

DESIGNING PAEDIATRICIANS COMMUNITIES OF  
PRACTICE: THE CASE OF GOVERNMENT HOSPITALS  
IN ADDIS ABABA

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**DEDICATED**

**To**

**My one year old Daughter, Feneti Abebe Regassa**

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## **Abstract**

Social media tools are changing the way people communicate, collaborate and interact in the day to day activities of employees of the organization especially in sharing tacit knowledge /or experience. They are used for capturing and sharing knowledge resources including experiences of organizations or individuals so that the dissemination or transfer of knowledge will be facilitated.

This research work seeks to design communities of practice as the strategy for acquiring and sharing knowledge using one of the appropriate social media tools for government hospitals in Addis Ababa.

A qualitative exploratory case study research design is selected to conduct this research. Structured interview, questionnaire survey and informal discussions were used to collect data that support the analysis.

The result of data analysis shows that communities of practice is the best alternative of acquiring and sharing knowledge using electronic media to communicate with peer physicians. And E-mail contact as a necessary and efficient way to share ideas as the means of communication that paediatricians have with other paediatricians in the past.

## **Acknowledgment**

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## **Acronyms**

KM – Knowledge Management

CoP – Communities of Practice

HTML-Hyper Text Mark-up Language

URL-Uniform Resource Locator

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# Chapter One

## Introduction

### 1.1 Communities of practice: A brief overview

As cited by Pemberton and Stalker (2006) Communities are, groups of like-minded individuals devoted to share existing knowledge and practice, and create new knowledge in the process. For Communities of Practices to function effectively, internal leadership and coordination must also be present (Wenger et al., 2002). The emergence of a Communities of Practice within an organisation is typically down to an individual, or group of individuals and its formulation is not a result of management intervention, its existence lies outside the formal organisational structure (Wenger et al., 2002).

The success of any organisation greatly depends on the ability to share the knowledge embodied in organisational routines from one organisation unit to another (Szulanski, 1996). Cohen and Levinthal (1990), also suggest that knowledge sharing is a critical factor in an organisation's ability to respond quickly to change, innovate and achieve competitive success. As cited by Jasimuddin (2008) a growing body of empirical evidence indicates that organisations that are able to share knowledge effectively from one unit to another are more productive and more likely to survive than organisations that are less adept at sharing knowledge (Wenger, 1998).

From the above point it can be concluded that the coordination of people in an organization might benefit the organization itself by storing the intellectual asset that is available in the mind of employees, by implementing tacit knowledge sharing mechanisms among employees of the organization, by disseminating best practices and by reducing rework which are the main reasons for knowledge management for the organization to keep their competitive advantage.

The most frequently quoted approach to capture the unrecorded knowledge/ tacit knowledge, and be disseminated and embedded in the organization for future use is using Communities of Practice enabled by online interactive technologies (Alexander, 2002).

Solving problems quickly, helping to drive strategy, starting new lines of business transferring best practices, developing professional skills, and helping companies to recruit and retain talent are the value that have been added to the organizations that use internal communities of practice(Wenger & Snyder, 2000).

## **1.2 Social media tools**

According to Solis (2007) social media refers the information content created by people that shifts the way people discover, read, and share news, information and content. Social media is the fusion of sociology and technology transforming one to many communication to many to many communication.

Social media is best seen as bridging the gap between individuals of same interest as it is a way to share experience and stories through interaction and communication.

Social media is the combination of democratization of content and understanding the role played by people in the process of reading , sharing, and creating content for others to participate . Social media facilitates conversations and interaction between groups of people with the help of online tools that people use to share content (in the form of text, images, audio and video), profiles, opinions, insights, experiences and perspectives(Solis, 2007).

According to Jason (2009) social media allows physicians to play a critical role during difficult and confusing time in the surveillance of potentially devastating diseases and also helps physicians to quickly spread important and timely medical information to all parties so that it will help physicians not only to react to what is going on around them but also empowering them to participate the crises and improve outcomes and save lives.

There are a number of characteristics that differentiate social media from industrial media including accessibility, usability, recency, and permanence( Bernardo , 2006).

Social media software applications can be communication, collaboration, multimedia, reviews & opinion, and entertainment. There are different forms of social media including internet forums ,weblogs,social blogs,wikis etc.and some of a few prominent examples of social media applications are Wikipedia (reference), MySpace

(social networking), Gather.com (social networking), YouTube (video sharing), Second Life (virtual reality), Digg (news sharing), Flickr (photo sharing) and Miniclip (game sharing) (Solis, 2007).

According to Kille(2005), Social media tools like Wikis, Blogs, Group wares etc can also be used for knowledge management as the application of technology for capturing and sharing knowledge resources including experiences of organizations or individuals. They may facilitate the dissemination or transfer of knowledge in the form of communication, collaboration, multimedia, reviews & opinion and entertainment.

The most widely used social media tools for knowledge acquiring and sharing are Groupware, Wiki and Blogs.

Groupware is a social media tool in the form of collaborative technology which allows people to communicate with each other, cooperate on project and share information and knowledge (Gunnaugsdottir, 2003). It can provide a mechanism for accessing needed knowledge by bringing together individuals at different locations who need to share knowledge or information of interest so that duplication of efforts can be avoided. (Kille, 2005; Gunnaugsdottir, 2003).

Groupware and collaboration tools support business firm a lot since most organizations move from individual based work to team based collaboration. Groupware is increasingly important in the market place because it helps the organizations to work efficiently and use resources effectively, the time and space barriers can be avoided so that activities can be smoothly coordinated and the business process can be facilitated but these tools might remain costly (Ezzy, 2006).

Wiki is also another social media tool which means “quick” or “informal” in a wikipedia. It can be described as sets of interconnected WebPages that can be edited by multiple users on the Internet (Wagner, 2004).It is considered as a dynamic knowledge sharing tool like web application which is used to create websites besides allowing users to add contents and edit contents available on the site (yarmosh, 2005). So we can say that organizations all over the world might use the wiki technology as a popular tool for group effort.

Blogs are web pages that are vigorously created from a database, and can be modified from an end users viewpoint. This end user flexibility exponentially increases the potential to share ideas in a nearly cost-free environment (Lu and Hsiao, 2007).

Weblogs (or blogs) are new types of media that have newly developed into popular among differing users on the World Wide Web. Millions of people use blogs in varying way especially in transferring knowledge, and building relationships with other users of blogs (Kille, 2005).

It can be concluded that social media tools are very important tool for content creation and sharing especially for individuals from the same field of study to share their experience, profiles, opinions, insights, and perspectives.

### **1.3 Statement of the problem and its justification**

In the ever changing world with changing technologies health care organizations are facing many challenges including e-health adaptability, informed customers, the shift from focusing on curing disease to prevention, and the exponential growth of the cost of delivering quality health care (Wickramasinglie, 2005)

According to Lundberg (2000) healthcare is the prevention, treatment, and management of illness and the preservation of mental and physical well-being through the services offered by the medical and allied health professions. But it could be less practical to achieve especially the prevention of mental and physical well-being without employing some strategy to facilitate sharing of knowledge among physicians of the same speciality.

In the social form of learning communities of practice provide a new model for connecting people together in the spirit of learning, tacit knowledge sharing, and collaboration. They are highly effective ways for organizations to develop, cultivate, and share the organization's knowledge possessed by its employee (Wenger, 1998).

Since health sector is a large complex sector that includes a range of key actors ranging from patient to professors, it needs a means of sharing knowledge by adopting some sort of knowledge sharing mechanisms in order not to lose the potential knowledge capital that exists in a specific hospital through the high turn over rates of

professionals, employees' attrition, cost saving measures and improper documentation (Chase, 1998). Experience, which is the intellectual wealth of both individual and organizations, should be handled properly so as not to reinvent the wheel on every project, and not to repeat past mistakes again and again (Stewart, 1997).

The introduction of knowledge sharing has a potential not only to reduce the cost of health care but also, to make it possible to achieve high quality, high value and high accessibility to healthcare delivery systems in both government and private hospitals (Wickramasinglie, 2005).

Particularly the use of knowledge sharing in government hospitals is very important since the goal of government hospitals is to reach service to the public than generating income; the poor (the majority of the population in the country) are using government hospitals for their lowered cost of service.

The focus of this research is on government hospitals in Addis Ababa that were established with the aim of delivering high quality health service to the country. Accordingly there are different specializations in the health care delivery at government hospitals ranging from the simple nurse to renowned professors.

From the different specialities that exist in the health care industry, this study focused on paediatrics care since it deals with the health of children and the youth who are the base for the country's development. Moreover knowledge sharing among paediatricians is very important because the child mortality rate is increasing from day to day in developing countries, so a lot is expected from the health professionals especially those who specialize in paediatrics.

In addition to the problem associated with child mortality, it is very difficult to identify the problem of children when they are in poor health and it will be difficult to the paediatricians to identify their problem easily since the children can not speak out and locate their problem. And also paediatricians are small in number in the country so there is a need to store their knowledge for later use.

Moreover the hospitals under question are subjected to knowledge sharing problems since the knowledge sharing practice of the medical professionals and Para professionals in the hospitals depend heavily on informal collaborative activities and

solutions conducted over socialization in the cafeteria and different open air places in the compound. In this environment professionals exchange knowledge through face-to-face conversation but this sharing of knowledge involves only people who has good relationship with each other and the discussion may be restricted to individuals with in the same hospital & those who are interested in the discussion but no additional views from others are included. Furthermore, there exists no documentation of the discussions for future use. The other limitation of knowledge sharing through face-to-face conversation is that it highly depends on trust that people have to one another. For example, sometimes, in brainstorming session, individuals might accept the idea that they might not agree in order not to offend their colleagues. All together it can be said that hospitals are subjected to knowledge sharing problems.

Considering the above mentioned problems there is a need to bridge the gap between these professionals skill. Managing knowledge in health care enterprise is crucial for the achievement of lowered costs of services with high quality. Like any other health care industries, the hospitals in Addis Ababa need to manage knowledge efficiently, create mechanisms to elicit innovation, and gather ideas, suggestions and other sources of knowledge and adopt the best strategy to share knowledge among professionals to avoid the knowledge lose due to employee's turn over and to address local needs and problems.

#### **1.4 Research questions**

The following research questions were addressed based on the problems stated in the previous section.

- How do paediatricians in government hospitals handle issues related to sharing knowledge?
- How do paediatricians build relationships among other paediatricians in the same or different hospital and address their information sharing needs and tackle work related problems?
- Is community of practice a suitable strategy for sharing knowledge among paediatricians within government hospitals?
- How can community-based social media tool be designed to facilitate knowledge sharing among paediatricians within government hospitals?

- Can the tool be, at all, useful to promote knowledge sharing culture and further be developed as a technological platform for community of practice?

## **1.5 Objectives of the study**

### **1.5.1 General objective**

The general objective of this study is to design paediatricians' community of practice.

### **1.5.2 Specific objectives**

In order to achieve the general objective indicated above the following specific objectives were set:

- Assessing the existing knowledge sharing practices among paediatricians at government hospitals in Addis Ababa.
- Identifying and assessing the basic tasks and problems of knowledge sharing among paediatricians at government hospitals in Addis Ababa.;
- Identifying alternatives to design a community-oriented knowledge sharing system to support the community in large ;
- Making recommendations for the approach to implement the knowledge sharing system.

## **1.6 Research methodology**

The methods that were used to construct this study were knowledge audit and design & implementation strategy.

### **1.6.1 Research Approach**

Both empirical and non-empirical case studies were used taking the paediatricians of the hospitals in Addis Ababa as the target population of the study. The researcher selected case study research method for the reason that it will offer a way to qualitatively examine the occurrence of some phenomenon in real life and so as to link the findings to theory. The case study was conducted using a systematic

knowledge audit approach to come up with an appropriate design and implementation strategy. The non-empirical research includes literature review of the subject field and design of the selected knowledge sharing systems.

### **1.6.2 Target population**

The target population of the study were paediatricians at all Government Hospitals in Addis Ababa. As per the observations made on health indicator (2008) the number of Government Hospitals in Addis Ababa is nine (5 hospitals governed by Addis Ababa Region health office and 4 hospitals governed by the Central Government). According to Health and Health related indicators(2008), there are only 11 paediatricians in Government Hospitals in Addis Ababa (eight from Addis Ababa Region Health office and three from central Government Hospitals), so the total population of paediatricians in all hospitals considered was 11. Because of the relatively small number, all the 11 paediatricians in government hospitals were considered.

### **1.6.3 Knowledge Audit**

Knowledge audit is used as a systematic approach for the empirical research process to identify the existing knowledge and the knowledge needed so as to better understand what tools, processes and practices could help to find knowledge quickly. Different scholars suggested different approaches to knowledge audit. For instance, Cheung et al., (2007) and Fai et al. (2005) suggested the systematic knowledge audit which is composed of 8 phases: orientation and background study, KM readiness assessment, conduct survey and interview for evidence collection, building knowledge inventory, knowledge mapping, audit result analysis, knowledge audit reporting and continuous-based knowledge re auditing.

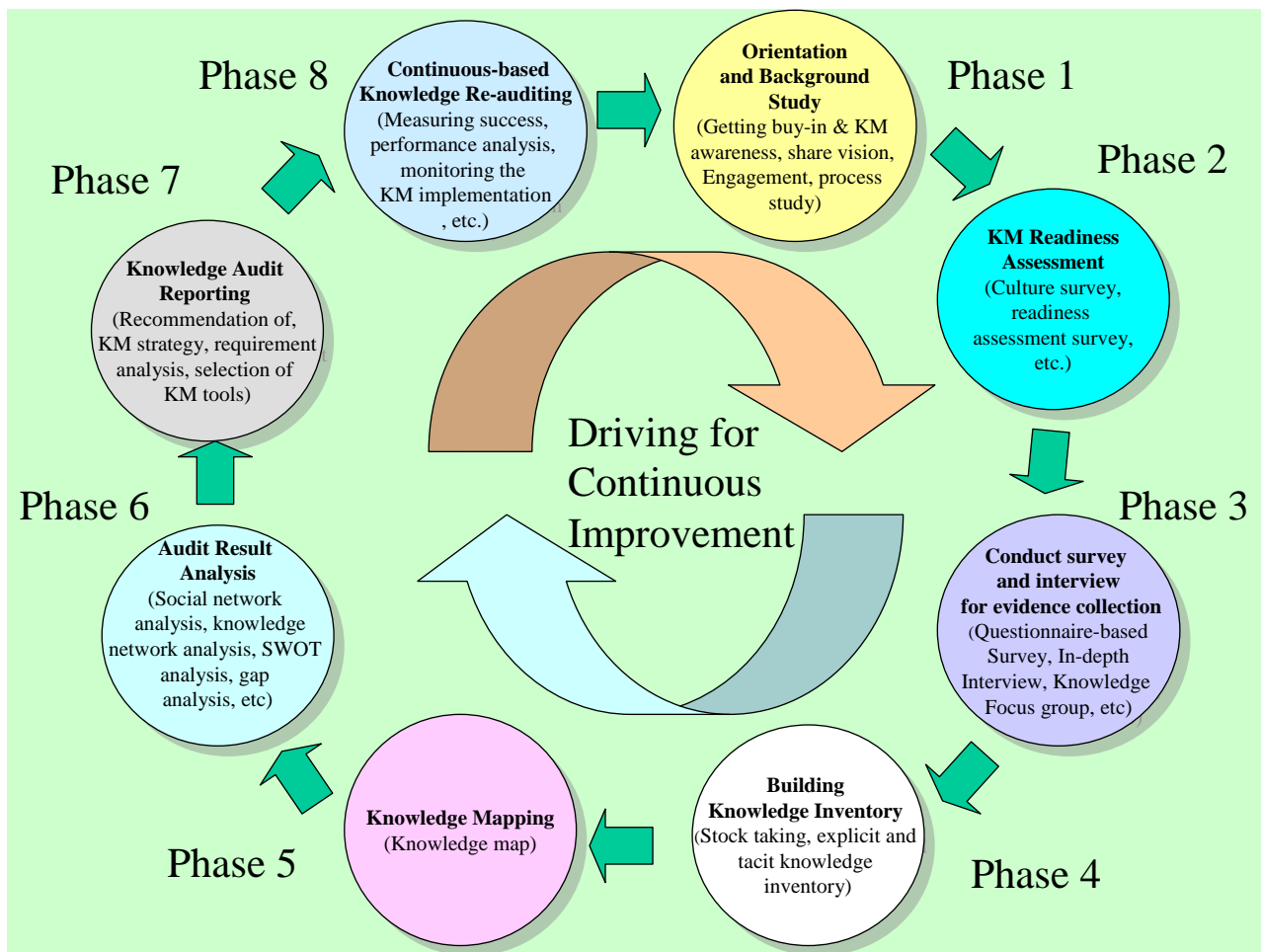


Figure 1-1 A framework for the systematic approach for knowledge auditing (customized from Cheung et al., 2007 and Fai et al. 2005)

### 1.6.4 Data Collection

Data was collected through questionnaire survey and semi-structured interview with active participants. Interview was used to collect more detailed and qualitative information from all paediatricians in government hospitals. Only key persons from each hospital were interviewed. Interview guide and the questionnaire distributed are attached in appendix A & B respectively.

