MOBILE CLOUD SUPPORTED COLLABORATIVE LEARNING (MCSCL) AND ONLINE DISCUSSIONS AMONG VHN'S

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Abstract:- In Rural health centers the doctors may not available all the times so the nurses has to take care of the patients in the villages. As the nurses who are not aware of all the medicines and treatment. Some nurse may have an experience and knowledge in particular criteria or cases which is not known to others who is in need. Collaborative learning is an efficient method to gain knowledge and to train the individuals who are unable to present themselves in classroom education. Collaborative learning is an educational method where two or more students work together to learn something. It's based on the general premise that group of students can learn more from each other through sharing and social interaction than they learned on their own. Due to economic condition, unavailability of opportunities and various other reasons there is a possibilities of illiteracy in our country. In this paper, we designed architecture for collaborative learning using cloud framework to educate the VHNS (Village Home Nurses) who resides in the remote villages, about the latest technologies in medicine, methods to treat a patient for different diseases and to solve their queries since the Doctors are not available all the time in every village using mobile devices. VHN's can communicate with each other through mobile device for their discussions and their queries.

Keywords: VHN, Collaborative Learning, PDA, Mobile phone

Introduction

Collaborative learning is an educational method where two or more students work together to learn something. It's based on the general premise that group of students can learn more from each other through sharing and social interaction than they learned on their own. Village Health Nurse (VHN's) can communicate with each other for their queries among them as the doctors are not available all the time in the villages through mobile phones. They can communicate with the nurses who are in the online at that time to get their answers. Any nurse who knows the answers for the query can give the reply via cloud to the particular nurse through mobile phones immediately. They can view all the uploaded materials in the cloud through mobile phones and the nurses can download all the materials from the cloud through mobile phones. And the evaluation for the nurses can be done according to the answers done by the nurses in the question paper. Based on this they can get a higher posting in their field of medicine.

Literature Survey

Khaing Moe San proposed a mobile agent based collaborative learning for the students and tutors .Mobile agent is an autonomous piece of software that can be migrate between the various nodes of the network and can perform computation on behalf of user. On MACL when the leaner or tutor wants to retrieve or manipulate the data from the database, their mobile agent have to interact with the information agent. [1]Helmar Burkhart proposed a CoMobile framework which uses mobile devices for collaborative learning. In this CoMobile architecture it uses various software components such as control servelets, SMS gateway, MMS gateway and the interactive voice Response and other components. All components use open source software for its respective works. [2]Maria Ester Lagos proposed a flexible component centric model which is designed between students, teacher and group. They focus is on face to face communication and a user interface specification. Research focus is to develop interaction patterns and to develop social skills [3].Chiu Pin Lin proposed a Mobile collaborative learning Environment (MCLE) which is a preliminary study of Empirical Practice CSCL scenario by means of integrated Edu classes, Tuple Spaces and Group Scribbles, a collection of software designed to facilitate students engaging in face-to-face collaborative learning in class activities. The outcomes after the completion of learning activities showed this one-to-one mobile technology enhanced instructional design indeed arouses students motivations and improves students mutual interactions [4].Fu KaiFang proposed an instant messaging architecture for mobile collaborative learning. The distributed application consists of the instant messaging clients and the JavaSpace. Numerous instant messaging clients may be running on the network at any given time. Also, a single JavaSpace is present on the network to facilitate communication between clients. A client can read an entry from the JavaSpace, take an entry from the JavaSpace, or write an entry to the JavaSpace. [5]. Yuan Jiugen proposed a mobile learning theory in which mobile computing devices are used. M-Learning is learning that can take place anytime, anywhere with the help of a mobile computer device. The device must be capable of presenting learning content and providing wireless two-way communication between teachers and students. According to the surrounding environment learners can operate mobile device to select the appropriate video, audio learning resources (courseware). Learners can record dictation according to

