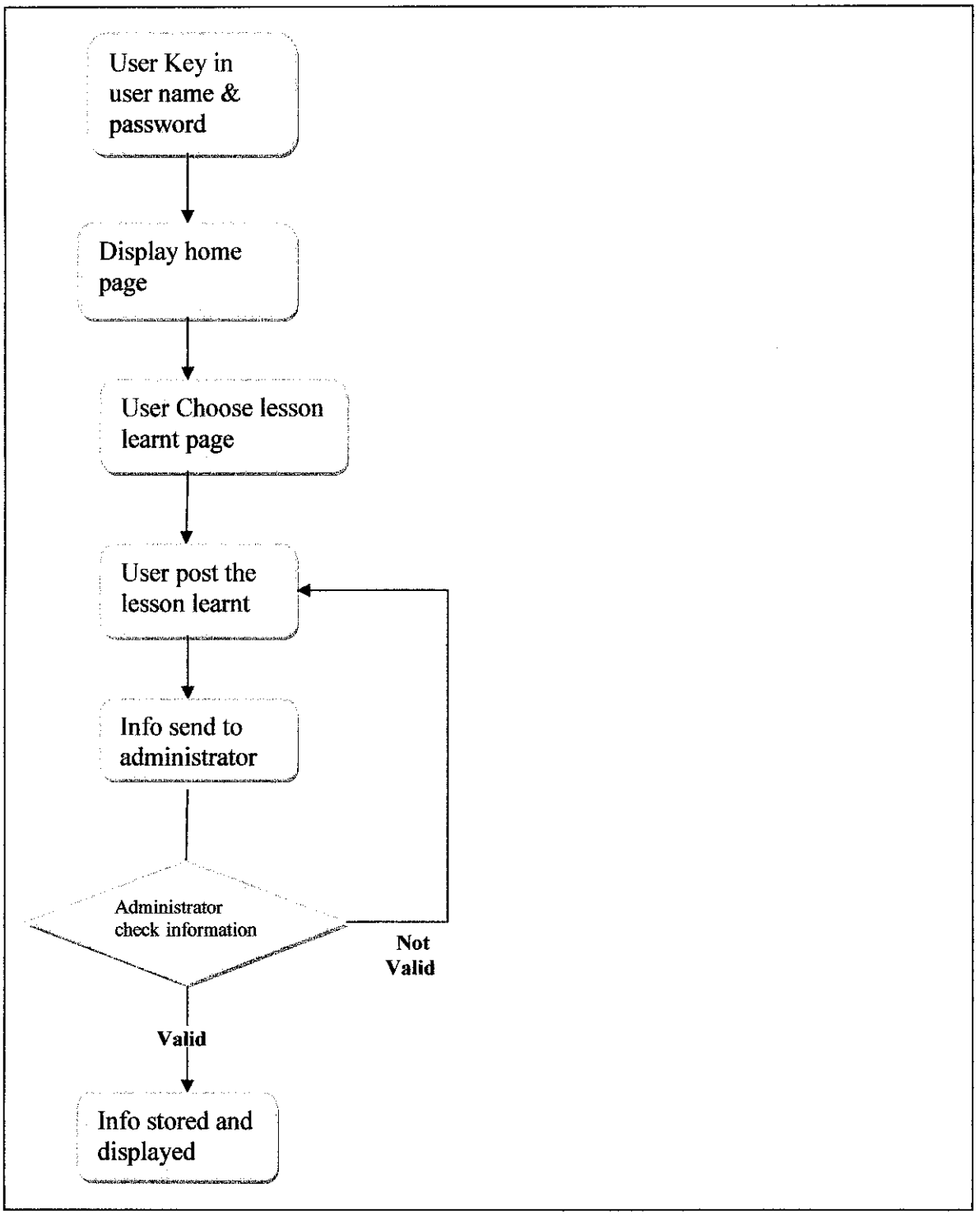


Figure 10: Flow chart key in information process

Based on the above diagram, user needs to insert user name and password to access the news page. User is redirected to a main page which displays the welcome note of system. Then, user click at the news menu and redirected to news page. User can key in whatever information that related to health care. Information will send strait to the system administrator. Administrator will check whether the information is valid or not. If valid the information will display at news page, but if the information is not valid user will redirected to the news page with new blank information box.

4.5 Web Interface Screenshot

4.5.1 Home Page

This page is designated as the main point of entry after executing "Nurse Knowledge Sharing Portal" from wamp5. Home page provide user with an overview and quick link to the rest of the site. Users who wish to access the site will have to login using given username and password by administrator. User's name will be displayed after successful login

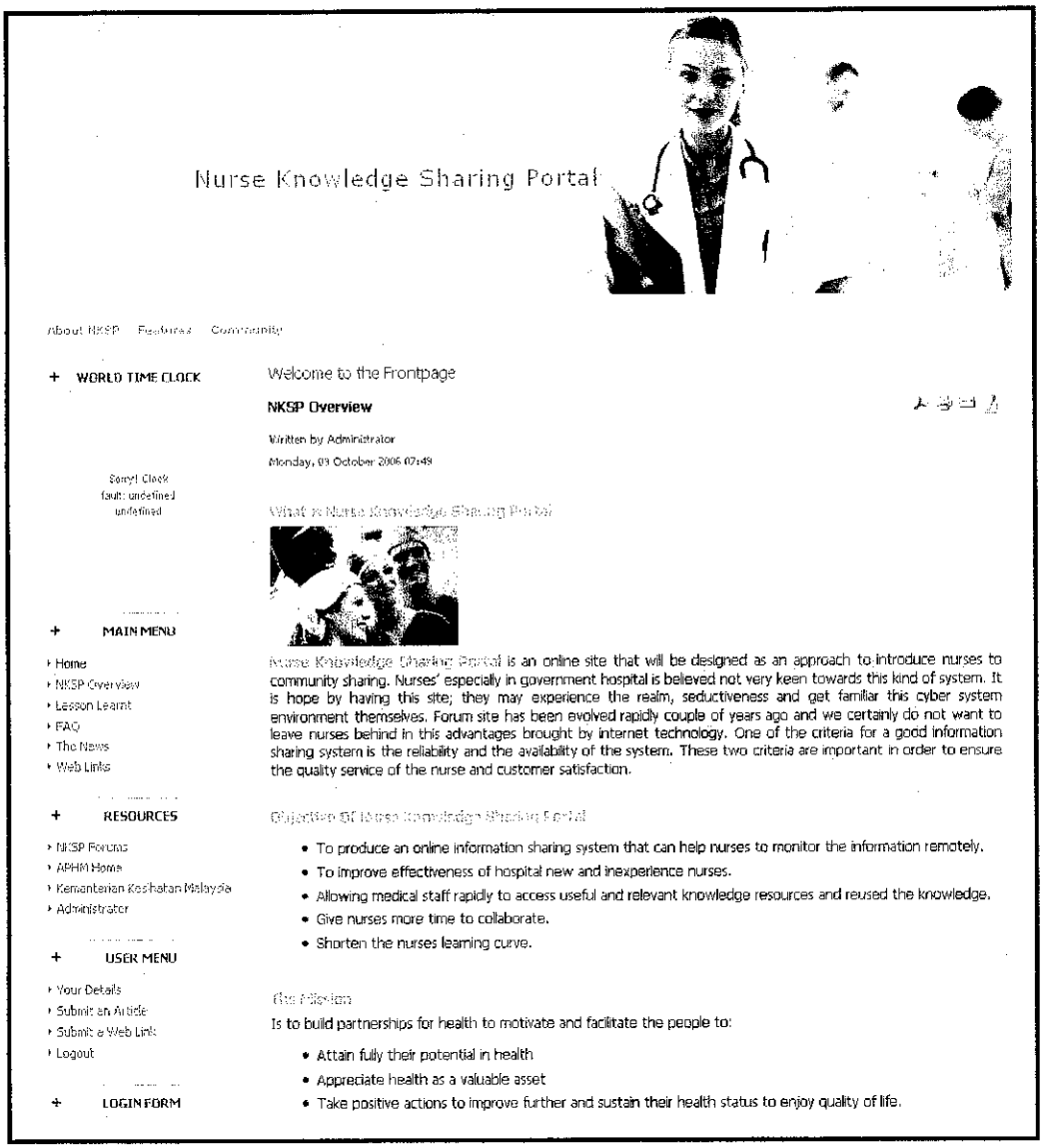


Figure 11: screen shot home page

4.5.2 Lesson Learnt Page

Lesson learnt is something that makes my system different with other system, in this page user can share among theme their lesson learnt and experience. Not only share experience, user easy to collaborate among theme. All article that have been create by user will be displayed in this page, but only after approve by administrator.