### 1.6.5 Data Analysis

Building knowledge inventory, knowledge map, gap analysis, and audit result analysis is undertaken depending on the collected data. The audit result analysis relies mainly on the view of understanding and reflection approach drawn from the questionnaire assessment survey.

### **1.6.6 Design Strategy**

Social media tools can facilitate knowledge sharing among paediatricians in Government Hospitals at Addis Ababa, therefore a design strategy should be followed to propose the appropriate knowledge sharing system.

To answer the question of designing community based knowledge sharing tool for the paediatricians under question, the step-by-step guide of creating collaborative communities of practice proposed by Cambridge et.al (2005) was followed as a strategy. This step-by-step guide which includes the Inquire, Design, Prototype, Launch, Grow, and Sustain phases will be discussed in detail in chapter four.

### **1.7 Scope of the Study**

The study is mainly focused on building knowledge sharing community of practice among paediatricians within Government Hospitals in Addis Ababa.

### **1.8 Limitation of the study**

Some Government Hospitals were not willing to give response to the required information and the time limit did not allow the researcher to wait very long. Thus they are not included in the study.

Another limitation faced during data collection was that the Ministry did not seem to have complete information on the distribution of Paediatricians.

### **1.9 Application of Results**

The result of the study will have practical contribution to manage knowledge in health care industry in general and paediatricians' knowledge sharing in particular. The study will also be used as the first step in the country in gathering ideas, suggestions and tacit knowledge that will be used in the future in the absence of those who possess the knowledge.

## **Chapter two**

### **Communities of practice and social media tools**

#### **2.1 Communities of practice: a brief overview**

Different scholars define communities of practice in different ways. Some of the well known definitions of communities of practice are as follows:

According to Wenger and Snyder (2000) Communities of Practice is a group of people informally bound together by shared expertise and passion for a combined endeavour. They are informal in nature, and deeply involved in sharing experience and knowledge in an attempt to create new problem solving approaches. These communities can span organizational unit boundaries and through their combined knowledge and access to individuals with unique knowledge, can solve problems quickly and effectively. Any individual may be a participant in such communities, and many communities may be operating in a single organization, facilitating learning at different levels and incorporating different communication channels and media.

Swan, Scarborough, and Robertson (2002) define a Communities of Practice as an activity system about which participants share understandings concerning what they are doing and what it means in their lives and for their community. Thus they are united in both action and meaning that the action has, both for themselves, and for the larger community.

According to Courtney, Haynes and Paradise (2005) a community of practice is formed when individuals with common interest or shared goals come together on a mutual basis. Thus when people find ways to relate to each other by participating in a knowledge flow process, they form a Communities of Practice which can be formed across departments, organizations, and nations.

A community of Practice is defined as a group of people in an organization who interact with each other across organizational units or even across organization boundaries due to a common interest or field of application. Their objective is to learn and support one another in order to create, spread, retain, and use knowledge relevant to the organization. (Zboralski, 2006)

Wenger (2001) also defines Communities of practice as a specific kind of community who are focused on a domain of knowledge to develop their shared practice and to accumulate expertise in their domain over time. They develop their shared practice by interacting around problems, solutions, and insights, to build a common store of knowledge. Further more communities of practice are related to learning in the workplace and other communities with related interests. Thus such communities are an aggregation of people who are bound to accomplish tasks or engage in sense-making activities.

Communities of practice in the natural world is based on common values as well as common interests and beliefs so as to share problems, experiences, insights, templates, tools, and best practices and learn from one another either through face-to-face or virtually. Communities of practice consist of people with a common interest who interact to share information and to solve problems in their area of expertise. Communication, both formal and informal, is the main driver of success in a community of practice. Communities of practice are not static but evolve and adapt continuously to changes in their knowledge domain. With time, CoP not only generates their own identity but also shared artefacts. (Haas, Aulbur, and Thakar, 2007)

Another scholar describes Communities of practice as a community that represent a group of practitioners who share a common interest including employees, consultants, and so forth that defines an internal community of practice and suppliers, partners, clients, and so forth that usually define the external communities of practice and also organizational settings that define how the flow of knowledge happens within an organization. There are two types of settings(formal settings which are represented by meetings, training sessions, policy briefings, and so forth and Informal settings which are characterized by conversations, chats, and coffee hours) (Giraldo,2005).

A central lesson emerging is that if knowledge sharing is going to be successful, then organizations must concentrate on people. The importance of people as creators and carriers of knowledge is forcing organizations to realize that knowledge lies less in its databases than in its people. Consequently, it becomes necessary for organizations to create and promote those environments through building and exchanging knowledge, and, in the process, develop the potentials of members (Gottschalk, 2005).

### **2.1.1 Characteristics of communities of practice**

Different characteristics of communities of practices are identified by different individuals during different period of time.

Barab and Duffy (2000) define three essential characteristics of communities of practice:

(a) Interdependent participants who are part of a larger social system; (b) shared cultural and historical heritage, as well as shared goals and meanings; and (c) a reproductive cycle whereby older members leave and new members enter the community.

According to Wenger (2004) three characteristics of a community of practices are identified namely Domain (the area of knowledge that brings the community together), Community (the group of people for whom the domain is relevant), and Practice (the body of knowledge, methods, tools, stories, cases, documents which members share and develop together).

Barab & Duffy (2000) describes five criteria that are useful in distinguishing between communities of practice and other similar but narrow forms of organization, such as communities of interest, communities of learners, and learning communities. These five distinct aspects of communities of practice that differentiate them from other forms of organization are:

1. A knowledge domain of interest
2. A set of interested and interconnected participants
3. Opportunities for ongoing processes of sense making, knowledge sharing, and discovery within the domain of interest
4. A set of resources related to the domain of interest, including methods, tools, theories, practices, and so forth, those are acquired, retained, and accessible by the community
5. Processes by which the community maintains and refreshes its membership.

According to Jennex (2007) the ability of the community to process knowledge through knowledge discovery, retention, and use are another defining characteristic of communities of practice.

According to Tiwan (2000) communities of practice can also be characterized by four different aspects as follows:

- ❖ Multifunctional groups that incorporate diverse viewpoints, training, ages, and roles
- ❖ Enacting a common purpose by engaging in real work, building things, solving problems, delivering service, and using real tools
- ❖ Developing intellectual property, knowledge, firm culture, internal language, and new skills
- ❖ Making lasting changes in the people and the competency that they embody

### **2.1.2 Roles & Responsibilities of Individuals in communities of practice**

According to Wenger, McDermott, and Snyder (2002) Communities of practice differ from other similar forms of organization since they need a support with clear roles and responsibilities to ensure the smooth running of the community. Different level of commitment is needed from each and every members of the community as different individuals have different level of experience, knowledge and expertise that will match with the varying level of access and involvement members in the communities of practice.

According to Fontaine (2001) different members in the communities of practice will have different roles to develop and support the community. The roles and responsibilities of the members are as follows:

- ❖ Experts- Keepers of the Communities of Practice's knowledge domain or practice and serve as centres of specialized tacit knowledge for the Communities of Practice and its members
- ❖ Core members - persons that have key areas of experience or expertise, or have a keen interest in performing a function for the online community.

- ❖ Community members- take ownership in the CoP by participating in its events and activities. As the CoP begins to coalesce, they become more actively involved in the CoP.
- ❖ Leaders- Provide the overall guidance and management needed to build and maintain the CoP, its relevance and strategic importance, and its level of visibility.
- ❖ Sponsors- help secure needed resources, nurture and protect the CoP, and ensure its exposure.
- ❖ Facilitators/ Moderators- encourage and energize participation by interacting with the CoP, by endorsing ideas, and by directing knowledge requests to the appropriate experts.
- ❖ Content managers- ensure that the explicit knowledge is continually updated and organized.
- ❖ Mentors- members who help new members navigate the CoP and adopt its norms and practices.
- ❖ Admin/ Events Coordinators- coordinate and plan online or face-to-face CoP events or activities.
- ❖ Technologists- oversee and maintain CoP technology and help members navigate its terrain.

Such a clear articulation of roles and responsibilities of members in communities of practice has the benefit of helping to make the process of creation and dissemination or transfer of tacit knowledge more visible. By doing so, it is hopefully the case that team members will recognize the significance of the different sources of acknowledgment. (Williamson, et. al 2006)

### **2.1.3 The impact of communities of practice**

According to Zboralski (2006) the impact of communities of practice can be either from the viewpoint of individual members or from organization perspective both to answer the manager's expectation and/or to deliver the concrete value to the organization. Individuals as community members profit directly from their participation in the community.

Although personal goals and individual motivation influence their perception of community benefits, the community members build up a number of benefits including common language and a collective knowledge base by communicating frequently; the shared context and increased networking between members, the emerging interpersonal relationships which support access to new knowledge sources, and the development of social capital (Lesser & Storck, 2001; Nahapiet & Ghoshal, 1998).

Due to advanced competences, community members are regarded as experts in a specific field which in turn leads to a higher reputation within the organization. Hence, the personal knowledge of the community members is increased, and new competences are gained which are beneficial for improved performance. (McDermott, 2002). This has a positive impact on their professional development and, as a consequence, on their work satisfaction (Schoen, 2001).

A common knowledge base is not only created at the individual level, but also at the organizational level. Communities of practice exhibit a climate which may stimulate creativity through an open communication, the exchange of interdisciplinary knowledge and, thereby, the development of mutual trusts (Storck & Hill, 2000). One common benefit of CoP is resource savings that results from CoP through promoting better solutions for problems and easier & faster access to knowledge, in addition to decreasing training periods for new employees so as to help in avoiding double work.

Lastly, communities of practice can change the existing organizational culture in a favourable way through the development of collective sense-making common language as well as the emergence of networks among members. On the other hand, people's attitudes toward knowledge sharing change as it is actively approved and rewarded. (Zboralski, 2006)

## **2.1.4 Communities of practice for organizational learning**

Understanding that learning is a social process is particularly important when we wish to see how CoP can facilitate organisational learning. When we consider organisational learning, we must move from the individual to the knowledge flows that occur between individuals and the contexts shared by individuals and groups (Nidumolu, Subramani & Aldrich, 2001).

To be successful, an organisation must know what it knows (Wenger, 1998); thus, it is necessary to understand how knowledge flows across boundaries among communities and between communities and the organisation. It is also a matter of creating, nurturing, and sustaining these flows (Wenger & Snyder, 2000).

Communities of practice have boundaries that serve to separate different communities and are often only revealed when we realise what learning is required to move from one CoP to another or from the CoP to the larger organisation. These boundaries are not impermeable; a community cannot exist in total isolation to the rest of the world; there are entities that serve as boundary objects (Star & Griesemer, 1989).

Wenger (1998) identifies three types of boundary encounters. These can be meetings, conversations, and visitations and can happen at various levels. There can be a one-to-one encounter where two people meet and discuss issues involving the boundary relationships of relevance to them. Another type of encounter is an immersion that can take the form of a visit to a practice so that there will be an exposure to the community of practice being visited and how its members engage with one another (Wenger, 1998). One disadvantage of this type of encounter is that the passage of information is essentially one way. The members of the visited community ascertain very little about the community the visitor belongs to. The final type of encounter is a delegation where multiple participants from each community meet for a mutual exchange of knowledge. In this type of exchange, meaning is negotiated between members of each community and across the boundary. (Wenn, 2006)

Wenger's three types of boundary encounters is depicted in the following figure

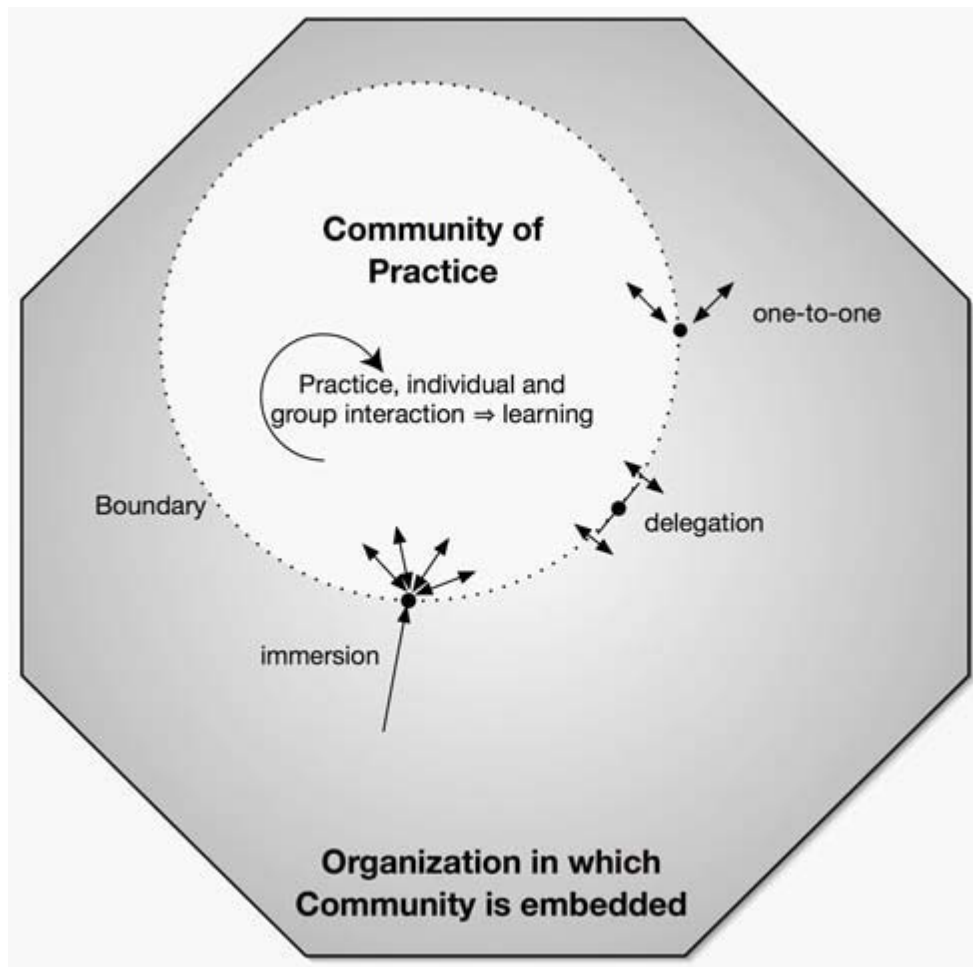


Figure 2.1 three types of boundary encounter (Wenger 1998, pp. 112-114))

### 2.1.5 The lifecycle of a community of practice

According to Wenger (1998) the stages in the lifecycle of a CoP are described as follows:

- ❖ **Potential:** At this stage, people face similar situations but have not yet formed a shared practice.
- ❖ **Coalescing:** At this point, members have interacted and found one common emerging point and their potential.
- ❖ **Maturing:** CoP sets standards, defines agenda, and develops relationships.

- ❖ Active: At this stage, the community formed is most productive. Members develop shared practices.
- ❖ Dispersed: CoP is no longer active, functions more as a repository of knowledge.

According to Ray (2006) five stages that mark the lifecycle of CoP when it forms as a social network are identified:

- ❖ Scattered: Individuals that are grappling with similar problems, in search of similar information.
- ❖ Informal Group: One has informal contacts that can help with the current problem at hand. Interactions result in informal support groups that one turns to with questions.
- ❖ Community: The focus of the informal groups becomes clearer as members come together with similar pursuits to define the core of the community.
- ❖ Decline: Maturity of knowledge results in expansion of the core up to a maximum limit. Knowledge still exists, but the focus has fully developed and no more refinement is possible.
- ❖ Death: Focus is no longer important or relevant to its members, resulting in a steady decrease in interactions between members. One must understand that death of a community of practice does not signify end of knowledge. Knowledge still exists, however the community that developed it has moved on.

According to Gongula and Rizzuto's (2001) community evolution model, the following stages form the lifecycle of CoP:

- ❖ Potential: Where a community is forming.
- ❖ Building: Where the community defines itself.
- ❖ Engaged: Where community executes and improves its processes.

- ❖ Active: Where the community understands and demonstrates benefits from knowledge management.
  
- ❖ Adaptive: Community uses knowledge for competitive advantage.

As more and more people face similar problems, the need to codify the knowledge emerges. Groups of people with similar issues start to come together to form what is then called communities of practice. One must however keep in mind that knowledge cannot cease to exist. Thus CoP, which are basically containers of knowledge, cannot actually die out but the relevance of CoP could decline (Ray, 2006).

