Implementing Knowledge Management (KM) Tools and Techniques: Facilitating Kathmandu University students with Dhulikhel Hospital Services

1 Kafle B, 2 Khadka N, 3 Khatri S, 4 Pasachhe S, 5 Shrestha S

1Department of Computer Science and Engineering, Kathmandu University

Abstract
This research paper aims to contribute towards understanding how knowledge can be elicited from knowledge banks for the purpose of supporting effective decision-making. Lack of proper information system about the facilities and services provided by the hospital to the students and absence of mechanism for addressing queries regarding any health issues evolved the creation of knowledge bank. Knowledge bank is a database which is a mass collection of accumulated information by the help of different KM tools and knowledge exchange. Through, this common versatile platform containing basic information about students of Kathmandu University and all the information of Dhulikhel Hospital regarding its medical personnel and their specialization, appointment scheduling, emergency case, referral service, availability of medicines, information can be captured, filtered, indexed, organized, linked, created and shared. The knowledge management system thus created helps students to improve their health status and hospital to improve the quality of service they provide.

Keywords
Knowledge Management; Tacit Knowledge; Experts; Capturing Knowledge; Knowledge Cafe

1. Introduction
Dhulikhel Hospital is one of the leading community hospitals in the outskirts of Kathmandu Valley. It runs programs for medical sciences in collaboration with Kathmandu University. A large number of general patients come for checkups in the hospital each day. KU Central Campus accommodates more than 3000 students. Because of heavy flow of patients, there is long line in the hospital for registration, checkups, medicines which are time consuming activities for the students. Even though the hospital is the closest one to the university, students are not sure about the services provided there. They are also unknown about the doctors and their specialized area due to which it becomes difficult for them to exercise a good health treatment. There might be a condition where he/she has to be taken to other hospitals due to the unavailability of doctors or lack of health services and facilities. In that case, there has to be a proper mechanism for referring him/her to the proper hospitals. Also, if the students have any queries regarding any health issues, if they get the proper place where their issues are addressed. They might feel relief and do not have to take any appointments. It saves their time. There are numerous cases of emergency which are not handled properly. It has resulted even the death of the victims. So, to address all the issues there has to be a proper mechanism so that the health services and facilities provided by the hospital are easily accessible and feasible to the students.

Although the services provided by the hospitals to the students of the central campus are at more affordable rates, the services could be provided a lot more easily through the implementation of Knowledge Management.
System (KMS). With the introduction of this knowledge base, the doctors can update which days and time they have their duties in the hospital and students from the central campus can manage time accordingly whenever they need to go for checkup. Also, creation of online forum allows patients to communicate directly with the respective specialists, create appointments and discuss about their ailments and ways to recover or prevent them. This system also has plans to include reminders for medicines and follow up appointments, which is quite helpful for students, who have busy day schedules.

2. Methods
2.1 Participants
Participants in this study are the students of Kathmandu University, Central Campus and the staffs (doctors, health-assistants) of Dhulikhel Hospital. Total of 18 students from the university and 10 staffs from the hospital were participated in the questionnaire. All participants in this study were volunteers and they were selected randomly being the members of the institutions. They all were asked various questions regarding the status of the services provided by the hospital and the problems faced by the students in exercising the facilities. The participants were anxious in answering the questions asked to them.

2.2 Materials
Google forms were used as the materials to ask various questions to the students and the staffs. The survey questions were different for the students of the university and the staffs of the hospital. The participants were asked to select the number along the scale that most closely describes them or their preferences. The questions were regarding the best practices and problems being faced by the students in the hospital.

2.3 Procedure
The participants were told that the study investigated the existing problems and the benefits that the students of the university are facing while using the services and facilities of the hospital. The feedbacks obtained from the survey are the key factors in the implementation of the system along with the proper validity. On the basis of the feedbacks, the prototype of the Knowledge Management System can be implemented in an effective manner. Also, the limitations can be overcome by the change in the requirements after several rounds of questionnaire. The improved system can be made by rapid prototyping.