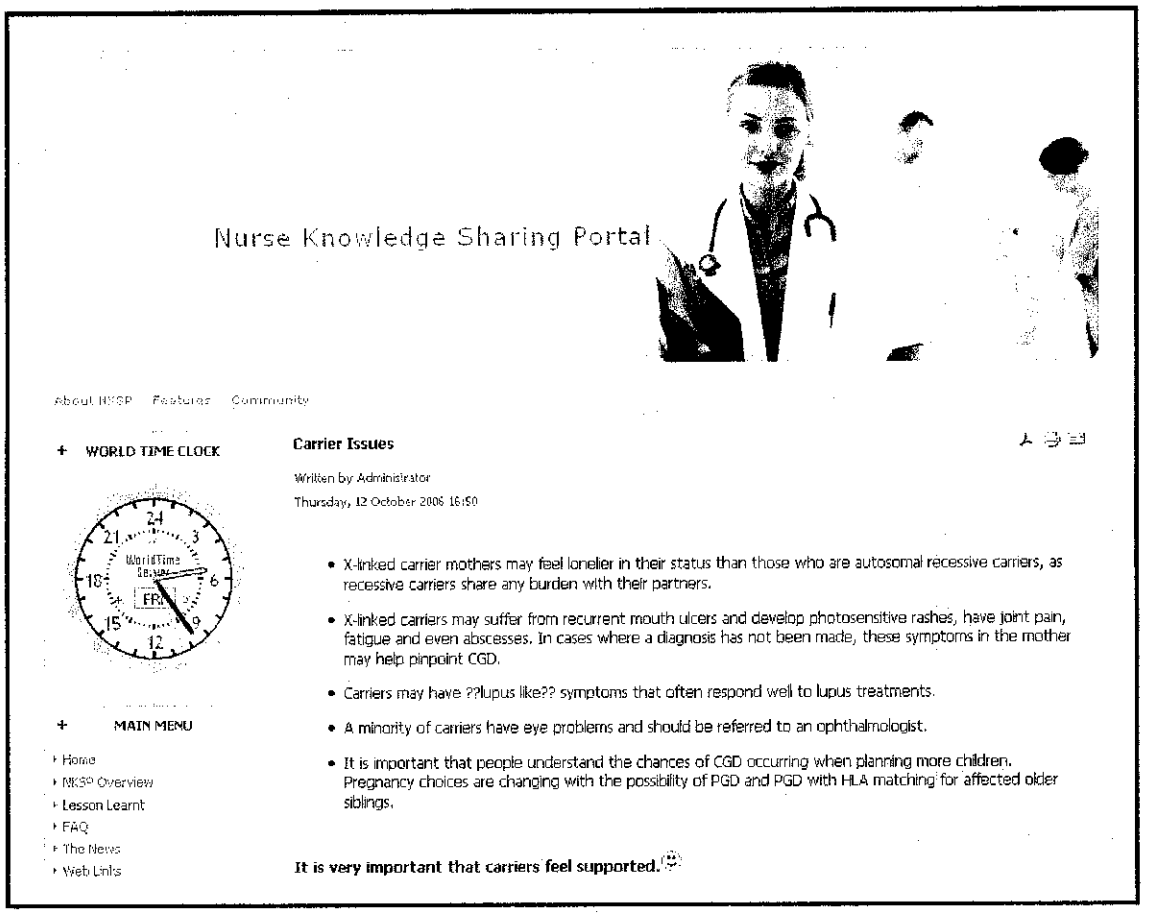


Figure 12: screen shot lesson learnt page

4.5.3 News Page

NKSP News section keeps user up to date with the various health services issues not only in Malaysia, but also from around the world.

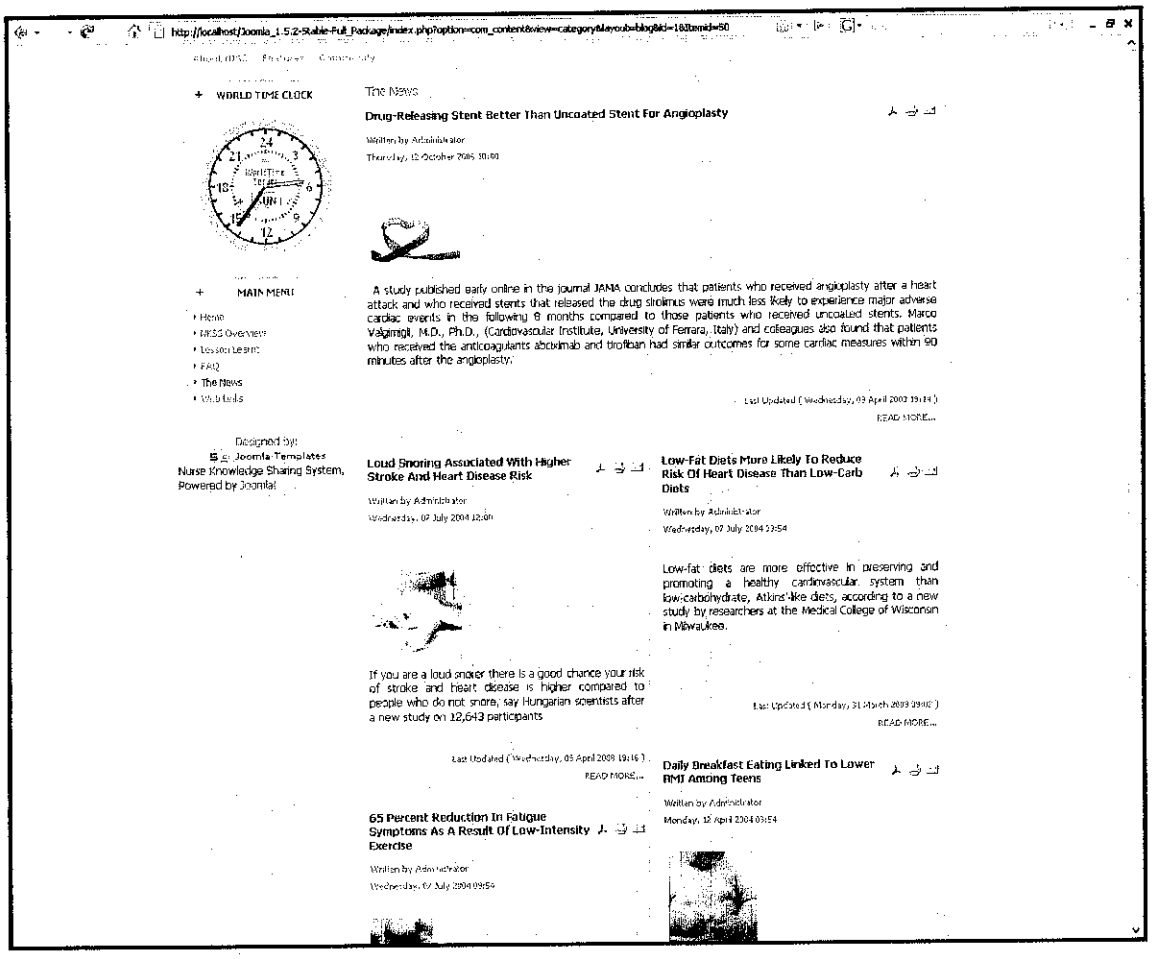


Figure 13: screen shot news page

4.5.4 Frequently Ask Question Page

This page have shows the question that always been ask by user. User can contact administrator if don't have any question regarding what they want to ask.