### **2.1.6 Communities of practice and other organizational groups**

There are a number of organizational groups including project teams, workgroups, and knowledge networks in addition to communities of practice. These organizational groups share same characteristics with communities of practice. There are also a number of characteristics in which they differ even though the boundaries between these groups are not clear-cut, and there is a need for further development of concepts and definitions that are more commonly accepted and universally valid. Workgroups and teams are more similar in terms of their formal structure, objectives, imposed participation, and directions from management. This is in contrast to CoP and knowledge networks, where objectives are more fluid and often emerge during the participation process. While these different concepts share several common characteristics, there are also important distinguishing features. (Hustad and Munkvold, 2006).

According to Wenger (2000) Communities of practice which include teams and organisations, as well as virtual communities are the basic building blocks of a social learning system because they are the social containers of the competencies that make up such a system. Wenger (2000) also states if organisations can encourage communities of practice, they can create a social learning system, which will increase their knowledge generation, and therefore, hopefully, their economic success.

Communities of practice are a component of social learning system which is an individualistic approach since learning by individuals can take place effectively in a social context. Thus if organisations are to beat their competitors they need to form themselves as social learning systems. By being identified with a group, individuals can learn within the boundaries of this dynamic setting, and the knowledge created is shared within the group (Wenger, 2000)

The important concept is how people are motivated to share what they know; as it is often the issue that sharing of knowledge is the most difficult thing to address and once knowledge is externalised from the knower and stored, it loses context, and ceases to be knowledge and becomes information. But there are few organisational solutions to motivate employees to create and share knowledge. (Bellarby and Orange 2006)

According to Buchel & Raub (2002) in addition to the acknowledgement by management to increase innovation and organizational efficiency, Knowledge networks are more visible in the organization than Communities of Practice i.e. the organization could achieve more benefits from knowledge networks since they are more acknowledged than CoP in respect of allocated resources and time to participate frequently. But the choice to participate in a Community of Practice is mutual in that the community chooses their members, and members of a community choose whether to participate or not. This property seems to be the most exceptional compared to the other organizational groups.

In addition communities of practice differ from teams or work groups in that they have a task focus, usually initiated for a specific purpose, and have formal requirements for the selection of members and the group disbands once the assigned task has been finished (Wegner,2000)

The following table presents a comparative analysis of Communities of Practice and three other organizational groups, using the following dimensions: purpose, membership, degree of formality, time frame, management, and role of ICT.

	<b>Community of Practice</b>	<b>Knowledge Network</b>	<b>Workgroup</b>	<b>Team</b>
Purpose	Organizational learning Share and build knowledge about a common passion through a joint enterprise, mutual engagement, and shared repertoire	Similar as communities of Practice, but more goal oriented, innovative	Deliver a service or a product, Fulfil organizational objectives	Accomplish a specified task according to project goals
Membership	Self-selected assignment Voluntary participation	Either self-selected or more managed membership	Mandated from job descriptions and organizational hierarchy	Team members selected by management
Degree of Formality	Low, informal	Low to medium	High	High
Time Frame	Long-time voluntary membership	Either long-time voluntary membership or decided by management	Permanent, as long as the organization structure is stable	Participating part or full time as long as the project lasts
Management	Self-organizing groups, invisible to the formal organizational structure	Varies from self organizing groups towards more managed and mandated groups Allocated time and resources to participate	Reporting to management of department	Reporting to team manager
Role of ICT	Support creation and sustainment of distributed communities, Choice of ICT-ease of use, efficiency	Support creation and sustainment of distributed communities Choice of ICT-ease of use, efficiency Linking different knowledge networks together to a constellation of different networks, implementing boundary practices through ICT initiated by management	Distributed workgroups dependent on ICT for interaction purposes	Virtual teams dependent on ICT for creating a shared space, and for coordinating and performing common tasks

*Table 2.2 a comparison between CoP and related forms of organizational structures (Hustad, E. and Munkvold, 2006)*

### **2.1.7 Communities of Practice as Facilitators of Knowledge sharing**

Knowledge sharing has been around for decades but it has been revolutionized by the rapid development of information technologies in general and the internet which can highly contribute to the transfer and dissemination of knowledge in particular .Thus

using online knowledge sharing tools can facilitate the efficiency of sharing knowledge and/or experiences of individuals or organizations (Doodewaard, 2007).

Thus knowledge -based society has emerged, and in these types of society the major emphasis of organisations should be placed on the processes of knowledge sharing, which are increasingly seen as crucial to organisation's success (Barrett et al., 2004). The fact is that organisational success can be based on its ability to share the knowledge embodied in organisational routines from one unit of the organisation to another as well as to improve their capabilities by assimilating new technology (Gilbert and Cordey-Hayes, 1996).

According to Cohen and Levinthal (1990) knowledge sharing is a critical factor in an organisation's ability to respond quickly to change, innovate and achieve competitive success. A growing body of empirical evidence indicates that organisations that are able to share knowledge effectively from one unit to another are more productive and more likely to survive than organisations that are less adept at sharing knowledge.

Both formal and informal communication is used by different employees of the organization to successfully perform their work. Employee of the organization may spend majority of their time communicating in one form or another in order to accomplish their duties and responsibilities (Robert et al., 1990). Thus when an individual confronted with a problem similar to the one that has been arisen by another individual during formal or informal communication, calls to the person, send an email to request for help , or contact the individual who has confronted the same problem earlier to get advice rather than to consult a manual (Robert et al, 1990). This kind of informal type of knowledge-sharing is independent of the formal structures that organizations set up to promote communication and information exchange.

Even though informal communications of peoples are very important knowledge-sharing mechanisms, Robert et al (1990) has identified the following limitations.

- ❖ The communication between individuals depends on the proximity they have.

- ❖ New staff facing problems may not be aware of the informal communities and are unable to get the expertise of other members
- ❖ Lessons learned from experience are lost with departure of subject matter experts or restructuring of business/operating units.
- ❖ Ad-hoc techniques rely heavily on workers interest to acquire or share knowledge whenever they feel it is necessary.

Therefore, the introduction of communities of practice is unquestionable for the organization and its employees to be efficient and effective in performing their duties successfully.

The intentional or unintentional flow of both tacit and explicit knowledge can become the driver for organizational learning. And for this knowledge to create value in an organization, it must have the ability to be shared among employees. When examining knowledge sharing, it is important to consider the context in which the knowledge is developed, as the community in which the individual is learning can affect any knowledge that is created.

Even though creating the right social environment and producing optimum knowledge sharing is not an easy task, there are three levels in the organization (individuals, groups, and the organization as a whole) that play a great role in knowledge sharing process. The ability of a community of practice to create a friendly environment for individuals with similar interests and problems to discuss a common subject matter encourages the transfer and creation of new knowledge. Practitioners with similar work experiences tend to be drawn to communities, and from this a common purpose to share knowledge and experience comes up (Wenger, 1998).

Though the transfer of knowledge across communities becomes more challenging due to the “sticky” nature of knowledge, i. e. as knowledge is situated within a particular context, the removal from this context may distort the value or meaning of it, communities of practice are able to assist an individual with knowledge conversion as long as the participants are situated within the same community (Boland and Tenaski, 1995).

One structural benefit brought by communities of practice to an organization's knowledge sharing initiatives is the use of IT tools in knowledge sharing, which can stimulate the use of this infrastructure and create a well-networked organization by use of the provided resources.

According to Wenger et al. (2002) Communities of practice have the capability to grow an organization's social capital through the increase in knowledge sharing that naturally occurs within these communities. By connecting individuals with similar experiences and interests, creating relationships between individuals and groups who may have not had the opportunity to meet through the formal structure of the organization, and providing a common context that encourages people to share their knowledge, a formal or informal community of practice can create the foundation for successful knowledge sharing within an organization.

According to Paquette (2006) creating new business opportunities by developing internal expertise and relationships with an organization's customer base, which results in the conversion of insights into new products; reconstituting expertise that can become lost in a dynamic organization and creating a method of locating such expertise; and enabling companies to compete on talent are some of the benefits of communities of practice to the organization.

### **2.1.8 Knowledge sharing in healthcare industry**

The transfer or dissemination of knowledge includes the development to improve the willingness and ability of knowledgeable individuals in the organization to share what they know to help others expand their own knowledge. Sharing knowledge is necessary both for the creation of new organizational knowledge as well as its distribution within the organization through the application of social media tools like groupware, wiki and etc to facilitate knowledge transfer (Wenger, McDermott, & Snyder, 2002).

Since healthcare industry is facing an alarming shortage in healthcare professionals and due to high employee turnover, transfers, retirements and lack of available trained employees, there must be an approach to address this growing problem through knowledge sharing and storage. This is the efficient and effective transfer of critical

operational knowledge from transferring, resigning, terminating, or retiring employees to their successors. Healthcare organizations are looking closely at the benefits associated with knowledge sharing through communities of practice by the help of new initiatives which focus on interaction, collaboration and communication of its employees to avoid the major challenges such as increased costs, greater pressure towards accountability and transparency, as well as a diminishing labour supply pool (Morgan, Doyle, and Albers, 2005).

According to Wickramasinglie et. al (2005), sharing knowledge has been a vital part of developing effective health care systems. Doctors need to learn from each other to keep abreast of new techniques, and to find out about different ways of delivering health care especially through the development of communities of practice. So groups of Doctors get together to share their existing knowledge, create new knowledge, and apply their collective knowledge to increase their capabilities. Communities of practice provide an opportunity for learning and a platform for innovation among its members, and are one of the most effective ways to share and transfer tacit knowledge among doctors of the same speciality.

### **2.1.9 Communities of Practice in healthcare**

Information technology moves beyond information processing to connect communities and enable the development of shared practices. Certainly the automation of patient records involves information processing, but to be useful, and indeed to be used, automation must serve various communities such as doctors in different specialties, nurses, aides, administrators, and patients while honoring and bridging their respective practices (Wickramasinglie et. al 2005).

According to Wenger (2005) communities of Practice equips practitioners, managers, educators and practice mentors in Healthcare with the knowledge and skills of health related activities so that the provision of high quality health service will be facilitated. A community of Practice in Healthcare highlights how communities can make better service so as to improve quality in healthcare industry.

The IBM Centre for the Business of Government has performed case studies which reveal the strategic relevancy the United States federal government has placed on the development of paediatricians Communities of Practice to support children's health through the development of best practice and knowledge stewarding (Rajeev, 2005).

The networked healthcare enterprise is providing unprecedented opportunities for healthcare workers to collaborate and make clinical decisions in an efficient manner. Significant progress has been made to enable healthcare personnel to obtain answers to clinical questions by using communities of practice. This approach allows reusing and sharing of knowledge to help healthcare professionals to save time and effort and help patients in an efficient manner (Wenger, McDermott, & Snyder, 2002).

Both tacit and explicit knowledge are available in a contemporary healthcare enterprise. Some of the modern knowledge management systems allow building of communities of practice around both explicit and tacit knowledge to address the need of specialized medical and clinical knowledge so as to allow users to search, extract, and reuse this knowledge (Rajeev, 2005).

### **2.1.10 Communities of practice in different organizations**

According to Allee (2000) different organizations have successfully implemented technology-oriented communities of practice to exploit the potential benefit of communities of practice and social media tools. Some of the organizations include The World Bank, American Management System, Hewlett-Packard, Chevron, Shell Oil, General Motors, the Veterans Administration, the big consulting companies; Philip Morris, IBM, Intel, Lucent Technologies, Motorola and etc. For the purpose of this study the first three will be discussed as an example of the successful implementation of communities of practice.

#### **2.1.10.1 The World Bank**

The World Bank has implemented both formal and informal communities of practice to achieve its economic development role through both tacit and explicit knowledge sharing. Voluntary participation approach is used for membership development and activity levels vary to suit needs of individual members. Communities of practice manage their own budgets and are sponsored by senior management boards.

Motivation for participation relies primarily on the fundamental benefits of community membership, even though the organization also benefits much. To enhance the transfer and dissemination of knowledge among community members, to help with the communities' development, to coordinate annual community conferences, and sometimes to access information from external sources knowledge sharing support teams are assigned (Wenger, 2000).

### **2.1.10.2 Hewlett-Packard**

A community of product-delivery consultants across North America shares knowledge monthly through teleconferencing with the main aim of high availability of HP software product. Employees, who have no opportunity to participate in teleconferencing, came jointly to learn together about problems encountered in their work by the help of communities of practice. Participation in the monthly calls is voluntary. A community of practice have been used as the mechanism to bring these different consultants together and opens a forum to connect and communicate. The members learn through their social participation by bringing their shared experiences to solve problems they face in their work. For instance the details of the software bug that has been raised in teleconferencing will be taken back to the employees work so as to fix the bug (Wenger, 2000).

### **2.1.10.3 American Management Systems**

The development of communities of practices in America's strategic areas is spread by American Management System. American Management System opens membership of Communities of practice only to staffs whose expertise is recognized. Members should complete one knowledge development project a year such as documenting a best practice to stay energetic in the community. The sponsors of each community member are their own business units which also funds attendance at an annual conference and workshops. But the development and coordination of the annual conference and workshops are facilitated for the communities by American Management System through the support teams (Wenger, 2000).

## **2.2 Social media tools**

### **2.2.1 Social media and social media tools**

Social media is the information source created by people using highly accessible technologies. Communication and interaction between peers and /or individuals of the same interest can be facilitated by social media. Interaction between people and Technology are the core ideas behind social media as shared meanings can be built by the integration of words through discussion and the discussion can be facilitated using technology as a conduit. (Solis, 2007).

A number of social media which includes internet forums ,weblogs,social blogs,wikis, etc are some of a few prominent examples of social media applications(Solis, 2007).

According to Bernardo (2006), social media and industrial media shares one characteristic in common that is the capability to reach small or large audiences. But there are a number of properties that makes social media different from industrial media including accessibility, usability, recency, and permanence. Another distinction between industrial media and social media is accountability, while industrial media is accountable regarding the content ,quality and consequence of their activities in terms of the values of public interest,social responsibility etc, social media is free from conflict of interest and not accountable for their publishing activities.

According to Kille(2005),Social media tools like Wikis, Blogs, Group wares and etc can also be used for knowledge management as the application of technology for capturing and sharing knowledge resources including experiences of organizations or individuals that facilitates the dissemination or transfer of knowledge.

### **2.2.2 Types of social media tools**

The role of information and communication technology has expanded from supporting pure transaction processing activities to facilitating information and knowledge sharing and becoming a means for group communication and collaboration. For instance, collaborative platform is application of Information and Communication Technology for sharing tacit knowledge that seeks to improve

coordination, communication, and collaboration among individuals, teams, or groups by facilitating knowledge transfer/dissemination and reuse (Brink, 2006).

The transfer of knowledge is possible through various means including face-to-face interactions, mentoring, job rotation, and staff development. But the traditional means may prove to be too slow and less effective and in need of being supplemented by more efficient electronic means. Even though organized knowledge sharing through communities of practice can also be performed without the help of software tools through fax machines and Telephones, a number of companies are using community-oriented tools by expanding their basic software facilities to eliminate time and geographical location barriers ( Wenger,2001).

Different community-oriented tools which are used for different purpose are available, including communication, collaboration, multimedia, reviews and opinions, and entertainment having specific and general features such as search and database maintenance, intranet features, security, chat features, find-an-expert features, personalization, on-line discussions etc., which aid sociability and knowledge sharing in an organization. Among the well established communication and collaborative platforms, groupware; wiki; and Blog are discussed in more detail to give a clear picture of the tools. (Brink, 2006).

### **2.2.2.1 Groupware**

Groupware refers to software systems designed to support group interaction and collaborative teamwork. They are intended to provide group or teams a shared workspace, despite being separated spatially and temporarily. The basic functionalities of groupware are information sharing, document authoring, messaging, computer conferencing, group calendars, project management, and support for team building (Brink, 2006).

Groupware is a social media tool in the form of collaborative technology which allows people to communicate with each other, cooperate on project and share information and knowledge. So it can provide a mechanism for accessing needed knowledge by bringing together individuals at different locations who need to share

knowledge or information of interest so that duplication of efforts can be avoided. (Kille, 2005; Gunnaugsdottir, 2003).

Groupware can best be seen as a technology that provides effective mechanisms regarding information life cycle; like collecting, disseminating, retrieval and transfer etc. It contains a number of conversational knowledge management systems such as wikis and blogs which are very important in knowledge management process specifically in knowledge creation and sharing (Wenger, 2005; Kille, 2005). One can conclude that Groupware can support users or employees of an organization that work together but are far apart from each other geographically. Groupware can make collaboration to the work groups real time /synchronous or asynchronous.