3. Result and Analysis
A survey was conducted through google forms for the participants. 18 students and 10 hospital staff participated in the survey. The results obtained from the survey of the students have been mentioned below.

![Figure 2: Statistics of the problems of the students regarding its services](image)

44.4% of the participants visit the hospital once in two or three months. The statistic is good enough for the hospital to focus on the problems of the students regarding its services.

![Figure 1: The results obtained from the survey of the students](image)

How often do you access services provided by Dhulikhel Hospital?

- Frequently (at least once a month): 90%
- Not so frequently (about once in two or three months): 5.6%
- Rarely (once in a semester or year): 4.4%
- Not yet: 0%

44.4% of the participants visit the hospital once in two or three months. The statistic is good enough for the hospital to focus on the problems of the students regarding its services.

Have you ever had to wait on a queue to access the hospital services? If yes, what is the maximum time you've spent on a queue?

- Less than half an hour: 33.3%
- Half an hour to an hour: 16.7%
- More than an hour: 5.3%
- Never had to wait on a queue: 44.4%

A survey was conducted through google forms for the participants. 18 students and 10 hospital staff participated in the survey. The results obtained from the survey of the students have been mentioned below.
About 33% of the participants have waited in queues for half an hour to an hour and more than 16% of participants have waited more than an hour for the services. As time is precious for students, it is one of the major problems for the students.

**Figure 3:** Addressing major problems for the students

Almost 60% of the students are willing to use the online forums to interact with the hospital personnel regarding the services they are looking for. Rest of the participants admitted they might use if the service is introduced.

**Figure 5:** Level of satisfaction of the hospital services

About 11% of the problems of the students has not been addressed according to the survey. This would not be a major case if the hospital can manage the referring service to other hospitals easily.

**Figure 4:** Referring service to other hospitals

About 16% of the participants are not at all satisfied with the services provided by the hospital. This may be due to lack of information regarding the services provided.

The following questions were asked to the staff of the hospital regarding the status of health services provided by the hospital to the students.

**Figure 6:** Cases found misusing the insurance facility

About 58.8% of the students are willing to use the online forums to interact with the hospital personnel regarding the services they are looking for.

**Figure 2:** If provided with a platform to place your queries through online forums regarding health services to health personnel from the hospital, would you use it?

About 90% of the students are not at all satisfied with the services provided by the hospital. This may be due to lack of information regarding the services provided.

**Figure 1:** Have you found any cases of students misusing their insurance facility?
It was found that 10% of the students were found to misuse their insurance service. They generally misuse their insurance service when they are not satisfied with the services.

Figure 7: Student feedbacks

What feedbacks (if any) do you get from the university students regarding the services provided by the hospital?
(9 responses)

- Long queues
- Long lines for lab and x-ray procedures
- Service is poor
- Nice service
- I forgot to bring my id card, can I access the insurance service?

The most common feedback received by the hospital personnel from the students was to wait longer in queues. However, feedbacks depend upon the way they get treated in the hospital.

The establishment of knowledge bank, as a result of this research, can prove to be one of the possible measures to minimize the problems of long queues, referral services and appointment scheduling by providing information regarding the availability of doctors, services being provided and enough information about neighboring health service centers.

3. Discussion And Conclusion

Our result states that KU students have been facing the problem regarding health services provided by Dhulikhel hospital. Yearly, KU has been collecting Rs.1000 for student’s health service and many of the students are unknown about that. And students from the KU have limited time apart from their daily classes, projects and other educational activities. Students have to be in queue and wait for hour and hour for registration, checkups and medicines in the pharmacy. So, to get rid from this trouble and provide quality service to students, hospital should implement Knowledge Management System and it is very important to (i) increase the amount of personalization information captured, (ii) provide real-time communications among practitioners and (iii) support knowledge acquisition and creation activities. However, the major challenge of managing knowledge is capturing and integrating knowledge to share among participants [1]. The hospital has to gain the ability to collect, store and distribute specialized knowledge to create and sustain competitive advantages [1][2].