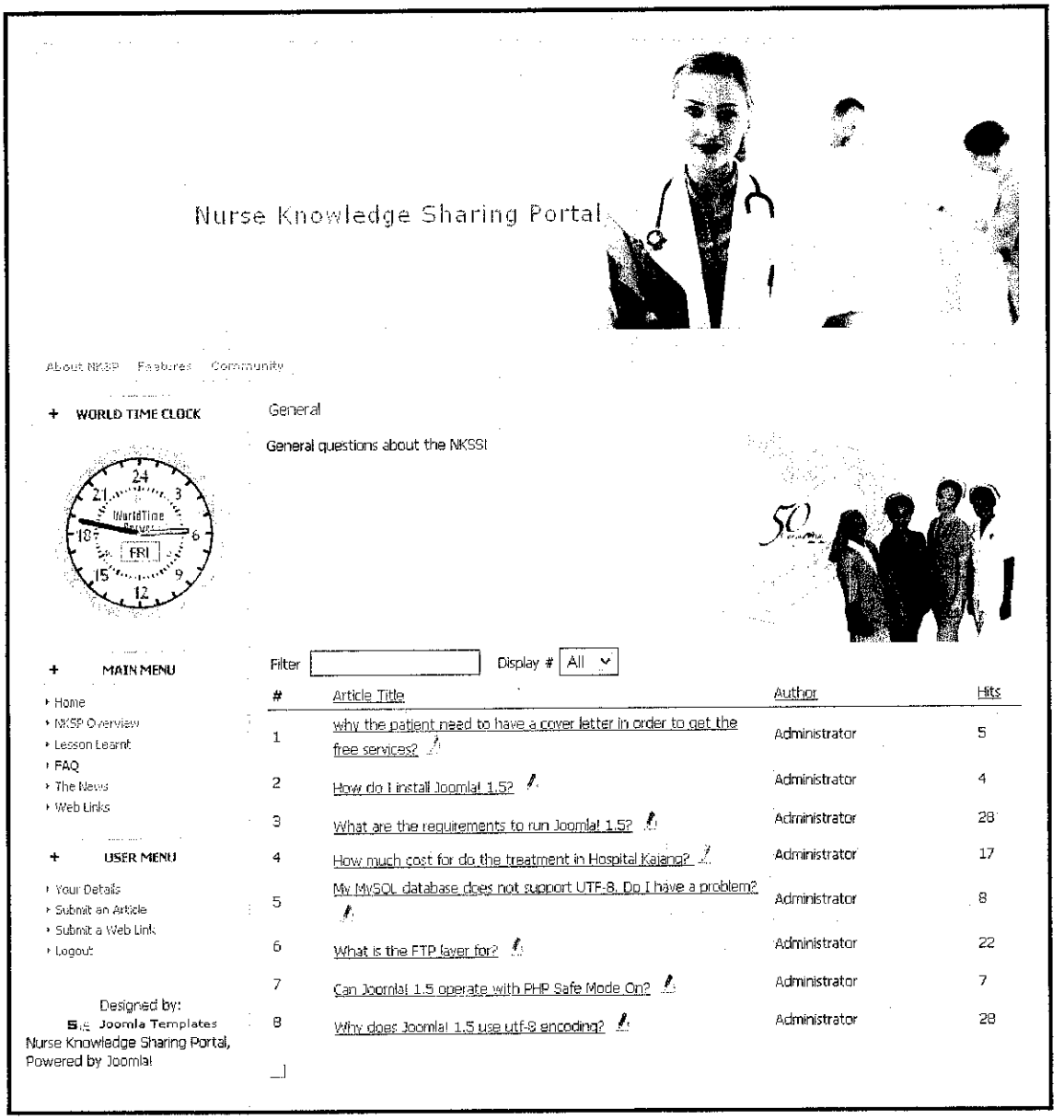


Figure 14: screen shot FAQ page

4.5.5 Login Form

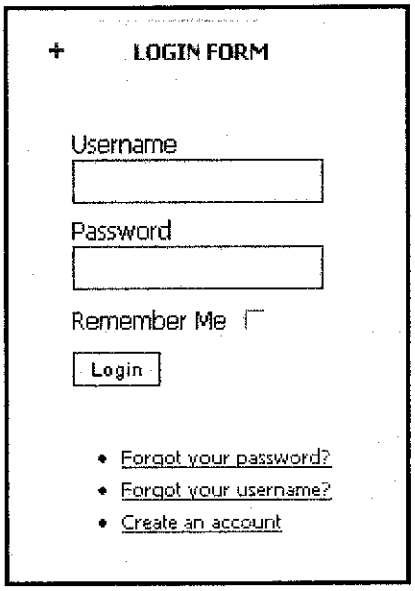


Figure 15: screen shot login form

4.5.6 Polls form

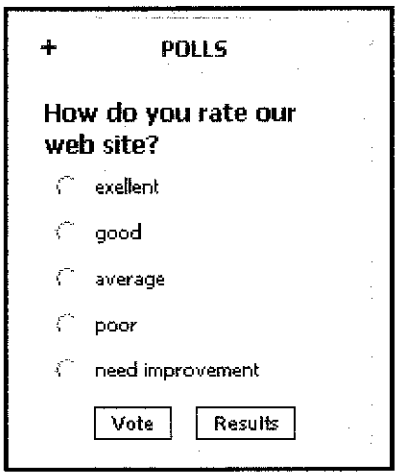


Figure 16: screen shot polls

4.5.7 Web Link Page

Other source that link with NKSP is on this page

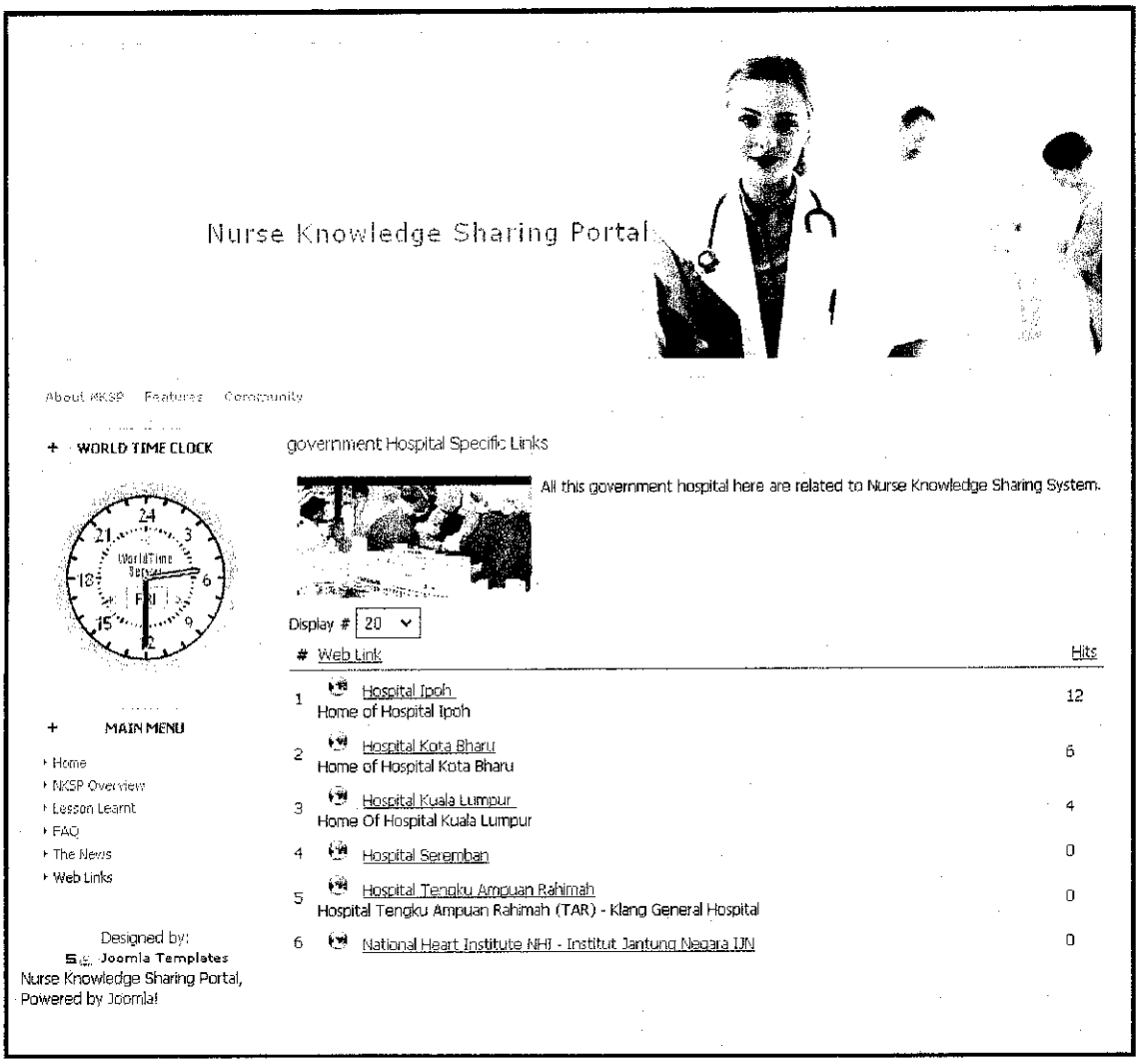


Figure 17: link page

4.5.8 Forum Page

The forum is in this page is design for holding discussion among users and posting generated content. These functions are important in obtaining various suggestions.