Synchronous communication, coordination and collaboration might be facilitated among different groups of people by the application of groupware which has been around since the invention of e-mail, but now days it is available on every web-based PC through desktop clients such as Groove, Colligo, social text and others (Ezzy, 2006).

In Groupware systems four types of collaborative work situations can be identified depending on the combination of time and location dimension. The four different collaborative work situations are as follows (Brink, 2006).

1. Same time- same place , e.g. electronic meeting system
2. Same time- different place: e.g. chat rooms, application sharing systems, shared whiteboards, collaborative virtual environments, and videoconferencing systems.
3. Different time - same place e.g. electronic project room
4. Different time - different place co-authoring systems, electronic discussion systems

### **2.2.2.2 Wiki**

The term “wiki” means “quick” or “informal” in a wikipedia. It is considered as a dynamic knowledge sharing tool as web application which is used to create websites besides allowing users to add contents and editing contents available on the site

(yarmosh, 2005). It can be described as sets of interconnected WebPages that can be edited by multiple users on the internet (Wenger, 2004). So we can say that organizations all over the world might use the wiki technology as a popular tool for group effort.

Even though wiki software can vary, most wikis are subject to common features like, it can be open to all authorized users so that the users can edit, add new pages by typing the wiki word containing two or more capital letters and it might use a simplified Mark up system other than HTML (Leuf & Cunningham, 2001; kille, 2005).

### **2.2.2.3 Blogs**

Weblogs (or blogs) are new types of media that have newly developed into popular among differing users on the World Wide Web. Millions of people use blogs in varying way especially in transferring knowledge, and building relationships with other users of blogs; in other word it is a tool that supports communities of practice in work (kille, 2005).

Blogs are web pages that are vigorously created from a database, and can be modified from an end users viewpoint. This end user flexibility exponentially increases the potential to share ideas in a nearly cost-free environment (Lu and Hsiao, 2007).

The information that is found on the blog is given in reverse chronological order (the most recent appear first) which can be updated frequently and regularly. The bloggers incorporated the ease of setup in 1999 and since this time a number of companies have been specialized in blog and blog like products (maxymuk, 2005).

It can be concluded that social media tools are very important tools for content creation and sharing especially for individuals from the same field of study to share their experience, profiles, opinions, insights, and perspectives.

### **2.2.3 Uses and advantages of social media tools**

The management of personal and group work can be combined by the current groupware which provide work management tools (that assist or enhance groups working like chat systems, messaging and conferencing) and personal project execution(Ezzy, 2006).

To improve productivity most organizations move from individual based work to team based collaboration and this makes groupware and collaboration tools support business firms a lot. Groupware is increasingly important in the market place because it helps organizations to work efficiently and use resources effectively, the time and space barriers can be avoided so that activities can be smoothly coordinated and the business process can be facilitated but these tools might remain costly (Ezzy, 2006).

Virtual teams can be benefited more from groupware regarding the productivity of work and effectively under taking works than conventional teams working in a typical work place (Ezzy, 2006).

It can be generalized that groupware enhances the way people communicate with family, individuals, customers, friends etc, the way the business is conducted, the way files or documents are managed, the way information is created, shared and managed, so that productivity of organizations or individuals can be accelerated through various channels (Ezzy, 2006).

The advantages of groupware can be generalized as assisting communication among employees through e-mail or bulletin board system to facilitate file sharing or exchange better coordination among personnel, better and quicker decision making, and cost effectiveness. Although the above points are considered as the advantages of groupware there are a number of drawbacks especially related to human factors like the willingness of workers to cooperate using the guidelines and requirements defined by the groupware systems, users' resistance/ rejection which may result from the imbalanced workload and other human factors such as arrogance, the need to be appreciated, heard, understood (Yen, 1999).

According to Kille (2005) the content of wiki can easily be added and the WebPages can also be created easily so that the user might have easy access to add, edit and create new WebPages. Different decentralized groups might try to access the centralized resources on the web to freely share resources on wiki. Besides the ad-hoc problems with decentralized knowledge sources can be effectively managed by wikis since they are conversational technology (Wenger, 2004; Kille, 2005).

There are different advantages that wiki can provide to the group interaction including collaboration, modifiable wiki pages, creating hierarchy of knowledge contents and the wiki pages can be kept fresh, relevant and pertinent to the work groups through the instant changes that are published (Ezzy, 2006).

Even though wiki has the above advantages it can also have drawbacks like:

- The software that runs a wiki called a wiki engine are usually installed on a server which requires more advanced computer skills than those of basic computer users (Clyde, 2005; Kille, 2005).
- Since wiki encourages incremental knowledge creation, the content of the page that is created might be partial or incomplete because while one is adding contents the other might try to retrieve and again while one is trying to retrieve the other might alter the content of the already existing information and hence there might exist creating hyperlinks to non existing pages (kille, 2005).
- The users of wiki system should be familiar with the organizational culture. The users of wiki should also be identified so one can generalize that it is advisable in the organizational cultures with high level of trust and high term of accountability from system user's side. If there is no trust and accountability, it is difficult to use wiki as a best tool for knowledge sharing (Fichter, 2005; kille, 2005).

A webpage for a specific purpose can be easily built on the internet by using blogs with few minutes. The unique use of blog is that it can allow comments on the records and also provides a review and descriptions of a book on Amazon.com directly. Blogs can be used both in academic and non academic disciplines including librarians, journalists, educators, political parties are some of the users (Romans and Piper, 2006).

The blog can add in images, audio and video (vlogs) in addition to text which can be of three general types: aggregators that collect other blog posting and writings from various digital media, personal narratives, and the combination of the two (Romans and Piper, 2006).

Blogs provide a high opportunity for individuals' direct contacts that were previously protected from communicating by public relations. So we can say that by using blogging technology one can easily and directly, communicate with his or her customer, dialoguing with a press, providing information for investors, etc (Delio, 2005).

Regardless of the above advantages, Blogs suffer from the following disadvantages: It is personal, less collaborative and posting is owned by poster, creating internal links is painful and secondary to the text; knowledge is static but contextual (Delio, 2005).

#### **2.2.4 Comparisons of social media tools**

Both Wiki and Blog are useful in enterprise team especially for communities with common interests, goals, or responsibilities, such as a project team or an interest group as knowledge creation and sharing tool and providing a venue to quickly publish and edit content for the web (Yarmosh, 2005).

Another similarities and of course the strength of blogs and wikis is that they provide direct interaction with readers (Dlio, 2005). But they can also be contrasted in the following manner:

According to Yarmosh (2005) there difference is on the following points:

- ❖ While wiki is sharing knowledge, blogs share opinion,
- ❖ Wiki is encyclopaedic in nature where as blog typically time sensitive in opinion sharing,
- ❖ Wiki supports many to many communication but blog supports one to many communication
- ❖ With regard to forum while wiki is collaboration based blog is conversation based.

The blog readers can forward their comment on the content rather than editing the content so this can contrast blog to that of wiki in which editing the content is permitted (Maxymuk, 2005).

Even if similarities of Blogs and groupware lie at the heart of knowledge creation and sharing they do have a number of differences in the following regard: Blog is opinion sharing but groupware is knowledge sharing. The users' involvement & user's motivation aspect of blogs makes it popular and different from groupware (Romans and Piper, 2006). Unlike groupware blogs can be maintained by an individual that consists of information related to individuals or groups that retain information about the business including its process (Davison, 2005). Recently Weblogs or "blogs" have exploded onto the World Wide Web, allowing anyone to publish on the Internet. Weblogs come in many varieties and are usually very inexpensive, or even free but the groupware is costly (Weiler, 2003).

Wikis and groupware have similarities in the process of knowledge creation and sharing aspect but they do have a number of differences in the following regard: The wide-open to the individuals or groups feature of wikis can distinguish it from the traditional approaches of standard groupware and collaborative systems (Mckiernaan, 2005). The users' involvement & users motivation aspect of wiki makes it popular and different from groupware (Romans and Piper, 2006). The ease way setup and use of wikis which can adds more new pages of information, opinion and observations make it different from groupware which can not be edited by any users (Romans and Piper, 2006).

## Chapter Three

### Findings and Discussion

#### 3.1 Background Information on Paediatricians at Government Hospitals in Addis Ababa

According to the information obtained from the plan and program office of the Ministry of Health, government hospitals in Addis Ababa are governed by two different governing bodies namely the central government and the Addis Ababa Region Health Bureau.

There are five hospitals under Addis Ababa Region Health Bureau including Yekatit 12 Hospital, Emp. Zewditu Hospital, Ghandi Hospital, Menelik II Hospital and Ras Desta Hospital and the four Hospitals under the central government are St. Paul Hospital, Emanuel Hospital, Alert Hospital and St. Peter Hospital. The following table summarizes government Hospitals in Addis Ababa and their governing bodies.

<b>Name of the hospital</b>	<b>Governed by</b>
Yekatit 12 Hospital	Addis Ababa Region Health Bureau
Emp. Zewditu Hospital	Addis Ababa Region Health Bureau
Menelik II Hospital	Addis Ababa Region Health Bureau
Ghandi Hospital	Addis Ababa Region Health Bureau
Ras Desta	Addis Ababa Region Health Bureau
St. Paul Hospital	Central Government
Emanuel Hospital	Central Government
Alert Hospital	Central Government
St. Peter Hospital	Central Government

*Table 3.1 Summary of Government hospitals in Addis Ababa*

The health and health related indicators (2008) showed that there are a total of 8 paediatricians in the hospitals under Addis Ababa Region Health Bureau and there are only 3 in the four hospitals governed by the central government. But as per the observations conducted by the researcher only 6 paediatricians are there in the hospitals under Addis Ababa health Bureau, five paediatricians from Yekatit 12 Hospital and 1 paediatrician from Zeuditu hospital, in the rest three hospitals there are

no paediatricians. And out of the three paediatricians under the central government, the researcher found only one paediatrician in St. Paul Hospital. So the total number of paediatricians in the government hospitals becomes 7 i.e. five paediatricians from Yekatit 12 Hospital, 1 paediatrician from Emp. Zewditu Hospital and 1 paediatrician from St. Paul Hospital. But the remaining four has left the hospitals for different reasons.

The following table summarizes the number of paediatricians in government hospitals at Addis Ababa and the questionnaires distributed and returned.

<b>Name of hospitals</b>	<b>No of paediatricians</b>	<b>Distributed questionnaire</b>	<b>Returned questionnaire</b>	
Yekatit 12 Hospital	5	5	5	
Emp. Zewditu Hospital	1	1	1	
Menelik II Hospital	-	-	-	
Ghandi Hospital	-	-	-	
Ras Desta	-	-	-	
St. Paul Hospital	1	1	1	
Emanuel Hospital	-	-	-	
Alert Hospital	-	-	-	
St. Peter Hospital	-	-	-	
	<b>7</b>	<b>7</b>	<b>7</b>	<b>Total</b>

*Table 3.2 Summary of questionnaires distributed and returned per hospitals and the total number of paediatricians in government hospitals*

All the seven paediatricians filled and returned the questionnaires. Interviews were also made with the respective Department Heads.

It should be noted some government hospitals were not willing to fill out the questionnaire.

## 3.2 Findings

As it is well known, the first step for implementing appropriate knowledge sharing is to conduct knowledge audit since it helps to provide accurate identification, qualification, measurement and assessment of the tacit and explicit knowledge in the organization so that the current knowledge sharing practice will be identified. And also knowledge audit allows organizations to categorize the existing and missing knowledge in order to pinpoint the gap that exist between the missing and existing knowledge. As a result, the effectiveness of organization's knowledge sharing practices can be assessed.

For the purpose this study, 'Knowledge Audit: Overview and Sample Questionnaire' in 'knowledge management toolkit' written by Tiwan (2000) was customized as a model tool for interview guide, questionnaire on readiness assessment survey and knowledge inventory analysis. Since these tools can gather the required information for the purpose of the research the researcher selects as a best tool.

The interviews have typically been semi-structured with open-ended questions focusing on the theme. The respondents have thus been allowed to elaborate freely around the central research theme.

The questionnaire on Knowledge Sharing Practice Readiness Assessment Survey contained 9 major fields of questions , each containing a number of multiple-choice questions and a total of 40 multiple-choice questions are included. For each question, the respondents gave their answers by checking the most appropriate rating value in scales of three.

As to the questionnaire of the knowledge inventory a number of knowledge assets has been listed by the researcher and the respondents identified whether the knowledge assets currently exists or required in the Hospitals. The format, location and owner of the identified knowledge assets have also been identified by the respondents. In addition there was an option for the respondents to list and identify the knowledge assets in case they were not in the list.

All the questionnaires that have been distributed were returned and analysed by the researcher.

### **3.2.1 Issues related to knowledge sharing**

The first three research questions of this research were addressed by the findings from the semi-structured interview and questionnaire survey which signifies that knowledge plays a vital role in the day to day activities of paediatricians since the field itself is very challenging. As children are unable to tell their problem, it will be difficult to identify their problem with ease.

With regard to shared experiences the majority of the interviewees utter that both good and bad practices are very important to handle different problems of children and youth in different manners. They agree that there should be some sort of discussion that brings different professionals of the same specialty so that problems of the same nature would be handled without losing energy and time. Interviews indicated that there was no culture of sharing information frequently assuming that if one asks questions frequently she/ he feels that she/ he has less knowledge than the others.

The methods they used to acquire and share work related knowledge primarily rely on the information available on the course materials or books they read during their formal training even though some may use informal communication depending on the level of friendship / acquaintance. Even if they have common motivation for sharing knowledge, and consider their colleagues as valuable assets, all do not seem to be comfortable of frequently consulting an expert. But there is the possibility to ask the nearby colleague for assistance depending on the relationship between these physicians for instance they usually collaborate to solve problems and there is extra focus for sharing knowledge during tea and lunch breaks.

From the above points, it can be realized that Paediatricians at Government Hospitals in Addis Ababa have the same educational background and gained the same type of special training during their specialization which will result in an increased understanding for each other's words and actions. Putting this argument in the context of socialization, acquiring and sharing tacit knowledge takes place between people who have a common culture and can work together effectively. The other point is even if there is some sort of informal communication, it is only restricted to physicians who has good relationship with each other.

### 3.2.2 Knowledge inventory

The knowledge asset assessment result of the hospitals under consideration is summarized and recorded in knowledge inventory to show the location, format and owner of the knowledge assets. The assessment shows the existing and missing knowledge assets/resources of the Hospitals. This illustrates the mapping of the knowledge assets available to the owner and locations so that any employee can easily access the knowledge resources when required in the available format.

The result of knowledge gap analysis of the Paediatricians in Government Hospitals at Addis Ababa is presented as follows.