your understanding with the help of mobile devices, but the learning resources must be audio or video resources. Learner can record their own learning experience and knowledge on a notebook to strengthen, consolidate the knowledge that they have learned.[6]. Mobile communication technology has become a efficient method for learning .3G based mobile learning through mobile phones are used. Through this a learners can learn anywhere at any time. Trainers can access resources from anywhere through mobile phones using a 3G signals.[7]. Virtual learning environment has been developed using Mobile collaborative learning (MCL). In this content is obtained from the server to meet the pedagogical requirements. This is a client server based architecture where content is obtained by the client from the server. Client can get the content anywhere at any time. [8]. 3G phone mobile learning with the interactive model has become an efficient method where multiple level of design strategies and a method are used for this technique. In this 3g mobile phones are the terminal device used for the interaction. And the choices for learning modes is also given based on the goals. [9]. Real time learning consists of M-learning server, teacher content and a student client. In this a teacher set up a lecture via the various notes in the server. A tool manager consists of audio and video resources to identify the student or a teacher. Search manger is used to search educational content from the server. Class manager stores the content in the database to show the student progress. [10].

Village Health Nurse

Village Health Nurse (VHN) may not aware of all the diseases. So the nurses available at the rural areas may get the help from the other nurses who know the solution for the problem using mobile devices. The information is stored in the cloud by the chief nurses in the region; the village health nurse who needs the information can get the information through mobile phones. Chief Nurses can post the study materials, question papers, lecture notes, live videos in the cloud. Chief Nurse is the admin of the particular region. The village health nurses can be monitored by the chief nurse in the cloud. Monitoring is done properly by the chief nurse. Each VHN in the cloud can choose the topic and the corresponding study materials from the cloud, it can be retrieved from the cloud by the nurse through mobile phones and it can be monitored by the chief nurse. The VHN's get the information from any other cloud region too and the nurses can be evaluated under the topic they have chosen. The retrieved materials provided to them gives the full details about the topic. The details provided to the nurses can read through mobiles or PDA's. The live recorded videos are uploaded by the chief nurse in the cloud. Through that the nurses can gain the knowledge as they are in the classroom.

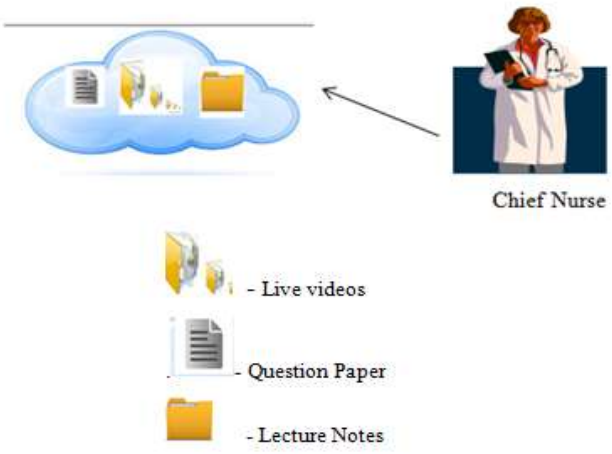
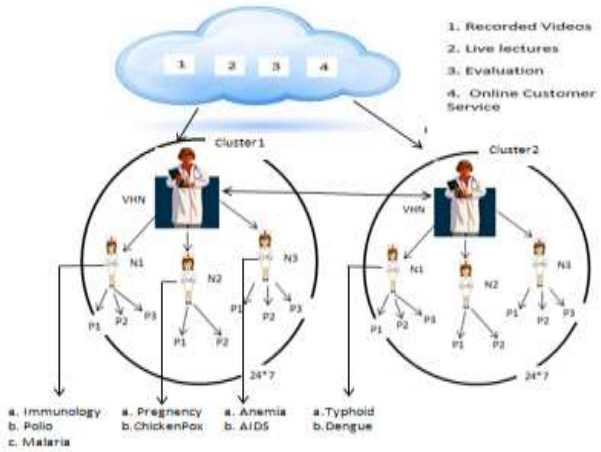