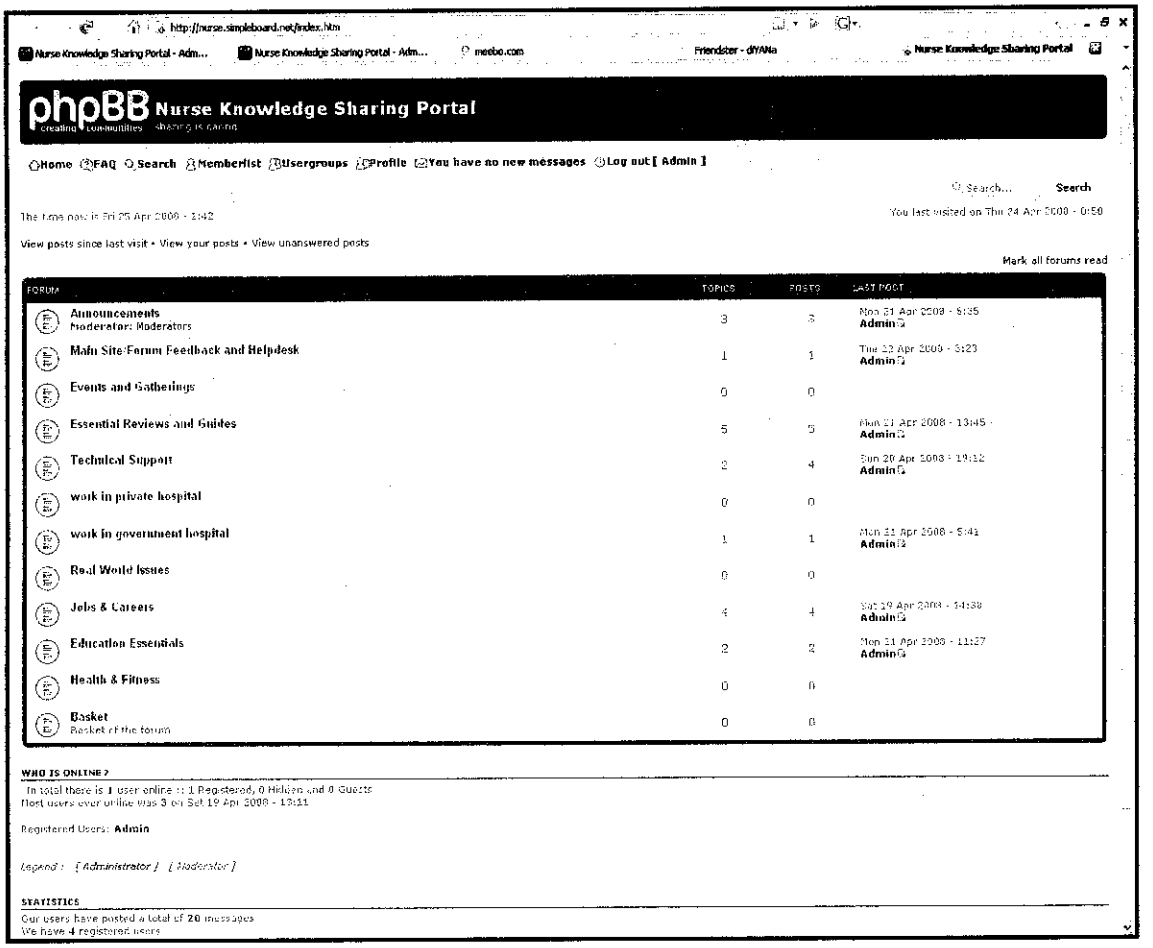


Figure 18: Forum page

4.5.9 User Detail Page

User can easily edit or view their detail in this page. If user want to change their password or user name can do so in this page.

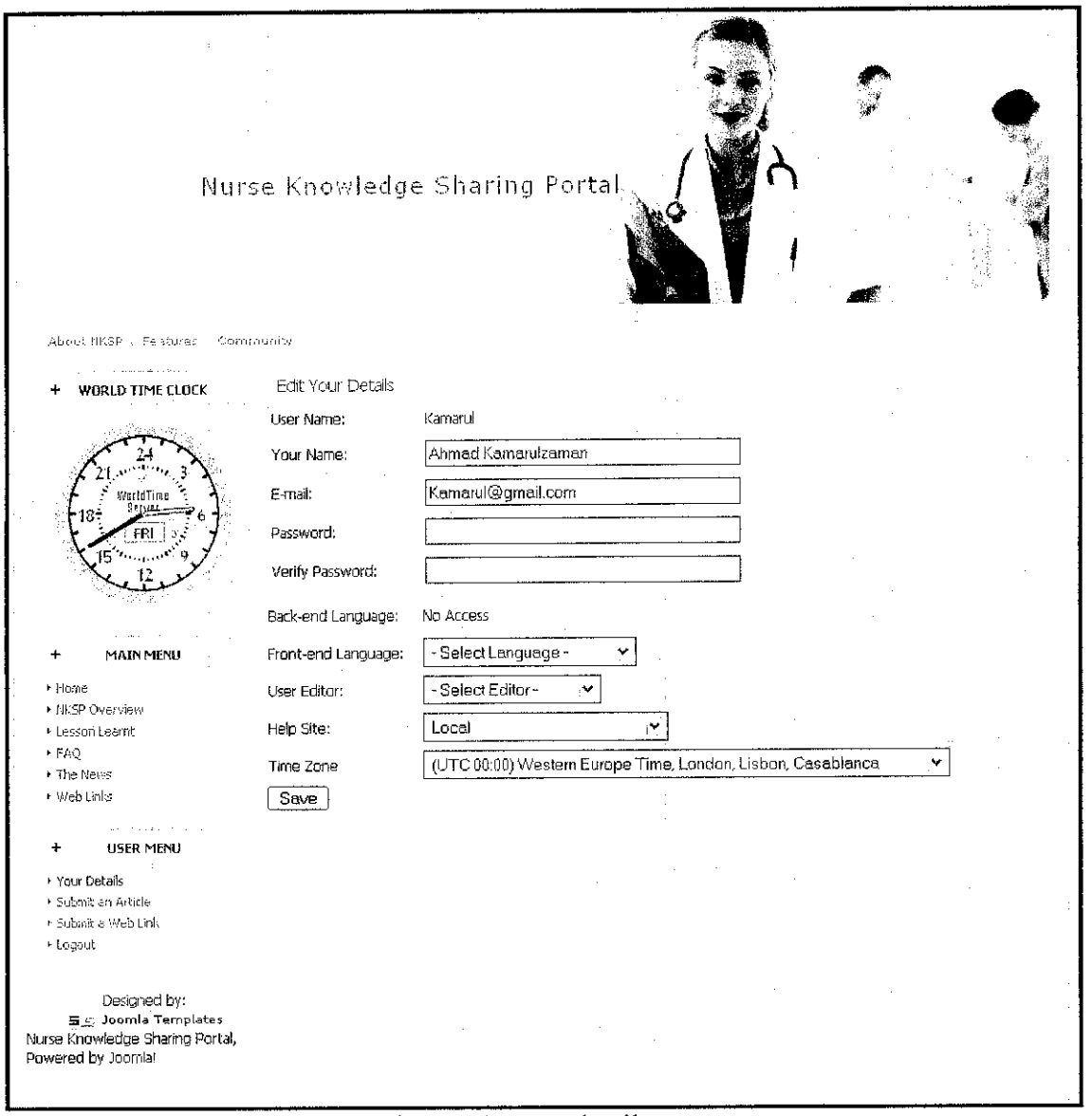


Figure 19: User detail page

4.5.10 Submit Article Page

Article can be create in this page, this kind of create system also provide an attachment for large file and also can insert the picture. Maximum size of data that can be to attach is 10mb. Usually this page is link with the news page and lesson learnt page but being monitor or control by administrator.