As organizations become more global, the traditional knowledge creation and transfer such as face-to-face contact, staff training program may prove to be slow and less effective [3]. The need to develop more efficient means has led to implementation of information system that are designed specially to facilitate coding, combining, and applying of organizational knowledge [3].

Knowledge Management has been used in most of the organization and it has also extended to use in service sector. However, there are not many studies looking closely to explain the situation in the service sector while service sector is continuously growing. Thus, it is necessary to understand the situation and how the service sector develops knowledge management strategy. Knowledge Management System can play an important role to make organization better.

According to Fernandez, Gonzalez and Sabherwal [4], knowledge is at the highest level in a hierarchy with information at the middle level, and data to be at the lowest level. Knowledge cites to information that enables action and decisions, or information with direction. And according to Davenport, Thomas, Prusale [2], knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. This knowledge is created and implemented by participants (Doctors and Health Assistants, University Students) and stored in Knowledge Bank. It is the repositories of various information such as availability of doctors with their specialized area, appointment scheduling, emergency case, referral services, availability of medicines in an organized manner that is captured through various tools and techniques and shared through websites and tool-kits. It provides mass collection of accumulated knowledge in a specific area at finger tips.

All organization creates and uses knowledge. When these organizations have to interact with their environment, they get information, transform into knowledge, and use
to make a decision based on their experiences, values, and internal rules. The source of data and information to create a knowledge is databases of students and hospital. Similarly, to have a group discussion between either health personnel or among the general students, a knowledge café is maintained where open and creative conversation is held. This can be done by the implementation of a forum in the website itself. This technique allows each person with the responsibility to contribute, to address the issue and queries or to improve the system itself. Furthermore, it helps to enhance the knowledge bank.

Different KM tools and techniques such as survey, questionnaire and on-site observation has been used to capture the knowledge. Knowledge is naturally transferred in every organization whether or not the process has been managed at all. For example, when students ask the doctor about the needs of a particular medicine, they are exchanging knowledge [2]. It is difficult to transfer tacit knowledge from the resource that creates it to other parts of the organization. Davenport, Thomas and Prusale [2] also recommend that the organization should encourage knowledge sharing among doctors and health assistants and university by creating places and giving opportunities for employees to interact formally that is through knowledge bank.

The proposed system is able to address the existing problems but still have some limitations. The administrative works of the hospital are unknown so the information and data in the knowledge bank is limited. While referring a patient to another hospital due to the lack of the service, the complete information is not shared in the knowledge bank itself. So, for the betterment of the system, the scope has to be broaden and knowledge bank should contain enough of the information required.

Traditionally, management consulting and professional services firms have been considered knowledge-intensive firms and therefore interested in knowledge management [3]. However, knowledge
management is not just for consulting and professional services firms. Knowledge has currently been recognized from other industries as the organization’s main asset. Via the Internet, information about organization can be revealed to the public and information about doctor, their working schedule, and specialized area can be gathered easily [5]. However, these advantages may cause some challenges to the organization as it may become overwhelmed by the volume of information and may not know how to use it for the organization’s advantage [3].

The paper highlights the importance of developing knowledge management, which are increasing in productivity, creating new way of learning, improving communication and gaining efficiency. And knowledge is crucial for any kind of development. The paper also focuses on studying and conducting research about the problem faced by the participants regarding to health helps to deepen the roots of knowledge management and importance of knowledge management systems. Through this knowledge management system extensive knowledge about health problem faced by participants can be obtained and thus, optimizing the knowledge and utilizing required information, participant health status and quality of service of hospital can be improved.

Knowledge Management provide knowledge regarding that the key is making sure that people, particularly in top management, understand the advantages of knowledge management and what makes it useful.

Acknowledgement
This research work was done to fulfill the requirement of course called Knowledge Management (COMP 477) offered by Department of Computer Science and Engineering, Kathmandu University, Nepal.

References