1. Knowledge Available				
Item	Knowledge Asset	Format	Owner	Location
1	Individual patient card	Hard copy	YH/ZH/PH	Card Room
2	Registration book	Hard /soft copy	YH/ZH/PH	Card Room
3	Tally sheet	Hard copy	YH/ZH/PH	Card Room
4	Lab registration log book	Hard copy	YH/ZH/PH	Card Room
5	Lab registration request form	Hard copy	YH/ZH/PH	Card Room
6	Radiology examination request form	Hard copy	YH/ZH/PH	Card Room
7	Radiology examination log book	Hard copy	YH/ZH/PH	Card Room
8	Surgery request form	Hard copy	YH/ZH/PH	Card Room
9	Surgery log book	Hard copy	YH/ZH/PH	Card Room
10	File sharing with other departments	Hard /soft copy	YH/ZH/PH	Departments
11	Staff and their expert areas	Hard /soft copy	YH/ZH/PH	Medical director office
12	List of ex-staff	Hard /soft copy	YH/ZH/PH	Personnel management
13	Training manuals	Hard /soft copy	YH/ZH/PH	Medical director office
14	Staff development report	Hard copy	YH	Medical director office
15	Staff development plans	Hard copy	YH	Medical director office
16	Succession Planning	Hard copy	YH	Medical director office
17	Minutes	Hard /soft copy	YH/ZH/PH	Departments
2. Knowledge missing but required				
Item	Knowledge Asset	Format	Owner	Location
1	Decision Support System	Soft copy	YH/ZH/PH	Departments
2	Expert systems	Soft copy	YH/ZH/PH	Departments
3	Physicians database	Soft copy	YH/ZH/PH	Departments
4	Database of external physicians	Soft copy	YH/ZH/PH	Departments

(Note: YH- Yekatit 12 Hospital, ZH- Zewditu Hospital, PH- Paulos Hospital)

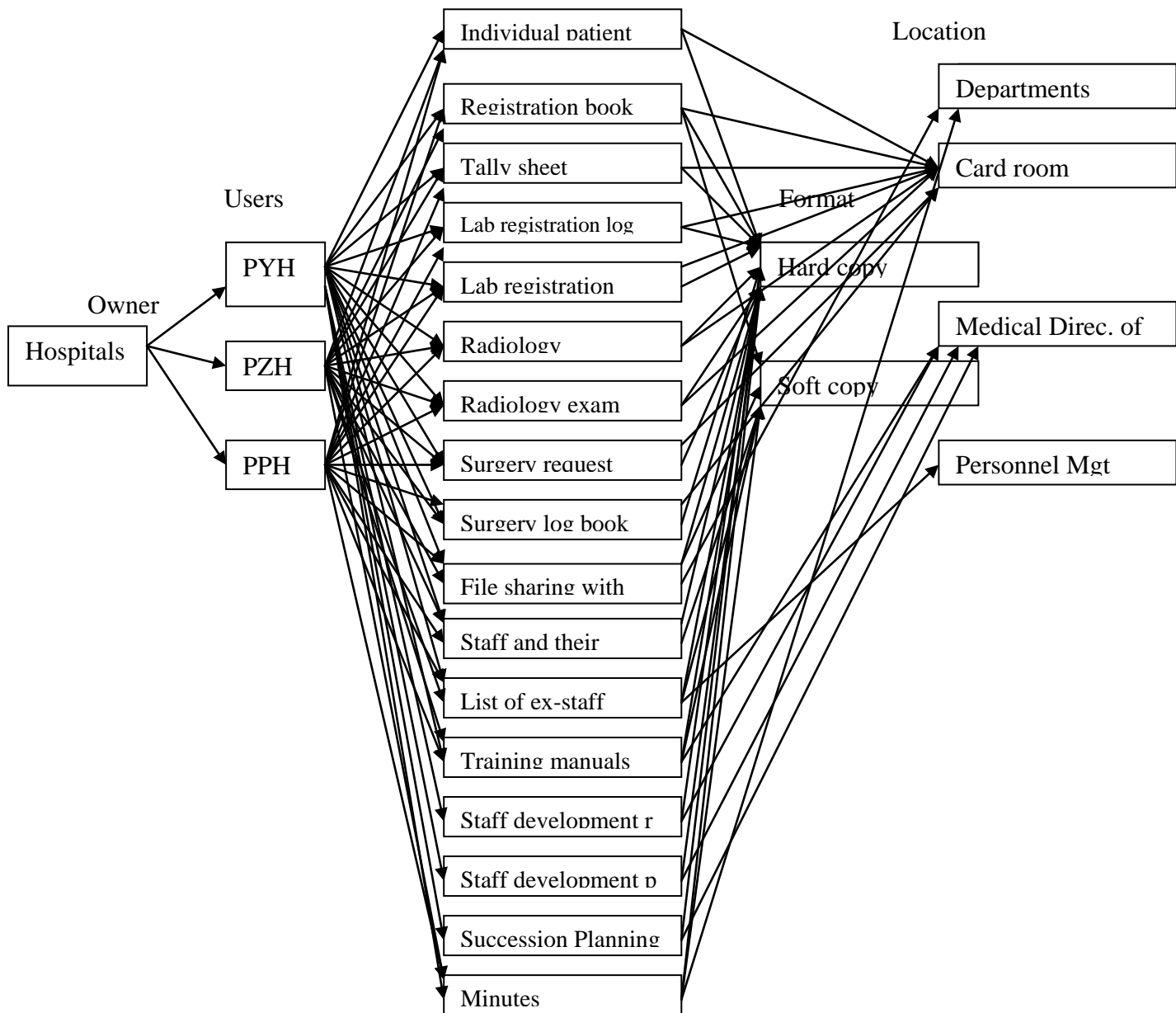
Table 3.3 Knowledge inventory for pediatricians at government hospitals in Addis Ababa

As it is shown in Table 3-3 both tacit and explicit knowledge were available in all the hospitals under consideration. One can deduce from the knowledge inventory that paediatricians in government hospitals have more or less common need for knowledge. Therefore it could be concluded that there is a common excitement for a

knowledge, which brings individuals with same profession together for relationship building, learning and knowledge sharing.

After identifying the knowledge assets which are available and those which are currently missing in the hospitals, mapping the knowledge assets with the owners of the knowledge and the location was made so that the knowledge can easily be accessed and used.

Finally, conceptual knowledge map of the knowledge assets available in the hospitals were done and presented below.



(Note: PYH-paediatricians at yekatit hospital, PZH-paediatricians at zewditu hospital, PPH-paediatricians at paulos hospital)

Figure 3-1 conceptual knowledge map of paediatricians at Government hospitals in Addis Ababa

The interview result indicated the following tasks of paediatricians at government hospitals in Addis Ababa:

- Examine patients or order, perform, and interpret diagnostic tests to obtain information on medical condition and determine diagnosis.
- Examine children regularly to assess their growth and development.
- Prescribe or administer treatment, therapy, medication, vaccination, and other specialized medical care to treat or prevent illness, disease, or injury in infants and children.
- Collect, record, and maintain patient information, such as medical history, reports, and examination results.
- Advise patients, parents or guardians, and community members concerning diet, activity, hygiene, and disease prevention.
- Treat children who have minor illnesses, acute and chronic health problems, and growth and development concerns.
- Explain procedures and discuss test results or prescribed treatments with patients and parents or guardians.
- Monitor patients' conditions and progress and re-evaluate treatments as necessary.
- Plan and execute medical care programs to aid in the mental and physical growth and development of children and adolescents.
- Refer patient to medical specialist or other practitioner when necessary.

In addition to the interview, a questionnaire survey was made with 7 paediatricians and they were asked to select one of the different choices from 1-3 options that help to answer the research questions and other set of questions.

The past experience of these paediatricians revealed that, even if there was almost no/less interaction between paediatricians across government hospitals, there was some sort of informal communication between paediatricians in the same hospital.

### 3.2.3 Past experience of paediatricians in acquiring and sharing knowledge with other paediatricians in the same hospital.

The past experience of paediatricians in the same hospital concerning problem solving skills and acquiring and sharing the right knowledge to do a specific task is summarized in the following table as follows:

<b>Past experience related to acquiring and sharing work related knowledge with other paediatricians in the same hospital</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>
I quickly access and easily apply relevant knowledge from paediatricians in this hospital.		1	6
I acquire the right knowledge which is critical for me to do my job at the right time from paediatricians in this hospital.	1		6
Problem solving skill and knowledge acquired resides in individuals head.	1		6
Knowledge related with child care is, collected, organized and documented into a repository for future reference.	4	1	2

*Table 3.4 Respondent's rating to identify their past experience related to acquiring and sharing knowledge in the same hospital*

The above data indicated that the majority of paediatricians quickly access and easily apply the relevant knowledge needed for treating children. The knowledge which is critical for doing their day to day activities had been acquired at the right time from their peer paediatricians in the same hospital. Regarding the problem solving skills the majority of the respondents agree as the problem solving skills reside in the individuals head. Since the respondents disagree on the documentation of knowledge for future reference, tacit knowledge which has been shared/acquired through informal communication never made explicit through knowledge documentation and repository. This action results in having the same individual available for similar case which is rarely practical.

### 3.2.4 Past experience of paediatricians in acquiring and sharing knowledge with paediatricians in other hospitals

The next similar issue with completely different result is evaluating the past experience of paediatricians in acquiring and sharing of knowledge from other paediatricians in different hospitals .Table 3.4 shows the result of the survey.

<b>Past experience related to acquiring and sharing work related knowledge with other paediatricians in the other hospitals</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>
I quickly access and easily apply relevant knowledge from paediatricians in other hospitals	6	1	
I acquire the right knowledge which is critical for me to do my job at the right time from paediatricians in other hospitals.	7		
Problem solving skill and knowledge acquired resides in individuals head	1		6
Knowledge related with child care is, collected, organized and documented into a repository for future reference.	2	5	

*Table 3.5 Respondent's rating to identify their past experience related to acquiring and sharing knowledge in the hospitals different from their hospital*

The result of the survey indicated that all the respondents disagree on quickly accessing and easily applying the relevant knowledge needed for treating children. And also the knowledge which is critical for doing their day to day activities are not acquired from their peer paediatricians in different hospitals.

The majority of the respondents agreed that, the knowledge and problem solving skills residing in the individuals head has not been shared through any kind of communication since there is no contact between these paediatricians. The respondents had no idea about the knowledge documentation and repository that can be used for future reference.

From the foregoing, it can be concluded that paediatricians at government hospitals in Addis Ababa are not acquiring and sharing knowledge with other paediatricians in hospitals other than the hospital they work in.

### 3.2.5 Actions undertaken to acquire and share knowledge

The survey result exposes the respondents' actions to acquire and share the required knowledge. Almost all the respondents agree on the absence of good working practice database and lessons learned or listing of experts as well as no documentation of knowledge acquired and shared through good working practices and lessons learned. But all the respondents agree on reading articles & best practices and using internet resources is a main source of acquiring and sharing knowledge. The following table summarizes the results

<b>Actions taken to acquire and share the required knowledge</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>
Knowledge is acquired & shared by regularly updating databases of good work practices, lessons learned or listings of experts	6		1
Knowledge is acquired & shared through documentation such as lessons learned, training manuals, good work practices	6		1
Knowledge is acquired & shared through informal personal interactions		2	5
Knowledge is acquired & shared through reading articles and best practice			7
Knowledge is acquired & shared by looking for resources on the internet			7

*Table 3.6 Respondent's rating about " the actions are taken to acquire and share the required knowledge"*

According to the majority of the respondents there is also an attempt to share and acquire knowledge through informal personal interactions. This indicates that the paediatricians in government hospitals have access to other knowledge bases, which they could bring into the CoP to enable members to update their knowledge.

Even though there is no best practice databases and documentation of knowledge acquired and shared through best practice, the personal attempts of these paediatricians showed that there was an encouraging attempt in using communities of practice as a measure to acquire and share knowledge.

### 3.2.6 The reasons for not sharing knowledge and experiences of colleagues

This question attempts to identify the different obstacles that hinder paediatricians from sharing their experience and knowledge with their colleague. The result of the survey is presented as follows.

<b>Reason for not sharing your experience and knowledge with colleagues</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>
Getting busy with other more pressing work	7		
Lack of organizational culture	1		6
Not having the opportunity			7
Not having the interest	7		
Feeling insecure about my own skill	7		

*Table 3.7 Respondents' rating for the "Reason for not sharing their experience and knowledge with colleagues"*

Even if the above data shows a strong disagreement on the three different questions listed above namely getting busy with other more pressing work, not having the interest, and feeling insecure about their own skill, it gives us an idea as there is no organizational culture in acquiring and sharing knowledge and also the lack of opportunity to share knowledge may be due to the fact that the different government hospitals in Addis Ababa are dispersed and there is nothing that brings these individuals together. So there may be no means of identifying who possesses the right knowledge.

### 3.2.7 The most frequent challenges that occur during ad hoc group collaborative activities

The different frequent challenges that have occurred during ad hoc group collaborative activities are identified by the respondents. The table below shows the summary of the result.

<b>Challenge faced during ad hoc group collaborative activities</b>	<b>Not faced at all</b>	<b>To some extent</b>	<b>Faced all the time</b>
Ad hoc searching and obtaining appropriate resource is the most frequent challenge		1	6
Exchanging information to create a shared model of the problem and the solution under consideration	1	4	2
Coordinating and planning activities such as meetings, common working sessions or scheduling	1	2	4
Taking part in discussions to resolve a difference of opinion		3	4

*Table 3.8 Respondent's rating on "the Challenge they face during ad hoc group collaborative activities"*

As shown in the above table, the challenges occurred is summarized as follows. The paediatricians appeared to recognize obtaining suitable resource as the most frequent challenge. Thus to overcome the challenge of obtaining suitable resource, informal communication between paediatricians may help individuals in locating the right resource though it is restricted to paediatricians with in the same hospital as found from the previous finding.

It can be concluded that there is good evidence that there exist common challenges among paediatricians from same or different hospitals regarding to sharing and acquiring knowledge which is an important pre-condition for developing communities of practice.

### 3.2.8 Motivations that increase knowledge sharing practices of paediatricians

The motivational factors of knowledge sharing practice among paediatricians in government hospitals at Addis Ababa has been identified and summarized in the following table

Motivations to implement / increase knowledge sharing practices	Disagree	To some extent	Agree
The need to quickly access the right knowledge at the right time			7
Difficulty in capturing worker's undocumented knowledge (know-how)		3	4
Loss of key persons and their knowledge	1	1	5
Urge to improve collaborative group work			7
Low degree of knowledge reuse			7

*Table 3.9 Respondent's rating to show "What motivate paediatricians to implement or to increase knowledge sharing practices"*

As observed from the survey result the respondents seemed to have similar reasons that motivated them in using knowledge sharing practice. All the factors were important for them to be addressed as an improvement goal in sharing knowledge.

### 3.2.9 The collaborative activities for paediatricians

The collaborative activities that interested paediatricians at government hospital in Addis Ababa have been identified and summarized as follows

<b>Collaborative activities that would interest you</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>
Exchanging materials like books, journals etc			7
Sharing views , ideas and experiences			7
Problem solving with peers			7
Building common practice (such as body of knowledge, websites and documents)	1		6

*Table 3.10 Respondent's rating on "the collaborative activities that would interest the paediatricians"*

Most of respondents showed interest in all collaborative activities mentioned above. It can be argued from the findings that there is good level of motivation for people to participate in a community of practice. Some might participate because they want to have easy access to appropriate resources including identifying "who knows what". Others might participate because they want to interact with peers, and solve difficult problems. Others might want to participate out of curiosity to know what others have learnt or want to explore what local practices have been established.

### 3.2.10 The contact that paediatricians have had with other paediatricians

The different communication means brought different paediatricians together has been identified and the result of the survey has been summarized in the following table.

<b>Communications with other paediatricians</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>
Email contact for professional matters		2	5
Sharing useful information with others	1	1	6
Asking for information	1	1	5
Telephone contact for professional matters		3	4
Email contact for social matters			7

*Table 3.11 Respondent's rating on "The contact paediatricians have had with other paediatricians during calm periods"*

According to the survey results, paediatricians maintained contact with each other not only for professional but also for social matters. In these informal social networks knowledge is transferred through various media by sharing useful information and asking questions and chatting. The existence of such informal knowledge network could easily be fostered and cultivated to a more structured community of practice. This implies that the implementation of community of practice could also increase the awareness of the importance of their informal social gathering as enabler for knowledge transfer.

### 3.2.11 The preferred media for communication

Among the list of different social media tools the respondents identified the social media which interested them. The result has been displayed in the following table.

<b>Preferred type of media to communicate with peer physicians</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>
Electronic communication is a necessary and efficient way to share ideas			7
Face-to-Face communication is the most effective way to carry out the work	3	4	
Documentation is enough as means of communication	1	3	3
Telephone contact for professional matters	2	3	2

*Table 3.12 Respondent's rating on "the type of media paediatricians prefer to communicate with other paediatricians"*

As it can be seen from the survey result the respondents are more interested to communicate with peers using electronic media. Considering their preferred interest, a communication model could be used in the eventual communities of practice.

In summary, the analysis of the results from the assessment survey indicated that there is a need to use social media tools that can support communities of practice as an effective mechanism of acquiring and sharing knowledge among paediatricians in government hospital at Addis Ababa.

Even though the respondents seemed to be using different tools such as e-mail and telephone, the interview result and questionnaire survey showed that the common social media tool that most of the paediatricians at Government Hospitals in Addis Ababa preferred to use for communication purpose is an electronic media than that of the industrial media. So this has led the researcher to the design of the communities of practice using an appropriate social media tool to support the need of paediatricians at Government Hospitals in Addis Ababa.

## Chapter 4

### Design and Prototype of Knowledge sharing System

#### 4.1 Designing Communities of Practice

Wenger, McDermott and Snyder (2002) have identified seven key design principles for creating successful Communities of Practice that are alive or self sustaining. These principles relate specifically to community management, and they reflect that the eventual success of CoP will be determined by the people. This concept emphasizes that Technology alone cannot build or sustain the community even though different environments can provide a platform and tools to enhance community development; human aspect of the community of practice should also be considered.

The seven key design principles identified by Wenger, McDermott and Snyder (2002) are as follows:

- ❖ Design for evolution.
- ❖ Open a dialogue between inside and outside perspectives.
- ❖ Invite different levels of participation.
- ❖ Develop both public and private community spaces.
- ❖ Focus on value.
- ❖ Combine familiarity and excitement.
- ❖ Create a rhythm for the community.

For the purpose of this research the first four principles has been followed since the last three are largely management principles and must be addressed by the leaders and/or participants of each individual community, rather than the designer.

- ❖ As it has been observed from the interview result, the respondents are familiar with the use of electronic mail, so it may be easier for them to play the role of administrator. The researcher identified rotation method to be used by each paediatrician to accomplish the role of administrator. A community may begin, for example, by using a Wiki, but as the community grows and interests change, a forum might be employed and documents may be uploaded.