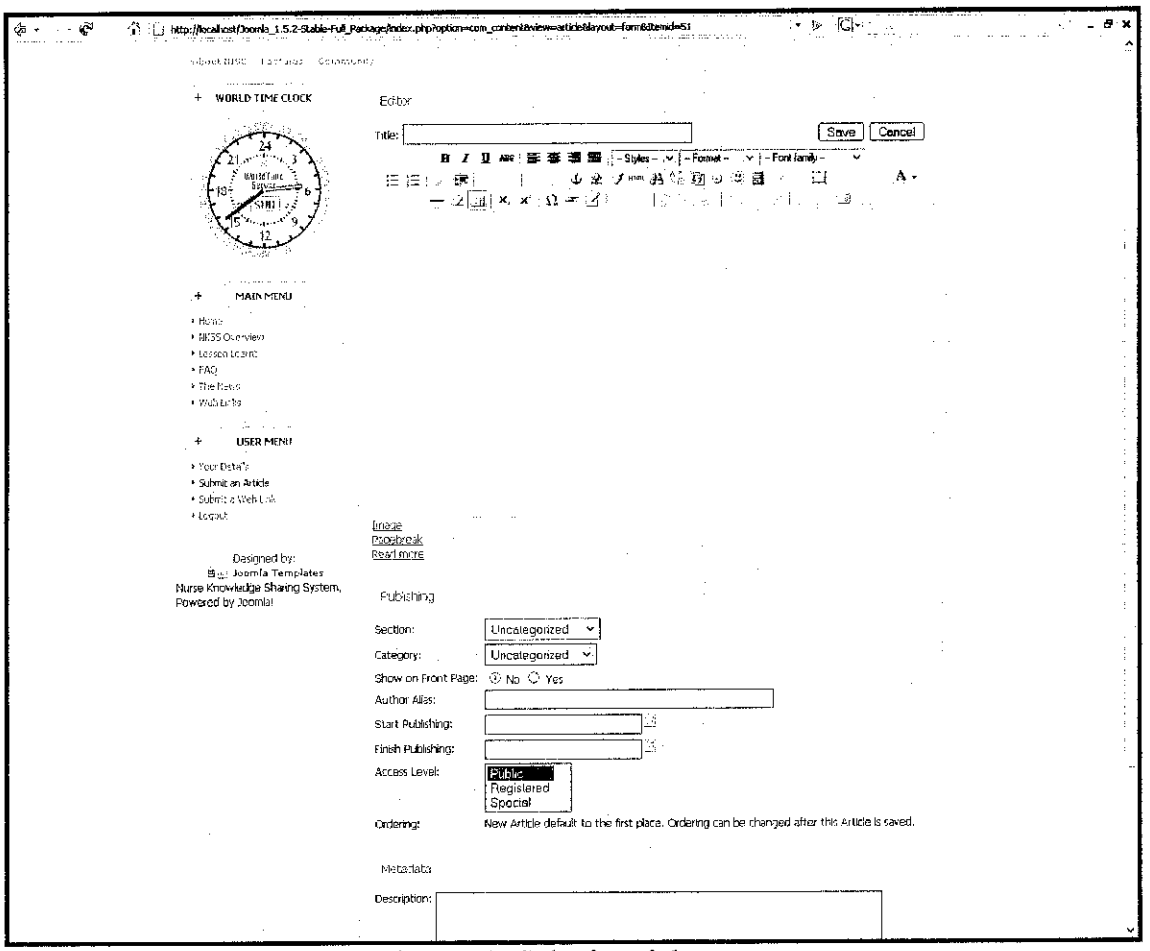


Figure 20: Submit article page

4.5.11 Administrator Page

Here is a page where administrator will used to control NKSS.

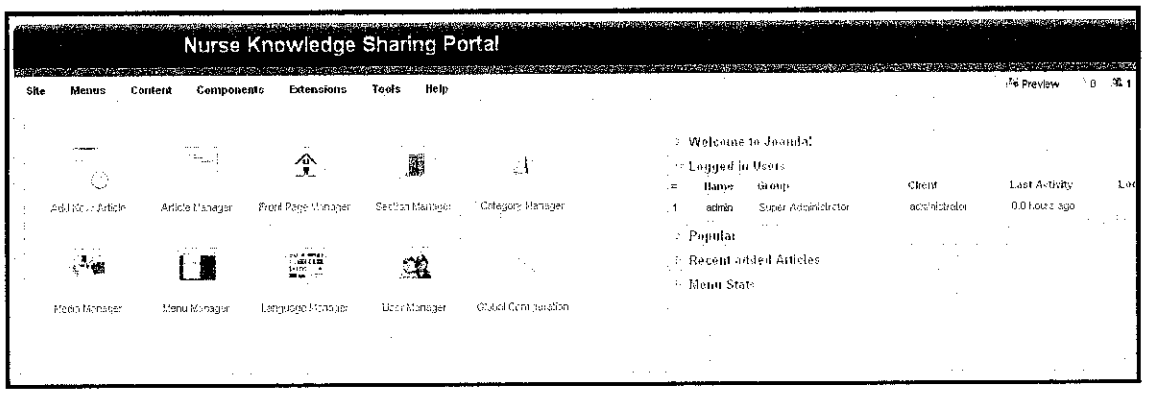


Figure 21: Admin page

4.6 Testing and Evaluation

Testing is conducted after the module is completely developed and integrated. In this project, testing is conducted which are functional test .Functional test is conducted by the author while user acceptance test involved the nurses who are the actual users of Nurse Knowledge Sharing Portal.

4.6.1 Functional Testing

Functionality test is conducted to detect and debug any flaws on the system. It is necessary to ensure that the system is able to perform its functionality as expected. The test results of testing conducted described in table 1 below.

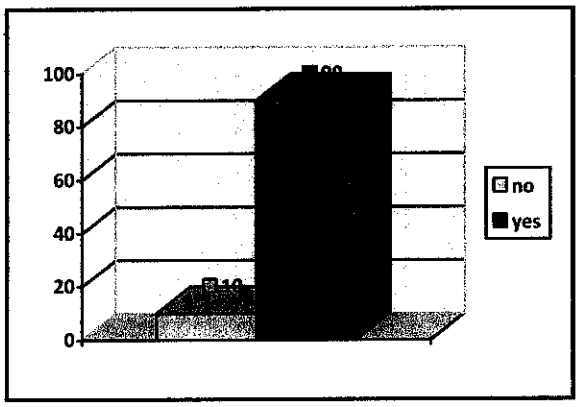
No	Function	Action Perform	Expected Test Result	Actual Test Result
1	Display overview of Nurse Knowledge Sharing Portal	▪ User click at NKSP Overview link	▪ User will shows the overview of NKSP	▪ Successfully
2	Display lesson learnt that have been shared by nurses	▪ User click on Lesson learnt link.	▪ Display the list of lesson learnt	▪ Successfully display lesson learnt page.
			▪ The lesson learnt have categorize according to information types	▪ Successfully
3	Display frequently ask question by user	▪ User click on FAQ link.	▪ Display the question.	▪ Successfully
4	Display news or article that has published by admin or user.	▪ User click on news link	▪ Display the list of article and news	▪ Successfully
5	Display web link. Other sources of instead the NKSP itself.	▪ User click on web link links.	▪ Display the list of other web site link.	▪ Successfully
6	Display forum for NKSP	▪ User click NKSP forum link.	▪ Display the link page to the NKSP forum. It wills popup another window to show the forum page.	▪ Successfully

Table 1: Functional Testing

4.7 Bar Chart

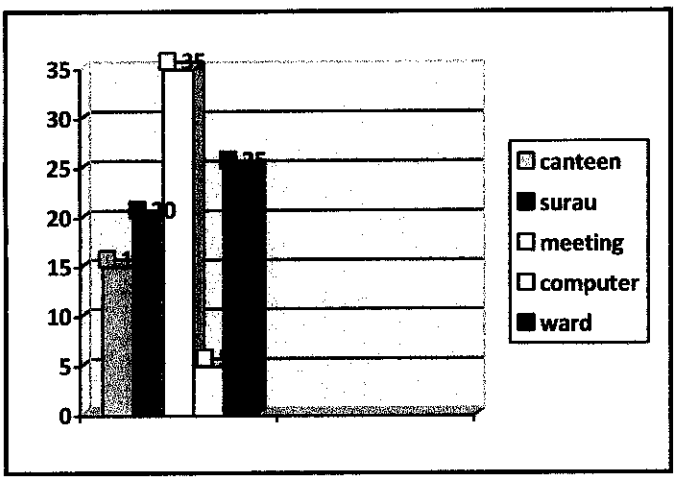
These bar chart are derived from the respondent view and opinion through the questionnaire (see appendix) given to nurses. A chart was derived to each question in order to get a better understanding on the primary end user view on the current system and functionalities that they aspect to be proposed system. As mention earlier, this survey was carried out among nurses in Hospital Kajang.