Figure 1: Uploading the materials

MONITORING

The Village Health Nurses(VHN) can be monitored by the chief nurse in the cloud. Monitoring is done properly by the chief nurse. Each VHN in the cloud can choose the topic and the corresponding study materials from the cloud, it can be retrieved from the cloud by the nurse through mobile phones and it can be monitored by the chief nurse. The VHN's get the information from any other cloud region too and the nurses can be evaluated under the topic they have chosen. The retrieved materials provided to them gives the full details about the topic. The details provided to the nurses can read through mobiles or PDA's. The live recorded videos are uploaded by the chief nurse in the cloud. Through that the nurses can gain the knowledge as they are in the classroom

Chief Nurse can post the question paper in the cloud and village health nurse (VHN) can retrieve it through phones. And then nurses can answer the queries in the question paper. It is again posted in the cloud by the nurses. Chief Nurse who is under duty, they can evaluate it and the corresponding grades for each nurse is given by the chief nurse.



N1,N2,N3-Nurses

P1,P2,P3-Patients

Figure 2: Monitoring of Nurses

Evaluation

Each nurse can be evaluated under the topic they have chosen by the chief Nurse.

Table 1: Evaluation table

Nurse	Topic	Questions	Evaluated Grade
C1N1	Immunology	Immunology questions	3G
C1N2	Typhoid	Typhoid questions	1G
C2N2	Malaria	Malaria questions	2G

Each Chief Nurse can also evaluate based on the Nurses in the region.

VHN=C1N1+C1N2+C1N3…….

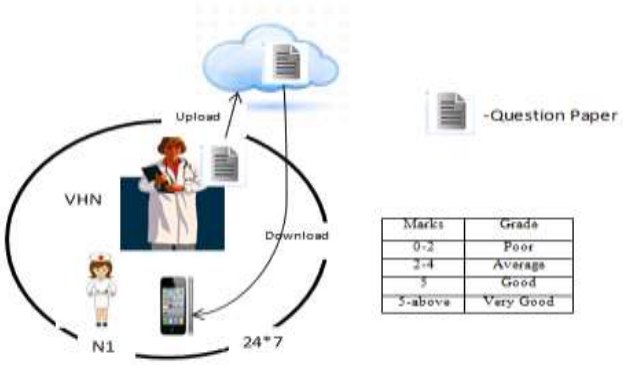


Figure 3: Evaluation of nurse

Online Customer service is provided to the nurses and patients in the region. The patient who needs the help can consult the 24 hours customer service to get the knowledge about the subject. The chief Nurse who is in the region can attend the 24hours customer calls in the region. Through this the patients and Nurse can gain the knowledge through the mobile phones.

The chief Nurse in the region can login into the Collaborative learning system. After the successful login the Chief Nurse enters into the learning system. All the materials provided by the nurses are stored in the cloud by providing cloud container to the user. Through cloud the nurses in the region can get the materials through mobile phones. An algorithm for the authentication of the user is as follows:

Authentication Algorithm

```
If(user = chief nurse)
{
        Validation of the user
        Enters into learning system for uploading,
        uploads all the materials
                        }
If else (user =nurse)
{
        Validation of the user
        Download the materials for references
        .Evaluation is done based on the
        performance
}
Else
        Unauthenticated User.
```

Figure 4:Uploading of materials

Through that they can upload the live videos, lecture notes, Evaluation, Online customer services. The chief Nurse can upload the live videos which are taught by the teachers in the classroom. It is also be uploaded in the cloud by the chief Nurse in the region.

The lecture notes and question papers for each topics are also be uploaded in the cloud by the chief Nurse. All the nurses can login into the system for collaborative learning. After login the user can retrieve the uploaded videos and the presentation through mobile phones. The nurse at the each region can access the information in the cloud through mobile phones.

The nurses in the region can download all the materials from the cloud server through mobile phones. All the materials are used by the nurse through mobile phones and the evaluation is done by the chief nurses in the region. They can download the question paper from the cloud and the proper evaluation is done by the chief nurse. Based on the evaluation the nurse can get the grade and the higher posting in the region.

Figure 5: Login page

Online Customer Service

Online Customer service is provided to the nurses and patients in the region. Online service for the nurses can also be performed by the chief nurse. The chief nurse who is on service at that time can provide the service to the nurses in the region.