- ❖ Since the target population of this research are different paediatricians in government hospitals there is also an attempt to look at the inside and outside perspectives during requirement gathering through semi-structured interview and informal discussions to come up with good community design so as to bring information from outside the community into the dialogue about what the community could achieve.
- ❖ As to the different levels of participation, all the paediatricians considered want to have the same role with the same levels of access.
- ❖ In addition to the forum discussion which is public, there is also an option for the community to send and receive both private and mass mail.
- ❖ Regarding the test of usability, it has been identified during informal discussion and interview as the respondents are familiar with using electronic mail as a means of communication, so the proposed system will be easy to use for the purpose for which it has been constructed.

According to Cambridge et al (2005) building communities of practice needs a step-by-step guide that can provide a practical approach for communities of practice builders. While it is important to recognize that every organization and community is different, this step-by-step guide provides a structure to help clarify the most important design elements that go into defining, designing, launching, and growing both online and face to face CoP. This step-by-step guide for designing communities of practice is described through the following life cycle phases of communities of practice:

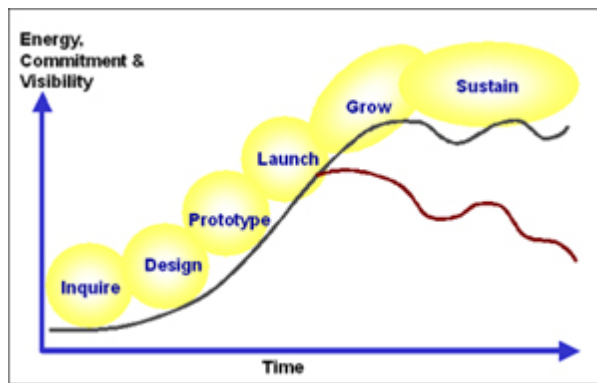


Figure 4.1 communities of practice life cycle phases (Adapted from McDermott, 2002)

The lifecycle phases include:

- ❖ **Inquire:** Through a process of exploration and inquiry, identify the audience, purpose, goals, and vision for the community.
- ❖ **Design:** Define the activities, technologies, group processes, and roles that will support the community's goals.
- ❖ **Prototype:** Pilot the community with a select group of key stakeholders to gain commitment, test assumptions, refine the strategy, and establish a success story.
- ❖ **Launch:** Roll out the community to a broader audience over a period of time in ways that engage newcomers and deliver immediate benefits.
- ❖ **Grow:** Engage members in collaborative learning and knowledge sharing activities, group projects, and networking events that meet individual, group, and organizational goals while creating an increasing cycle of participation and contribution.
- ❖ **Sustain:** Cultivate and assess the knowledge created by the community to inform new strategies, goals, activities, roles, technologies, and business models for the future.

Successfully facilitating a CoP involves understanding these lifecycle phases and ensuring that the expectations, plans, communications, collaborative activities, technologies, and measures of success map to the current phase of the community's development.

While almost every community evolves along a lifecycle, every community is indeed unique, with distinct goals, member characteristics and needs, and purpose. All design choices both human/social and non human/technological aspect must be driven by purpose, so community purpose is paramount. Successful and sustainable communities have well-defined purposes. Purposes should be defined in terms of the benefits to the community's stakeholders and the specific needs that the community will be organized to meet. Purposes can be categorized into the following four areas of activity: - develop relationships, learn and develop practice, carry out tasks and projects, create new knowledge (Cambridge et al 2005). Hence the purpose of this design is to develop relationships between paediatricians in Government Hospitals at Addis Ababa to carry out tasks, develop practice and create new knowledge.

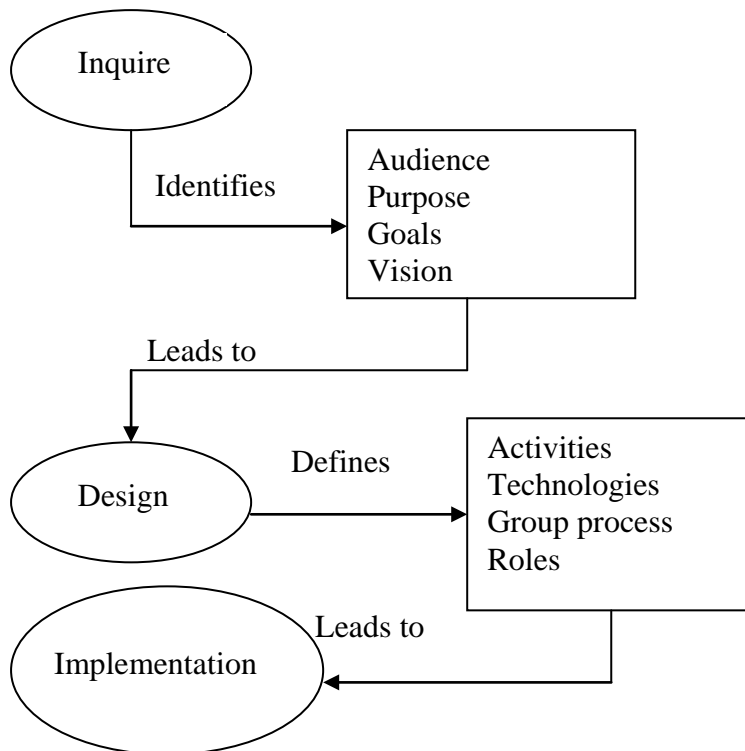
For the purpose of this study the first two phases of the community's life cycle were used since the objective of the research focuses on designing the appropriate knowledge sharing system and the rest of the phases of the life cycle will eventually develop after implementation.

In the inquire phase the researcher undertaken need assessment through informal discussions, formal interviews, and questionnaire surveys, by defining the benefits of the community for all the paediatricians considered, and identify the major topic areas for community to identify audiences, purpose, and goals for the community and to answer the following questions:

Who is this community for? Who are the community's important stakeholders? Given the intended audience, what are the key issues and the nature of learning / knowledge, and tasks that the community will steward? And given the audience and domain, what is this community's primary purpose? What are the benefits to the stakeholders? What specific needs will the community be organized to meet?

In the design phase also the researcher identified tasks that each community member paediatricians should carry out in the community, and develop a series of scenarios that describe various experiences of the identified paediatricians that would be necessary to carry out the tasks that demonstrate the potential benefits to define the activities, technologies, and roles that will support the communities goals, so as to answer the following series of questions such as what kinds of activities will generate energy and support the emergence of community presence? What will the community's measure be? How will members communicate on an ongoing basis to accomplish the community's primary purpose? What kinds of interactions with the content of the community will generate energy and engagement? What are the learning goals of the community, and how can collaborative learning be supported? What are the external resources (people, publications, reports, etc.) that will support the community during its initial development? How will members share these resources and gain access to them? How will community members collaborate with each other to achieve shared goals? And how will community roles are defined (individuals, groups, community administrators, etc.)?

The above two phases of the communities life cycle is described in the following diagram as follows



*Figure 4-2 Description of the communities life cycle used for the inquire and design*

Specific issues related to defining the appropriate social / human and Technological / non human architectures for a given community can be described through the communities of practice life cycle phases by providing questions that need to be answered at each lifecycle stage. In addition to these questions, a number of prescriptive activities are described that lead to specific work products. These include documents and presentations that can be used for communication, planning, and the facilitation of the community itself.

#### **4.1.1 Social / Human Dimension**

The inquire phase focuses on the social dimension which includes, defining the audiences, domain, goals, roles, processes and approaches so as to build relationship through collaborative learning and / or knowledge sharing. All the paediatricians agreed on sharing of good practices as well as bad practices so as to avoid the mistakes that one member made. The respondents agreed that the community should centre to create a community of practice for paediatricians at government hospitals with the aim of delivering quality health care for the children.

#### **4.1.1.1 Purpose, Goals & Outcomes of the Communities**

During the semi structured interviews and informal discussions made with the Department Heads the communities' specific purpose and goals have been described. Appropriate activities, process and technologies that should support for the accomplishment of the goals have also been defined. In order to define these design elements brainstorming was used in the discussion to generate as many ideas and options as possible. The following options were generated by the respondents as the community's purpose:

- Best practice development- to develop and disseminate best practices, guidelines, and procedures for their members to use, and also to have information about the bad practice in order not to repeat the failure;
- Peer-to-Peer Helping - to provide a forum for community members to help each other, learn from one another and solve everyday work problems;
- Knowledge stewarding- to organize, manage, and steward a body of knowledge from which community members can draw;
- Innovation - to innovate and create breakthrough ideas, knowledge, and practices;

From the given options the respondents agreed to take best practice development and peer-to-peer helping as the community's initial purpose. Based on this purpose, the goal of the community was decided to establish a well-recognized and supportive environment for sharing knowledge related to childcare. The use of communities of practice as a strategy has been justified from this finding, since communities of practice can provide a mechanism for peer-to-peer helping and best practices development in the form of forum discussion.

#### **4.1.1.2 Activities, Tasks and Processes of the Community**

The other task was to identify activities, tasks and process that members are likely to carry out in the community. The participants are interested to help each other in solving childcare related problems by having easy access to the knowledge / experiences of other peer paediatricians and easily find individuals with specific knowledge / experience. Accordingly, the following design specifications reflect the

functional requirements of the knowledge sharing tool intended to support the tasks of the prospective community of practice.

- Create and maintain discussion forum;
- Post/Reply questions on a discussion forum;
- Search solutions from discussion forum records;
- Post articles which can be read by any interested registered user;
- keep a list of subject matter experts ;
- Send an E-mail to a specific individual expert;
- Send mass mail to all registered / specialized users;
- Provide links or copies of subject matter articles;

In order to support and implement the above listed activities and tasks a suitable process was defined. A knowledge sharing process that focused on building CoP should map to its evolution and becomes a source of validated knowledge through the process of converting tacit knowledge in to explicit.

#### **4.1.1.3 Roles and responsibilities in community**

According to Fontaine (2001) a community leader and facilitators are deployed to help facilitate the community and plan its launch since communities and roles emerge through the course of the CoP lifetime. In any communities of practice development the following community start-up roles and their corresponding responsibilities should be specified.

<b>Role</b>	<b>Responsibilities</b>
Community Leader	<ul style="list-style-type: none"> <li>• Provide overall guidance and management needed to build and maintain the community</li> <li>• Plan and schedule community activities</li> <li>• Bring in new ideas when the community starts to lose momentum</li> </ul>
Facilitators	<ul style="list-style-type: none"> <li>• Manage collaborative infrastructure</li> <li>• Bring up new topics for discussion</li> <li>• Help for members with their problems</li> <li>• Harvest and create new knowledge</li> </ul>

*Table 4.1 Roles and responsibilities defined for communities of practice (Cambridge et al 2005)*

### **4.1.2 Technological / Non Human Dimension**

According to Cambridge et al (2005) the non human/Technological dimension relates to the selection and use of knowledge sharing system that supports the different activities of a community so as to support an integrated approach to relationship building, learning, knowledge sharing, and actionable projects. The technical features found across the four primary areas of activity of most CoP include relationships, learning, action and knowledge. Thus certain features are fundamental at one phase of a community's lifecycle and other may be added eventually as the community evolves. For example, relationship building, collaborative learning and knowledge sharing are the main focus in the Prototype and Grow phases, while Providing opportunities in the community , examining new technology features and developing a supporting infrastructure are in the sustain phase.

The following table summarizes the core technical features found across the four primary areas of activity of the paediatricians communities of practice at government hospitals.

	Relationship	Learning	Knowledge	Action
Core Technical Features	<ul style="list-style-type: none"> <li>• Member networking profiles</li> <li>• Member directory with relationship-focused data fields</li> <li>• Sub groups that are defined by administrators or that allow members to self-join</li> <li>• Online discussions</li> <li>• Community activity reports</li> </ul>	<ul style="list-style-type: none"> <li>• Assessments</li> <li>• Online discussions</li> <li>• Website Links</li> <li>• Variety of community member roles and responsibilities is supported</li> </ul>	<ul style="list-style-type: none"> <li>• Structured databases</li> <li>• Idea banks</li> <li>• Online discussions</li> <li>• Expert database and search tools</li> <li>• Website Links</li> <li>• Keyword and full-text searches</li> </ul>	<ul style="list-style-type: none"> <li>• Task management</li> <li>• Document collaboration</li> <li>• File version tracking</li> <li>• File check-in and check-out</li> <li>• Instant messaging</li> <li>• Online discussions</li> <li>• Individual and group calendaring</li> </ul>

*Table 4.2 The core technical features found across the four primary areas of activity of most CoP (Cambridge et al 2005)*

The main technical features designed for the paediatrician's communities of practice at government hospitals in Addis Ababa has been described in table 4.2 across the four primary areas of activities. The activities are described as follows:

- Relationships: the profile of each and every member will be kept and each member has ease access to the other member, sub groups can be defined by administrators as registered or specialized so as to allow members to join the discussion.
- Learning: every member of the community has the opportunity to enter in to the system and learn from other peer paediatricians about any topic through different links.
- Knowledge: the structured databases, idea banks, online discussions, expert database and search tools, website Links, and keyword and full-text searches the knowledge/knowledge resources that are available for the community.
- Action: the different actions expected from any registered/ specialized users can be task management (like responding to the mail addressed to one self), file check-in and check-out, instant messaging, and etc.

The following figure shows the design of the proposed system displaying the involved user types, the role of the user, and the sequence of events and the outcomes of the system.

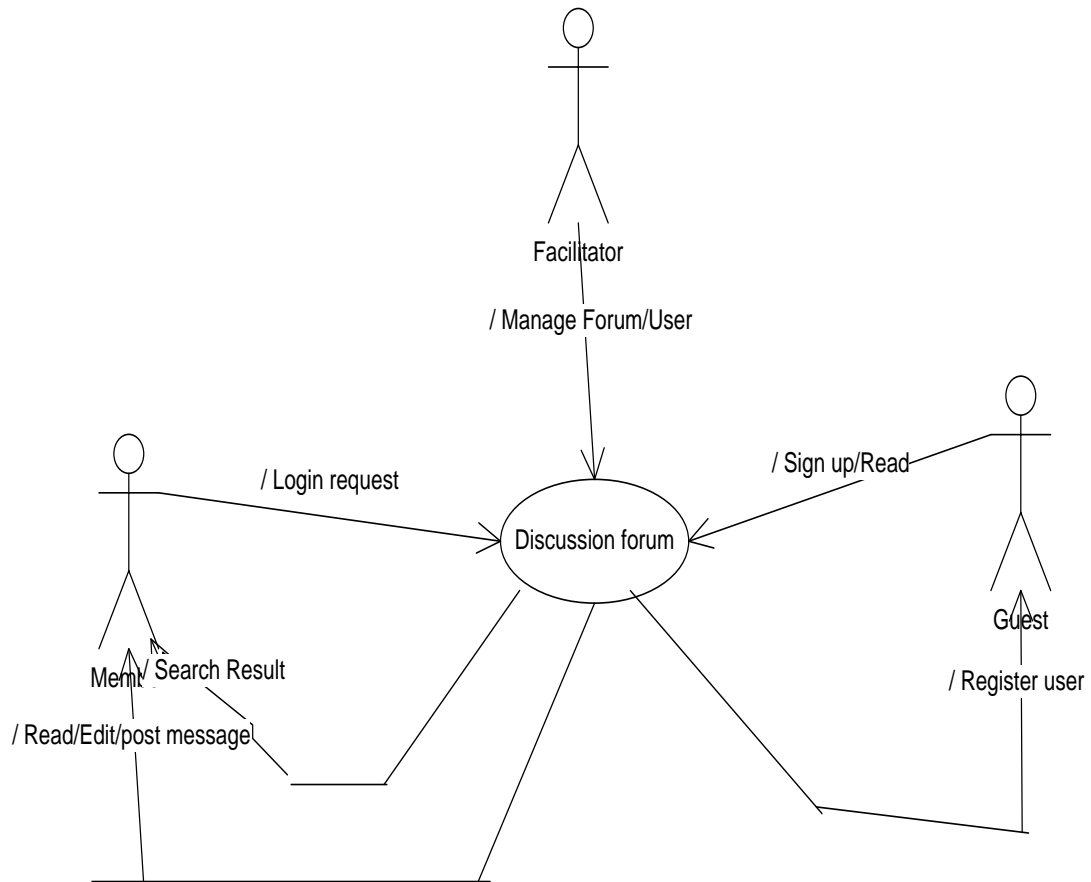


Figure 4-3 Context diagram of the proposed paediatricians communities of practice

Figure 4.4 shows the login information and the registration form for using the forum in order to check whether the user is registered or not registered so that the new users can get registered to use the discussion forum.