4.7.1 Do you share your information or your routine with other colleague?



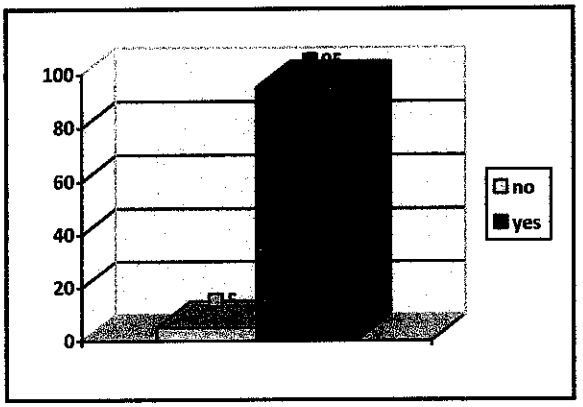
Based on the responds from the nurses, majority of them respond that they do share their knowledge among themselves. Usually they share the knowledge during the lunch, in Surau, rest time which is not in effective method. For 10% would not share their information maybe because they don't have time to collaborate between their colleague. Then by using my system I will make sure nurses can share knowledge among them with structured and effective way.

4.7.2 If yes, how do you shared?



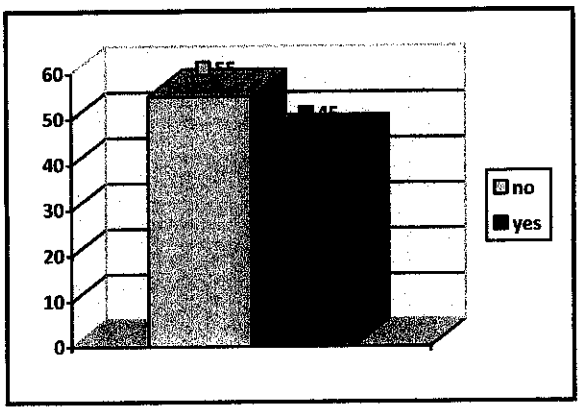
Based on the chart above, it showed that majority of nurses sharing their information during in the ward. Because 25% of communication is occur at ward, 35% during meeting, 15% at canteen (during rest time), and next is 20% at Surau and Using computer. Overall we can see most information sharing happen in the not working time, this is because nurse is working using their own schedule also known as roster. and in the same time nurse not do the work all in one group they will work only 2 person in one time but will replace with the another 2 nurse that's why they cant share effectively the knowledge during working hour .

4.7.3 Do you think by sharing information can improve your work daily?



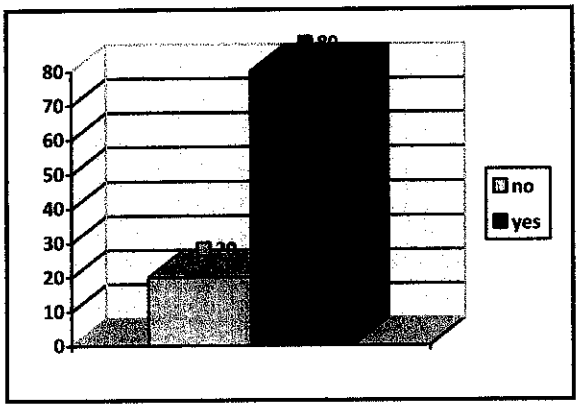
Based on the responds from the nurses, majority of them respond that by sharing information can improve their work daily. Because when the sharing information occur they can reused the knowledge and used it as a lesson learnt or an experience .when nurses have more experience and knowledge more confidence they do the daily work . That's why they need to share the knowledge among theme.

4.7.4 Are you going to use the computer to share information with your colleague?



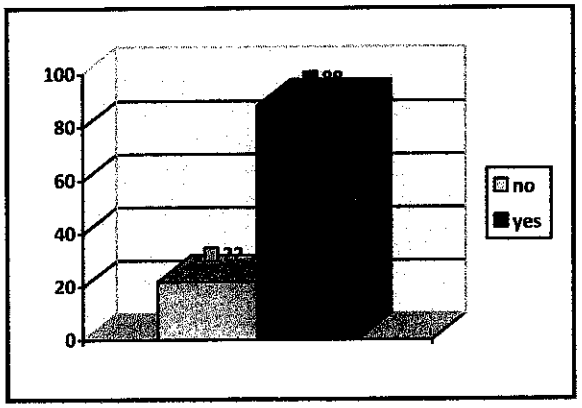
Research said that 55% of nurses don't want to use computer as a tool to shared information. This is because maybe most of them don't have knowledge to used computer and also don't have time to work together with the system. So this maybe will be the problem for the researcher to do the testing in that hospital because majority nurses is not interest to use it. Actually time is the big major problem that effect of why nurse don't want to used computer in order to share their knowledge .Because time or schedule for nurse work in daily time is very pack and busy so they don't have much time to spend for the simple thing like used a computer to share the knowledge . But we can create the slot seminar or tutorial to make sure all nurse know how well the share information can be done by using computer.

4.7.5 If a computer sharing system is going to be implemented in your work place, is your going to use it?



The answer from the respondent, most of them will using computer system sharing knowledge if this system is going to be implementing. That's why because 80% of theme would use it but 20% is not. Usually the new nurse will having interest to use this system because there are young and more exposed to computer. Middle age of nurse majority know how to used the computer instead young nurse the problem is they not very interest with this new technology example computer because also don't have time to play around with the computer because their already have a family , and this category is for the another 20% says will not using this system .

4.7.6 Do you prefer to have a chat box function in a system that will be developed?



Based on the chart above, majority of nurses prefer to have a chat box in the system. This is because the chat box is one of the tools that can encourage the process of knowledge sharing and knowledge transfer. Chat box also can be an effective and easy to used it when nurse sharing knowledge among them.

4.7.7 What other types of function that you want to suggest for the developer to implement to the system?

"Information on who is doing what research"

"Online document exchange"

"Medical facility to chat between the pharmacies cluster"

"Forum space for specific topic so that we can easily share our knowledge"

4.7.8 If you have any suggestion about Nurse Knowledge Sharing Portal, please do state in the field below.

"Common meeting schedule in a month is required to meet and discuss about their progress"

"Area of interest, knowledge sharing, new knowledge/tips to share"

"Make this system intranet so that when the network is down, we can still use the system."

"Make the system not too formal, since we are promoting the knowledge sharing"

CHAPTER 5
CONCLUSION

5.1 Recommendation and Future Enhancement

This project is still in the process of implementation and half completed. There is always a plenty room for improvement to be made in order to enhance the current system. It is best to look at the limitations and weaknesses of the system to determine what are the enhancement could be made to make it better. The other perspective to look at is the opportunity or potential that the technology could bring and beneficial. There are two main recommendations to be made here:

- Enhance the functions in the system
- Implement the system to the whole department in Hospital Kajang instead of in Ward 3 only
- Make NKSP in Informal Setting

5.1.1 Enhance the functions in the system

The functions in the system need to be enhanced to make the system more intelligent and useful. The current functions can be enhanced and other functions can be added to the system to make the system more effective and attractive. It is to make sure that the system has more features and capabilities to suites those needs at the present time. Nurses may by that time have example time to prepare and for other important matters, as their communication are made easy through the system. Besides nurses can take this chance to share and read others' opinion and thought more often compare to just one particular time if they missed it before.

5.1.2 Implement the system to the whole department in hospital instead of Ward 3

After the system successfully can run in Ward 3 , the researcher hopes that for further enhancement is to open the system for all department in Hospital Kajang so that can have a larger community in the system from different department. Currently, the project covers a small scope of providing the mean of distributing valuable information among nurses. Besides if it is successful then it is a good sign that the technology can be implemented at a larger scope which is to cover the whole ward from all departments.

5.1.3 Informal Setting.

NKSP was meant to be used informally where users are able to share their views, opinions and knowledge with other users. Sometime nurse will used their own technical terms that maybe administrator can't understand, so maybe because of this the information that sender try to share will not complete share and the information cannot be transfer completely so the solution is by make this system in informal setting to make sure no limited information for nurses to share their opinion, knowledge or experience.