The patient who needs the help can consult the 24 hours customer service to get the knowledge about the subject. The chief Nurse who is in the region can attend the 24hours customer calls in the region. Through this the patients and Nurse can gain the knowledge through the mobile phones. They can post a query on the online customer service and they can view comment posted by the nurses publically through this customer service.

Figure 6: Online customer service

CLOUD STORAGE

Cloud storage is a model of data storage where the digital data is stored in logical pools, the physical storage spans multiple servers (and often locations), and the physical environment is typically owned and managed by a hosting company.

STEP 1: LOGIN PAGE

First the user has to create the account to store the enormous amount of data into the cloud storage. After the creation of account the user has to login into sea cloud platform using id and password.

Figure 7: Sea Cloud Login Page

STEP 2: LIBRARY CREATION

After the user login they have to create a library to save all the sea files in the sea cloud using the option new library option in the sea cloud.

Figure 8: Library Creation

STEP 3: UPLOADING OF FILES

Using the option new library VHN library is created in the sea cloud. After the creation of library all the files has been added using an option new file or by the option upload by clicking on that the files the user can save all the files in the sea cloud.

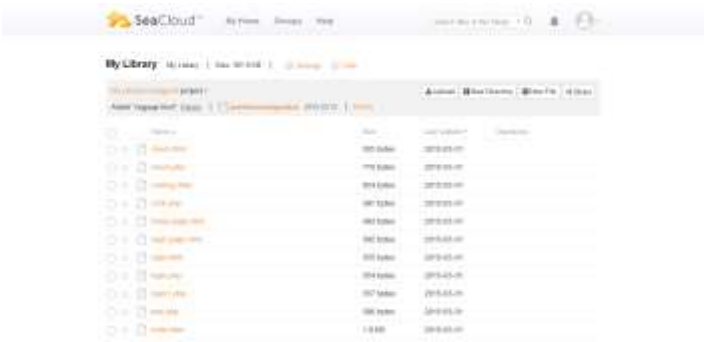


Figure 9: Uploading of files

Result

The ancient Village Health Nurses (VHN's) do not aware of all the diseases but now they need to gain a knowledge using this system. Collaborative learning provides a very good knowledge to the nurses. So the ancient nurses may not aware of diseases. In ancient days 20% of nurses do not have knowledge about the diseases. But now they need to gain a knowledge using this learning. The following graph provides a variation of the knowledge gain by the nurses in the villages.

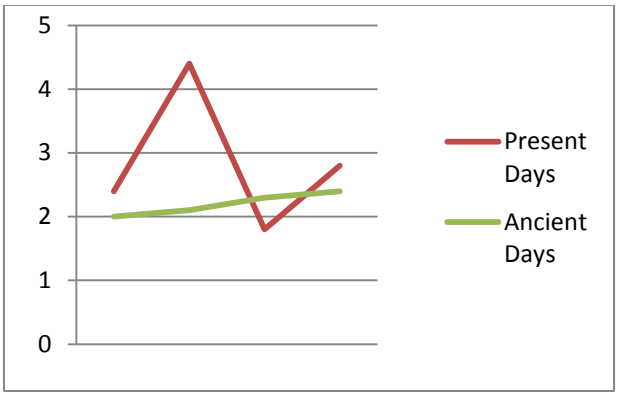


Figure 10: Graph Representation

Discussion

As the nurses wants to gain a knowledge they need to join together and they discuss among themselves using the online discussions provided by the collaborative learning. Online discussions provide chat service, email service and a call service in a free cost through this learning. WordPress is a free online service provider which provides all this service, through this the system can provide free online discussions among the VHN's.

Conclusion

Village Health Nurses (VHN's) are very essential in the villages as they are providing a medicine to the diseases. So they need to gain knowledge about the disease. Among themselves they can provide a materials and discussions about eh diseases to gain knowledge. The chief nurse in the region can upload all the materials in the cloud and the nurse who needs the materials can download the materials. They can discuss some doubts among them through this online providing service through this Collaborative system.

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