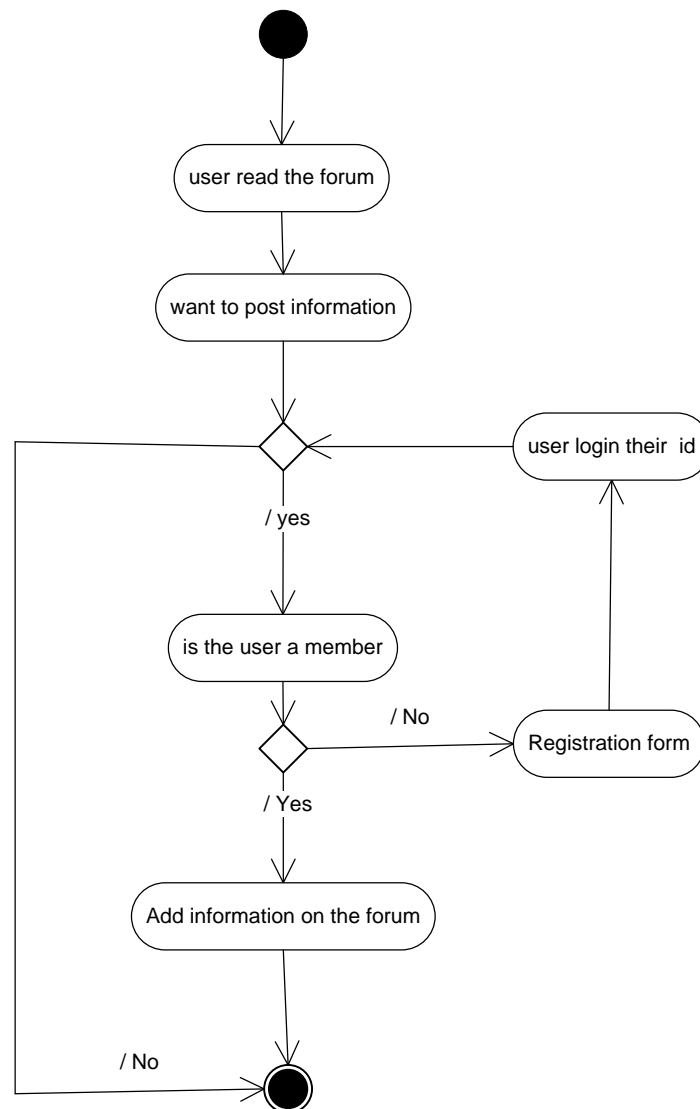


Figure 4-4 Flow chart of the new paediatricians communities of practice

## 4.2 Prototype Design

### 4.2.1 Joomla open source software

Even though this system makes use of different concepts like mass mail, private mail and uploading articles for sharing knowledge, the main idea behind the prototype of the proposed paediatrician's communities of practice is using collaborative discussion forum as a means of sharing tacit knowledge using appropriate social media tool. This discussion forum seeks to eloquent the process of the prospective communities by providing a response to the question posted by registered users who need help on the

topic. For the purpose of designing the prototype, open source software to support group centred & collaborative platforms were examined. Among the different forum tools such as Fireboard, Simpleforum, YABB, Fle3, Algora and etc., Fireboard was selected as a best forum software option.

The reason for choosing Joomla for the purpose of the prototype is

- ❖ Free open source software
- ❖ Highly customizable and
- ❖ Fully scalable

Moreover since different components can be downloaded for integration to Joomla, the fireboard forum software is designed for use by paediatricians. The WAMP server which uses a number of hosting and database solutions has been used as a web server.

## **4.2.2 Users of the system**

Registered Users are users who have been registered to obtain a username and password. This username and password allows Registered Users to log into the site, receiving special privileges. Registered Users can be categorized into two groups:

### **4.2.2.1 Front-end users**

Front-end Users has the ability to create and publish content on the web site. The primary goal of these users is to provide content on the web site, not to administer the site or alter its design. Within the Front-end User classification there are four specific levels, the site administrator can assign. These levels are: Registered, Author, Editor, and Publisher. Their task is to create, edit, or publish content on a Joomla web site.

### **4.2.2.2 Back-end users**

Managers, Administrators, and Super Administrators are typically thought of as the site administrators/Back-end users, but they also have access to the Front-end interface. Just as with the Front-end Users, Back-end Users may have different privileges.

Manager has the same permissions as a Publisher but with access to the Back-end Administrator's panel. Managers have access to all the content in the administrator panel but are not able to change templates, alter page layouts, add /delete extensions to Joomla, they have no authority to add users or alter existing user profiles.

Administrators have a broader range of access than Managers do. Administrators can add and delete extensions to the web site, change templates or alter page layouts and can even alter user profiles equal to their own permission levels or below. What they cannot do is edit the profiles of a Super Administrator or change certain global characteristics of the web site.

The Super Administrator has unrestricted abilities to perform all administrative functions inside the Joomla. Only Super Administrators have the ability to create new users with Super Administrator permissions or to assign Super Administrator permissions to existing users.

### 4.2.3 The Community Platform

The designed community's home page is shown in Figure 4-5. It provides convenient access to registration form or the system as a whole.

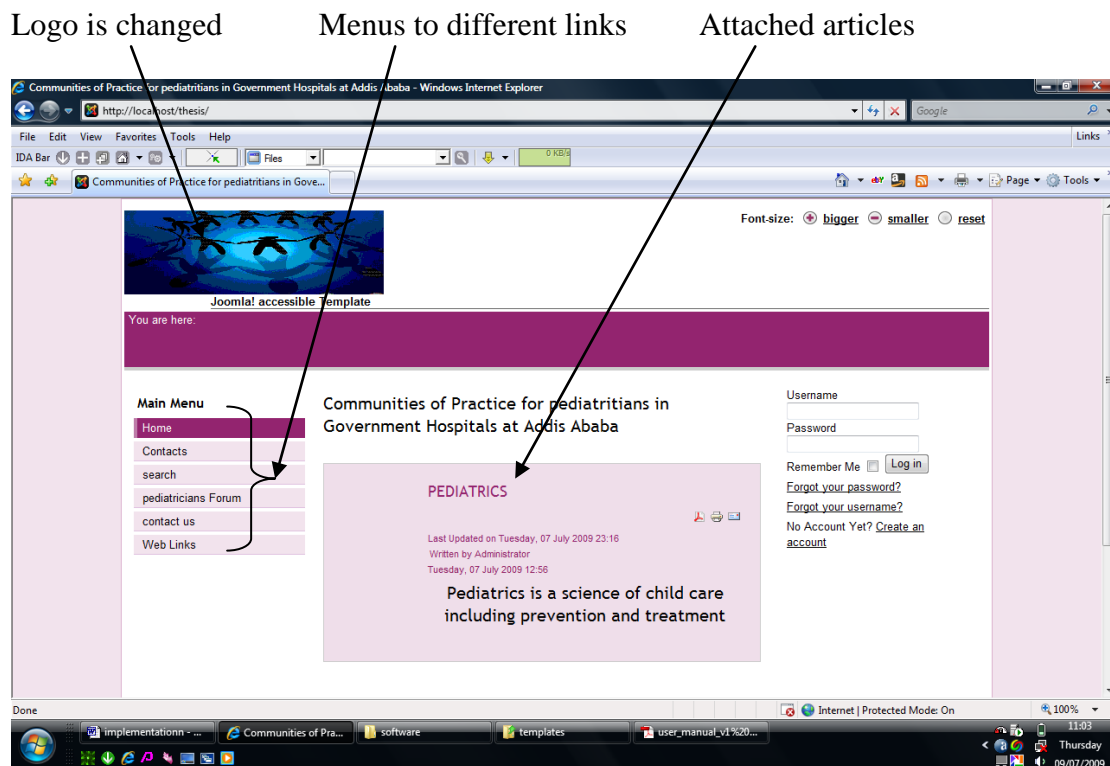


Figure 4-5 screen shot showing the home page of the community platform

Once users access the system, shown in Figure 4-5, they are prompted to register to become community member or login as a privileged user.

Figure 4-6 shows the screen elements of the forum window; here the registered users can create/post topics for discussion.

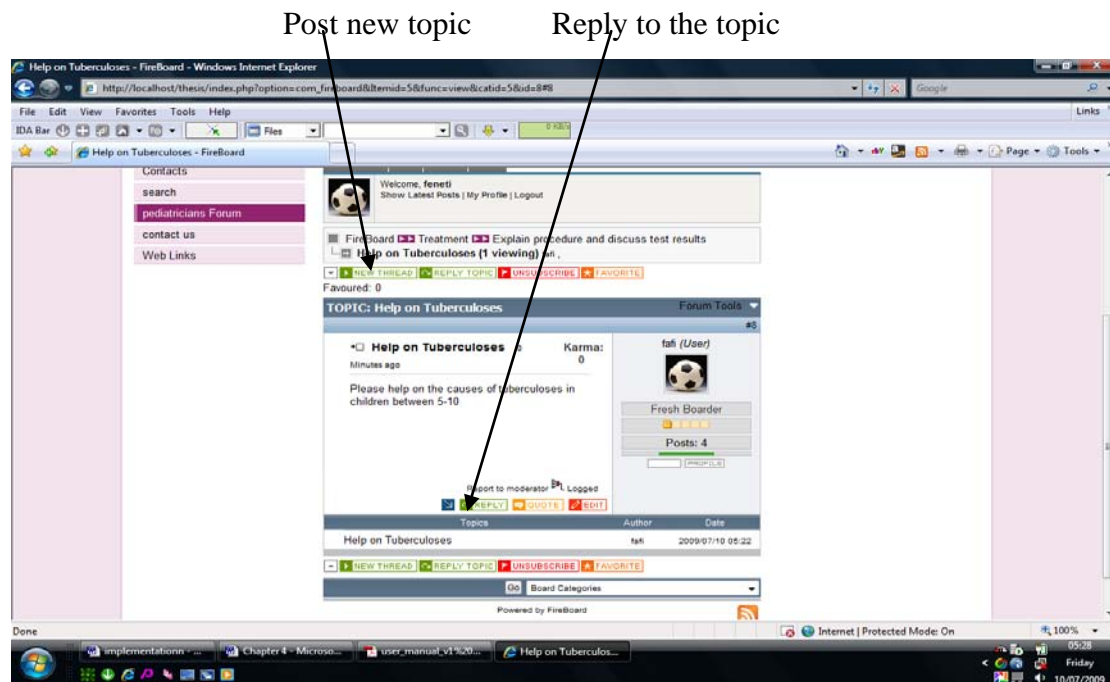


Figure 4-6 screen shot showing the features of the discussion forum

The user after selecting the broad topic category can select new tread to post a topic for discussion and submit the query. And the other user can reply to the posted message by selecting reply or initiate another topic on the same topic. There is also the possibility of attaching/uploading a file or document before sending.

Figure 4-7 shows the screen elements of the forum window, in which the registered users can read the discussion forum, replies a solution to the topics that has been posted by some one else or post another topic for discussion.

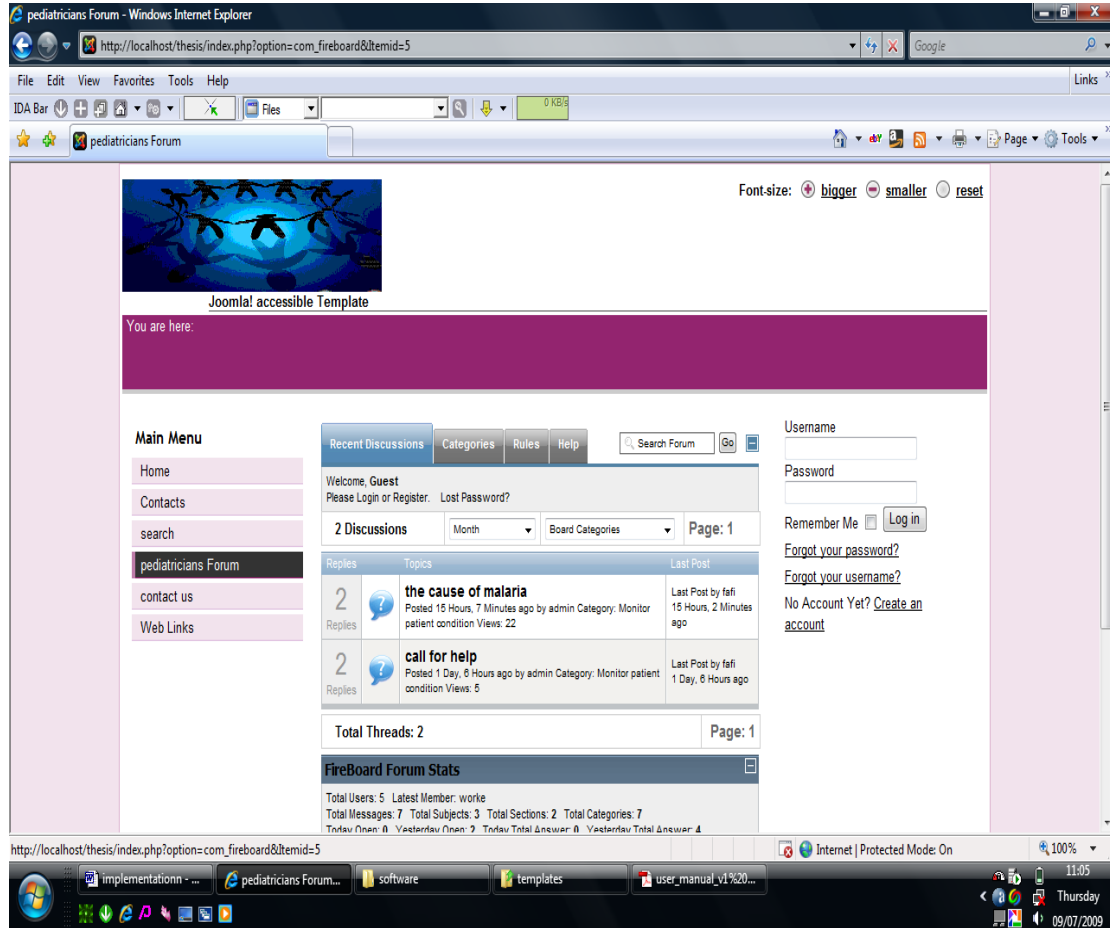


Figure 4-7 screen shot showing the post/ reply to the forum

Login screen shown in Figure 4-8 enables super administrator to login as privileged user and perform various tasks such as changing the layout and the design of the system including the contents.



Figure 4-8 Login screen of super administrator

The window shown in Figure 4-9 provides an opportunity for the users to create, and send private message to a particular user by using the tools menu of Joomla.

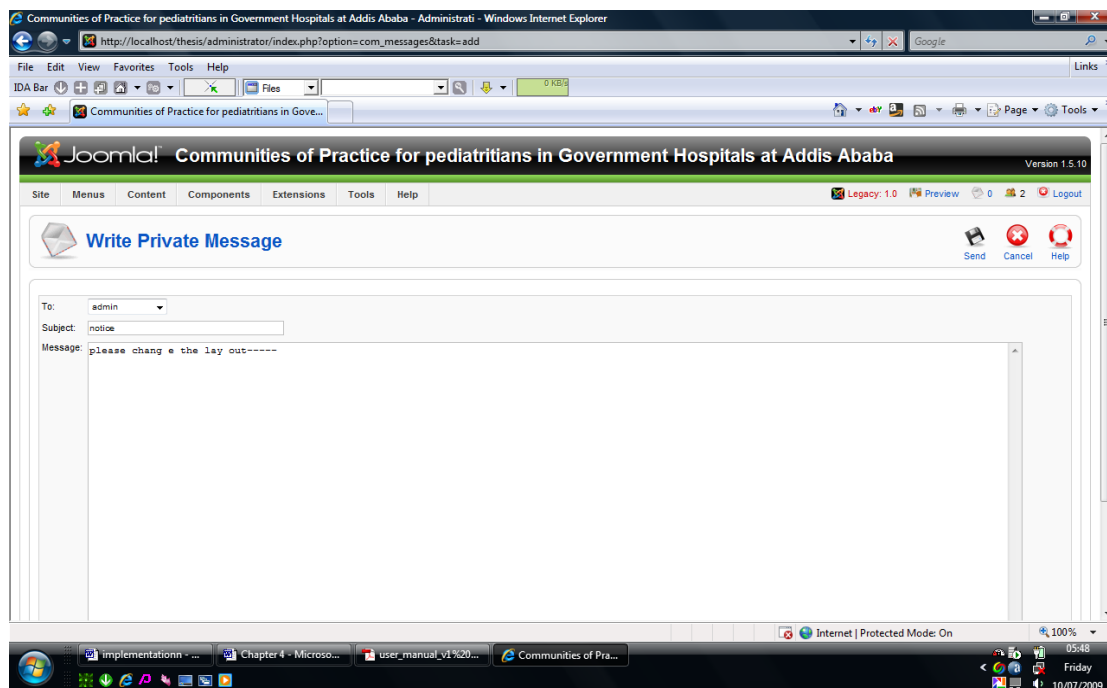


Figure 4-9 screen shot showing private message window

The following window shows an environment in which any privileged user can use to send mass mail to a group of users by using the mass mail feature of the tools menu of Joomla.