5.3 Conclusion

This research project is developed for the benefit all of nurses. It is hope that the project will be executable in longer period so that it can provide facilitate and give service to nurses. Nurses can use the system not only for knowledge purposes but can also use the system for personal purpose like to have an advertisement et cetera. While doing the research part the researcher also doing the implementation part to utilize the time wisely.

Studies have repeatedly shown that technologically-rich opportunities increase people learning, performance, technical skills and communication. The system will make daily

work for nurses easier and better. Thus, it will develop a good environment where all the information can easily be shared to be transformed into knowledge. Further requirements analysis and technical specifications evaluation is currently being conducted to provide a system which is reliable, effective and accurate. Given the scheduled time frame, and looking at the current project progress as per date, the system is believed to be completed within the time and successfully meet the objectives.

REFERENCES

- Alavi,M.andLeidner,D.(2001)<http://en.wikipedia.org/wiki/Knowledge_Management> [Retrievedon July 5, 2007]

- D. Marwick (2001) <http://www.research.ibm.com/journal/sj/404/marwick.html> [Retrieved on July 5, 2007]

- Barney, J.B. (1991), "Firm resources and sustained competitive advantage", Journal of Management, Vol. 17 No. 1, pp. 99-120.

- Chesbrough, H.W. and Teece, D.J. (1996), "When is virtual virtuous? Organizing for innovation",Harvard Business Review, Vol. 74 No. 1, pp. 65-73.

- Das, T.K. and Teng, B-S. (2000), "A resource-based theory of strategic alliances", Journal of Management, Vol. 26 No. 1, pp. 31-61.

- Freeman, C. and Hagedoorn, J. (1994), "Catching up or falling behind: patterns of international interfirm technology partnering", World Development, Vol. 22 No. 5, pp. 771-80.

- Fischer (2002), transcending the information given: Designing Learning Environments for Informed Participation. In e. a. kinshuk (Ed.), Proceeding of International Conference on Computers in Education (ICCE 2002), Auckland, New Zealand, pp.378-381. [Retrieved on Ogos 10, 2007]

- F. Hayes-Roth, D.A. Waterman, D.B. Lenat (editors), Building Expert Systems, Addison-Wesley, Reading, MA,1983. [Retrieved on Ogos 10, 2007]

- Gopalakrishnan, S. and Bierly, P. (2001), ''Analyzing innovation adoption using a knowledge-based approach'', Journal of Engineering and Technology Management, Vol. 18 No. 2, pp. 107-30.

- Holland (2001), Distributed Cognition: Toward a New Foundation for Human Computer Interaction Research. In J. M. Carroll (Ed.), Human Computer Interaction in the New Millennium. New York : ACM Press, pp. 75-94 [Retrieved on Ogos 10, 2007]

- Kogut, B. and Zander, U. (1995), ''Knowledge and the speed of the transfer and imitation of organisational capabilities: an empirical test'', Organization Science, Vol. 6 No. 1, pp. 76-92

- Muller, J. (2003), ''A conceptual framework for technology analysis'', in Kuada, J. (Ed.), Culture and Technological Transformation in the South, Samfundslitteratur Forlag, Copenhagen. retrieve from

- Nonaka, I. and Takeuchi, H. (1995), the Knowledge-Creating Company, New York: Oxford University Press. [Retrieved on Ogos 10, 2007]

- Nonaka, I. and Takeuchi, (1995) "H. The Knowledge-Creating Company, Oxford UniversityPress,"retrievefrom<http://crec.mccombs.utexas.edu/works/articles/SRF.pdf> [Retrieved on February 10, 2008]

- Orr (1990), Sharing knowledge, celebrating Identity: War story and community Memory in a service Culture. In D. S. Middleton and D. Edwards (Eds.), Collective Remembering: Memory in society. Beverly Hills, CA: SAGE Publication, pp 169-189. [Retrieved on Ogos 10, 2007]

- Rogers, E. (1983), The Diffusion of Innovation, Free Press, New York, NY.

- Siemens AG, (2002)< http://www.medical.siemens.com>[Retrieved on July 5, 2007]
- Sveiby (2001),"A knowledge –Based theory of the firm to guide in strategi formulation ". Journal of intellectual capital, vol.2 No.4, pp344-58.

- Tsang, E.W.K. (1999), ''A preliminary typology of learning in international strategic alliances'', Journal of World Business, Vol. 34 No. 3, pp. 211-29.

- Winter, S.G. (1987), ''Knowledge and competence as strategic assets'', in Teece, D.J. (Ed.), The Competitive Challenge: Strategies for Industrial Innovation and Renewal, Ballinger, Cambridge, MA, pp. 159-84.

- Teece, (2000), "strategies for managing knowledge assets: the role of firm structure and industrial context",Long Range Planning , Vol, 33, pp. 35-54.

- Wikipedia Free Encyclopedia. E-learning definition. <http://en.wikipedia.org/wiki/E-learning> [Retrieved on July 5, 2007]

- Yugyung Lee, Chintan Patel *et al,* Compositional Knowledge Management for Medical Services on Semantic Web. May 17–22, 2004[Retrieved on July 5, 2007]

Appendices

Appendices

Survey Question Form

1. Do you share your information or your routine with other colleague?
   / Adakah anda pernah berkongsi maklumat atau pengalaman bersama sama dengan rakan sejawat.

☐ Yes

☐ No

2. If yes, how do you shared?
   / Jika pernah apakah cara yang pernah anda gunakan untuk berkongsi maklumat atau pengalaman.

☐ In canteen, during lunch

☐ In Surau

☐ In meeting

☐ Computer

☐ Other

3. Do you think by sharing information can improve your work daily?
   / Adakah dengan cara berkongsi maklumat atau pengalaman dapat meningkatkan kualiti kerja anda seharian.

☐ Yes

☐ No

4. Do you think by sharing information is more effective by using computer based system as compare to your answer in number 2?
   / Adakah berkongsi maklumat atau pengalaman akan lebih berkesan jika menggunakan sistem berkomputer.

☐ Yes

☐ No

5. Are you going to use the computer to share information with your colleague?
   / Adakah anda ingin menggunakan komputer sebagai alat untuk berkongsi maklumat atau pengalaman.

☐ Yes

☐ No

6. If a computer sharing system is going to be implementing in your work place, are your going to use it?
   / Jika komputer digunakan sebagai alat berkongsi maklumat adakah anda akan menggunakannya.

☐ Yes

☐ No

7. Do you prefer to have a chat box function in a system that will be developed?
   / Adakah blog atau forum sesuai digunakan untuk sistem ini.

☐ Yes

☐ No

8. What other types of function that you want to suggest for the developer to implement to the system?
   / Jika anda ada idea atau pendapat untuk ditambah yang boleh digunakan untuk sistem ini sila tulis di bawah.

9. If you have any suggestion about Nurse Information Sharing System, please do state in the field below.
   / Jika ada sebarang pendapat berkenaan dengan sistem perkongsian maklumat , sila tulis kan diruangan yang diberikan.

Appendices

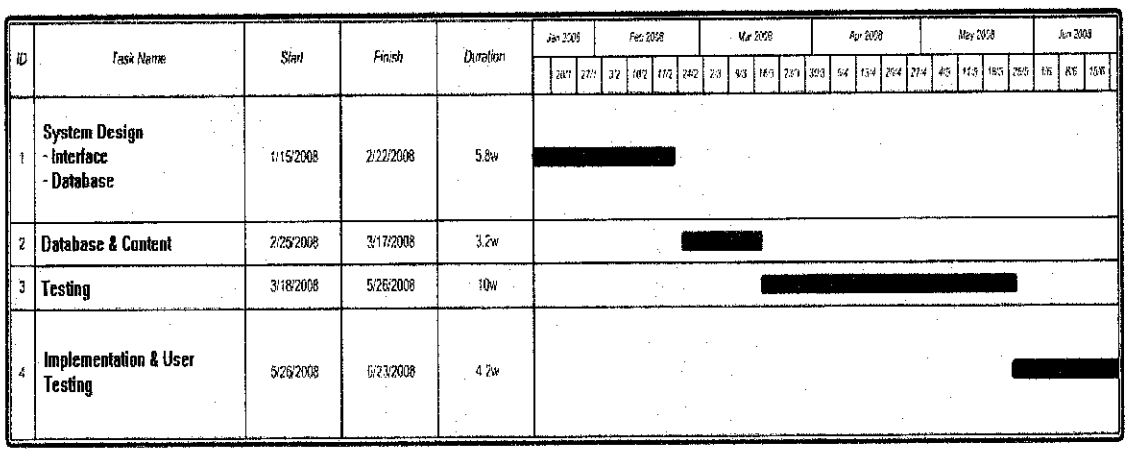
Milestone for Final Year Project 1

No.	Detail / Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Selection of Project Topic														
	(Hospital Information Sharing System)														
2	Preliminary Research work														
3	Submission of Prelim Report														
4	Seminar 1														
5	Project work														
6	Submission of Progress Report														
7	Seminar 2														
8	Project work continues														
9	Submission of interim Report Final Draft														
10	Oral Presentation														

Suggested milestone

Process

Milestone for Final Year Project 2



ID	Task Name	Start	Finish	Duration
1	System Design - Interface - Database	1/15/2008	2/22/2008	5.8w
2	Database & Content	2/25/2008	3/17/2008	3.2w
3	Testing	3/18/2008	5/26/2008	10w
4	Implementation & User Testing	5/26/2008	6/23/2008	4.2w

Appendices

SQL Result

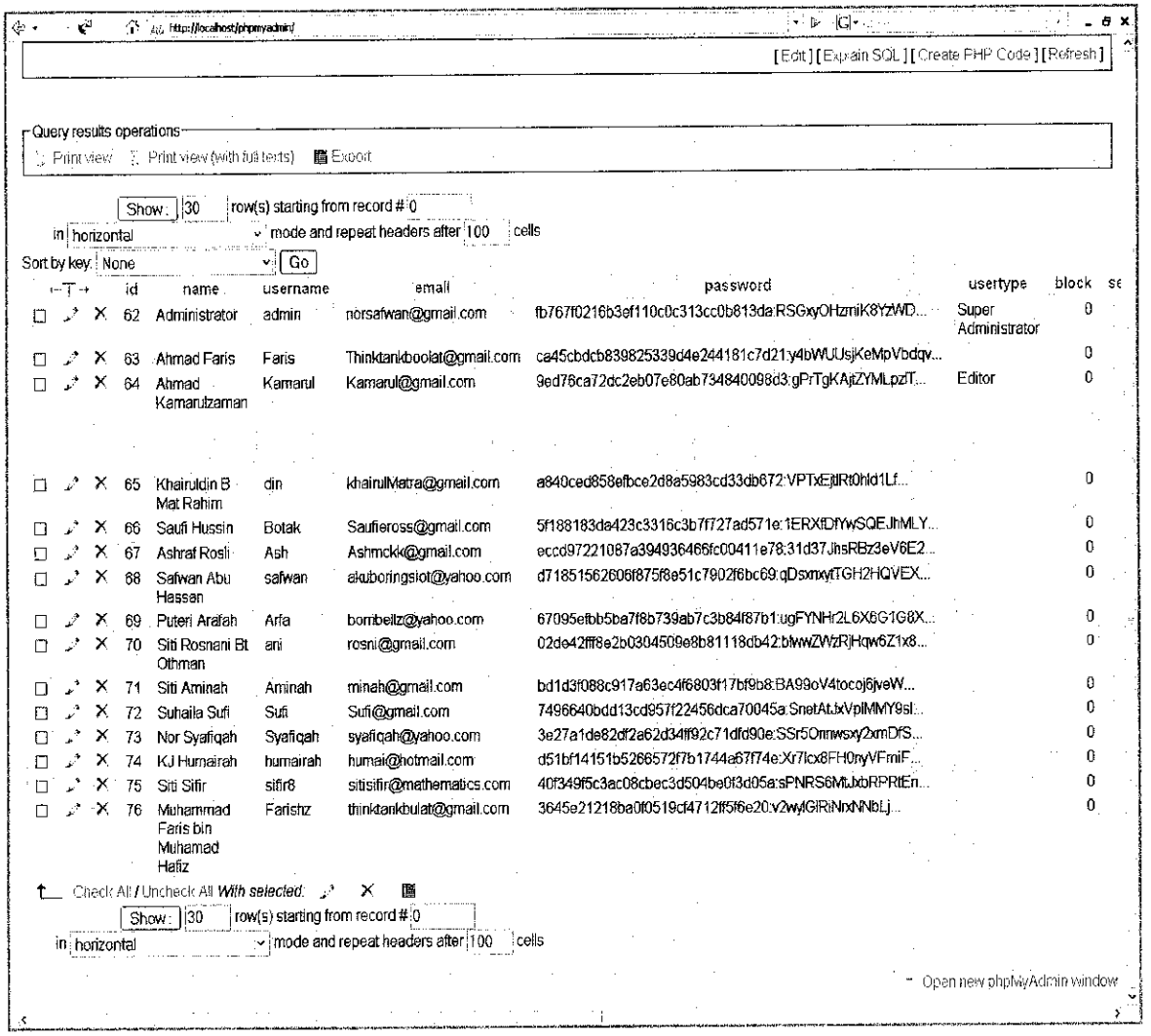
Host: localhost

Database: Joomla

Generation Time: April 12, 2008 at 2:26 PM

Generated by: phpMyAdmin 2.11.0 / MySQL 5.0.45-nt

```
SQL query:
SELECT *
FROM `jos_users`
LIMIT 0, 30
```



[Edit] [Explain SQL] [Create PHP Code] [Refresh]

Query results operations

Print view | Print view (with full texts) | Export

Show: 30 row(s) starting from record # 0

in horizontal mode and repeat headers after 100 cells

Sort by key: None Go

←T→	id	name	username	email	password	usertype	block	se
	62	Administrator	admin	norsafwan@gmail.com	fb767f0216b3ef110c0c313cc0b813da:RSGxyOHzmiK8YzWD...	Super Administrator	0	
	63	Ahmad Faris	Faris	Thinktankboolat@gmail.com	ca45cbdcb839825339d4e244181c7d21:y4bWUUsjKeMpVbdqv...		0	
	64	Ahmad Kamarulzaman	Kamarul	Kamarul@gmail.com	9ed76ca72dc2eb07e80ab734840098d3:gPrTgKAjtZYMLpzT...	Editor	0	
	65	Khairuldin B Mat Rahim	din	khairulMatra@gmail.com	a840ced858efbce2d8a5983cd33db672:VPTxEjtlRt0hld1Lf...		0	
	66	Saufi Hussin	Botak	Saufieross@gmail.com	5f188183da423c3316c3b7f727ad571e:1ERXfDfYwSQEJhMLY...		0	
	67	Ashraf Rosli	Ash	Ashmckk@gmail.com	eccd97221087a394936466fc00411e78:31d37JhsRBz3eV6E2...		0	
	68	Safwan Abu Hassan	safwan	akuboringsiot@yahoo.com	d7185156260f875f8e51c7902f6bc69:qDsxnxytTGH2HQVEX...		0	
	69	Puteri Arafah	Arfa	bombeilz@yahoo.com	67095efbb5ba7f8b739ab7c3b84f87b1:ugFYNHr2L6X6G1G8X...		0	
	70	Siti Rosnani Bt Othman	ani	rosni@gmail.com	02de42fff8e2b0304509e8b81118db42:bIwwZWzRjHqw6Z1x8...		0	
	71	Siti Aminah	Aminah	minah@gmail.com	bd1d3f088c917a63ec4f6803f17bf9b8:BA99oV4tocoj6jveW...		0	
	72	Suhaila Sufi	Sufi	Sufi@gmail.com	7496640bdd13cd957f22456dca70045a:SnetAtJxVpIMMY9sl...		0	
	73	Nor Syafiqah	Syafiqah	syafiqah@yahoo.com	3e27a1de82df2a62d34ff92c71dfd90e:SSr5Onnwsxy2xmDfS...		0	
	74	KJ Humairah	humairah	humai@hotmail.com	d51bf14151b5266572f7b1744a67f74e:Xr7lcx8FH0nyVFmiF...		0	
	75	Siti Sifir	sifir8	sitisifir@mathematics.com	40f349f5c3ac08cbec3d504be0f3d05a:sPNRS6MtJxbRPRtEn...		0	
	76	Muhammad Faris bin Muhamad Hafiz	Farishz	thinktankbulat@gmail.com	3645e21218ba0f0519cf4712ff5f6e20:v2wylGlRtNnxNNbLj...		0	

Check All / Uncheck All With selected:

Show: 30 row(s) starting from record # 0

in horizontal mode and repeat headers after 100 cells

Open new phpMyAdmin window