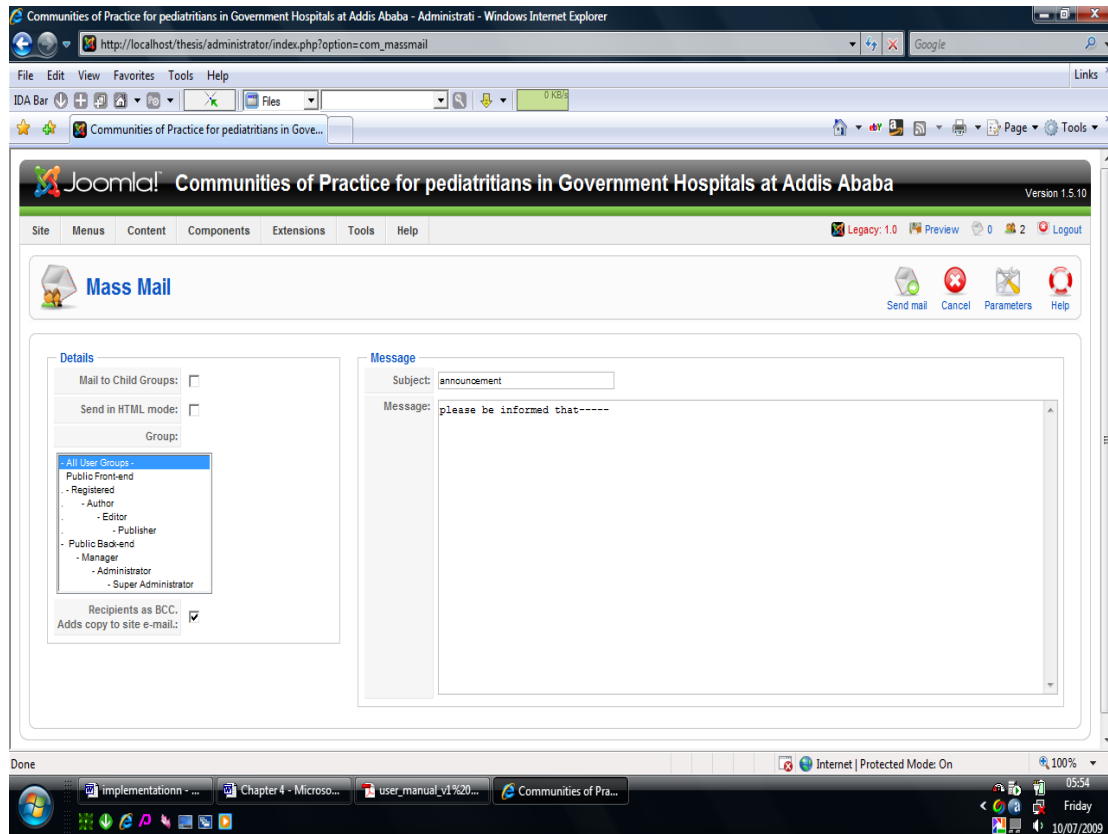


Figure 4-10 screen shot showing the mass mail window

Since one of the requirements of the proposed system is to create relationship among community members in the forum. The following window provides members to find contact and collaborate with each other.

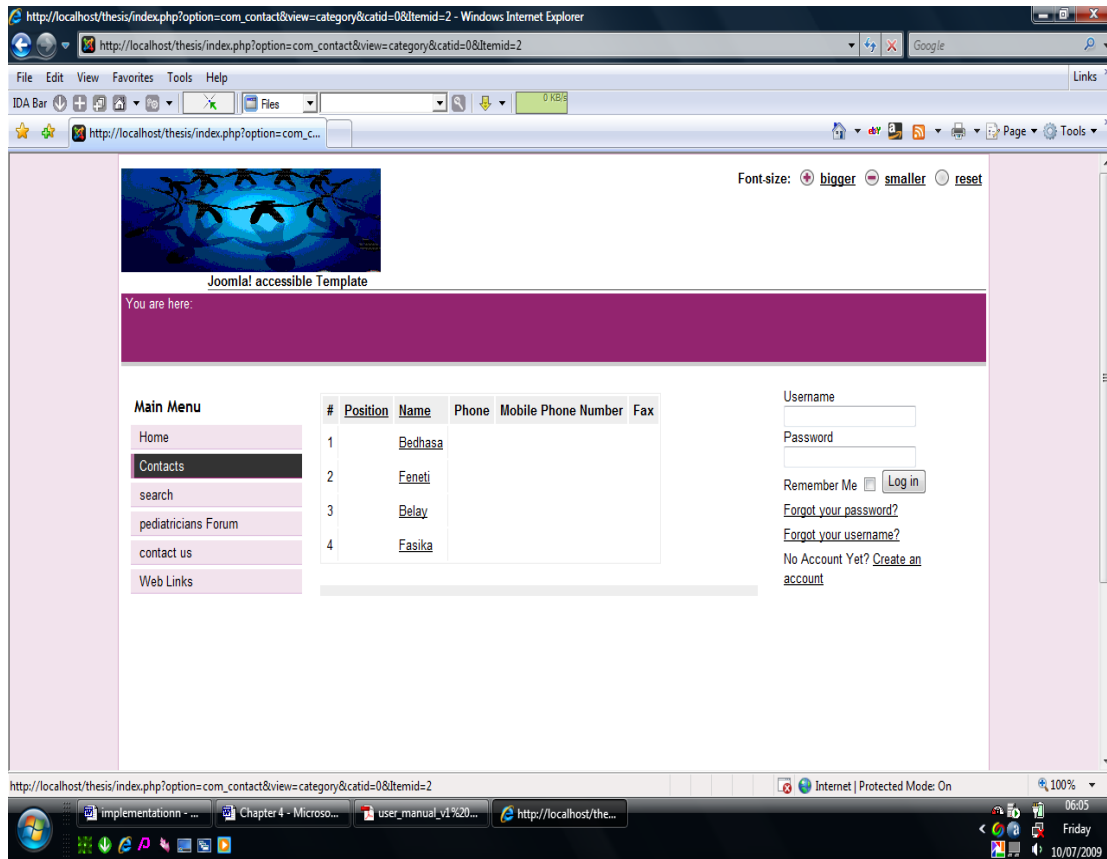


Figure 4-11 screen shot showing the list of the member's window

Figure 4-12 shows the search of keywords in different articles, in the discussion, contacts, and/or individuals etc in the website

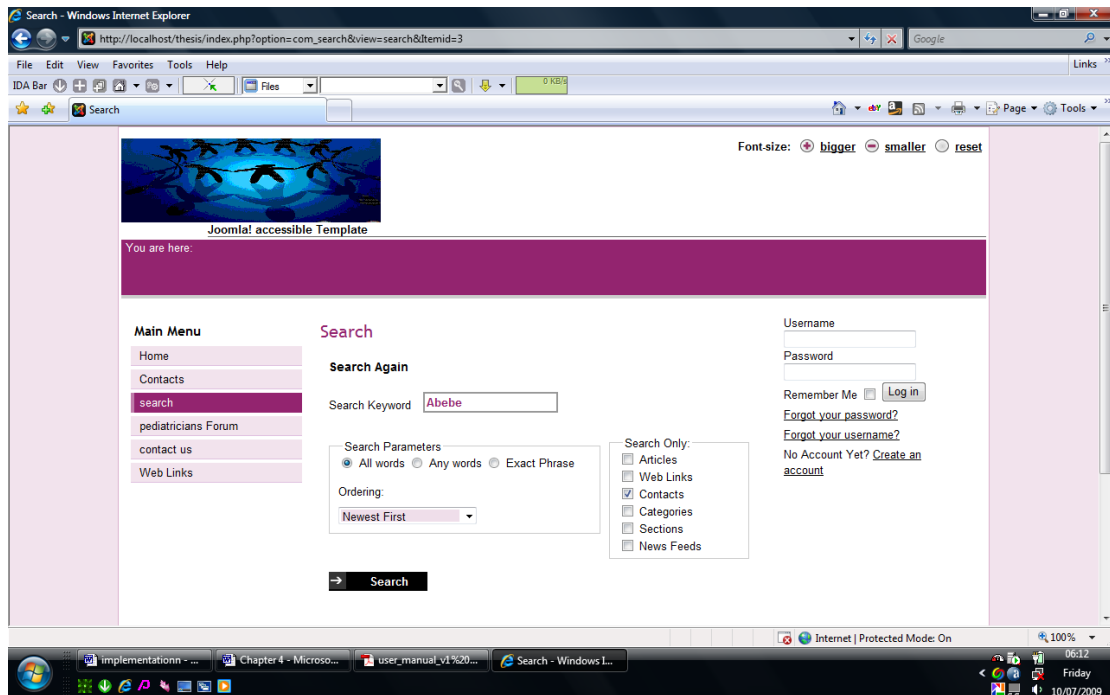


Figure 4-12 screen shot showing search window

The following figure shows a screen used to post articles to be read by members

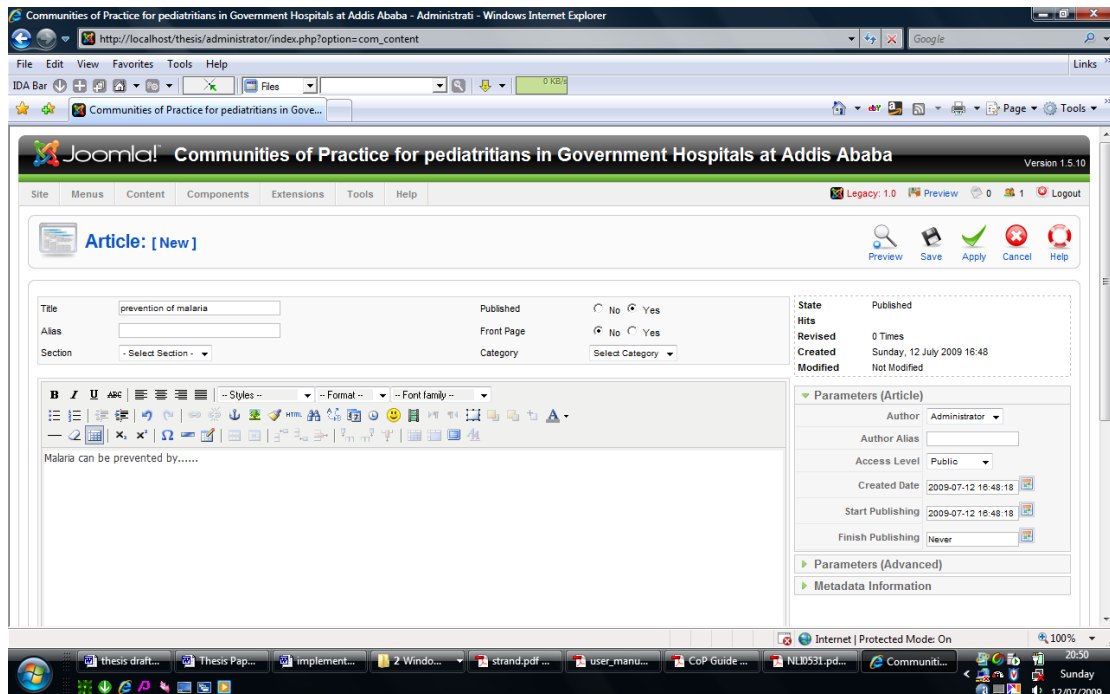


Figure 4-13 screen shot for creating the article window

The super administrator uses the article command under contact and then can create and post professional look articles that can be used by the members/users

## Chapter 5

### Conclusions and recommendations

#### 5.1 Conclusions

The findings of this study revealed that physicians in government hospitals in Addis Ababa in general and paediatricians at government hospitals in Addis Ababa in particular have never tried to implement knowledge sharing. The objective of the research was to design knowledge sharing using communities of practice among paediatricians in government hospitals which assists each paediatrician in sharing knowledge / experiences.

The review of literature reveals that health care organizations are facing many challenges including e-health adaptability, informed customers, the shift from focusing on curing disease to prevention, and the exponential growth of the cost of delivering quality health care, so it should be supported by the appropriate implementation of communities of practice.

The ultimate goal of communities of practice is reusing knowledge, which requires a proper implementation of knowledge sharing system, and that can be understood when it is properly utilized. Social media tools are best seen as facilitating tacit knowledge sharing and become a means for group communication and collaboration that seeks to improve coordination, communication, and collaboration among individuals, teams, or groups by facilitating knowledge transfer/dissemination and reuse.

It can be concluded from the result of the analysis that the practice of passing on the knowledge of departing employees to successors, developing employees' knowledge proactively in the government hospitals was observed as very poor. This brought about the problem of reworking on solved problems and made the activities of leveraging knowledge resources difficult. Even though problem solving skills reside in the individuals head, this knowledge & experience has not been acquired through any kind of communication since there is no contact specially between the paediatricians from different hospitals and also no documentation and repository of

knowledge that can be used for reference. So it can be concluded that even though there is informal communications which highly depends on the physical proximity & personal connection of paediatricians in the same hospital, they are not acquiring and sharing knowledge with other paediatricians in hospitals other than the hospital from they work in. Therefore it is important to encourage and improve the informal communications of paediatricians in the same hospital and extend this informal communication to other hospitals through the development of communities of practice to establish formal communication among paediatricians in government hospitals in Addis Ababa.

Another finding from the questionnaire survey indicates that there is the potential interest among paediatricians in government hospitals in Addis Ababa to join the proposed Community of Practice to share knowledge and experience. And also all the paediatricians have high preference of electronic communication as a necessary and efficient way to share ideas as to the type of media tools to be used and an e-mail contact for both social and professional matters with regard to the communications they have had with other physicians in the past.

Finally it can be concluded that even though there is no good working practice database and lessons learned or listing of experts as well as no documentation of knowledge acquired and shared through good working practices and lessons learned, reading articles and internet resources are main source of acquiring and sharing knowledge. So this can indicate that there is the potential of using technology oriented communities of practice among the paediatricians in government hospitals at Addis Ababa.

## 5.2 Recommendations

The following recommendations are forwarded based on the findings:

- ❖ Even though communities of practice have gained recognition in academic, business and industry area, it is still in its infancy stage in the context of developing countries such as Ethiopia. Therefore efforts should be exerted to raise awareness and understanding of CoP among healthcare industry in general and government hospitals in particular so as to raise the competence level of the physicians and save the life of citizens as well.
- ❖ The hospitals should employ different mechanisms like trainings, facilitating departmental discussions and other means to help employees to develop their competency level so that they can build the culture of acquiring and sharing knowledge.
- ❖ Building a supportive culture like collaboration among individuals, teams and groups is a key element in the development of communities of practice that can facilitate the sharing of knowledge and/ or experience. Besides, providing incentives for employees helps to promote knowledge sharing and innovation with in the organizations. The top management should facilitate the means of providing incentives for the members of the communities of practice so that the members will be encouraged to practice knowledge sharing by identifying, capturing, storing, and using knowledge assets in the organized manner.
- ❖ Interpersonal interaction and social relationship are identified as the core idea behind the conversion of tacit knowledge to explicit knowledge. Thus facilitating social interaction and interpersonal relationship helps to reveal tacit knowledge that has been held by individuals so that the other individuals can also use the knowledge with less / no expense.
- ❖ There should be proper technological infrastructure implemented in order to share and retain the tacit knowledge/experience. The technology will capture, store, and organize the knowledge asset to be shared

- ❖ Community of Practice is a suitable knowledge sharing system in different situations not only for paediatricians but also for every health care practitioner, therefore it is strongly recommended that the government should take an initiative to support every health care organization to implement communities of practice as a means of sharing knowledge.
  
- ❖ The Government should take in to consideration the provision of reliable internet service and the bandwidth limit.
  
- ❖ The proposed system could not be tested because of time limitation. More work should be done in the area of development, testing and implementation issues.

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## **Appendix-A An Interview Guide**

**Addis Ababa University**

**Faculty of Informatics**

**Department of Information Science**

### **Knowledge Sharing Practice Readiness Assessment Survey**

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#### **Facts about the interviewee**

Name: \_\_\_\_\_

Qualification: \_\_\_\_\_

Level of Education: \_\_\_\_\_

Position held: \_\_\_\_\_

Total number of work experience: \_\_\_\_\_

Relevant work experience in the current job: \_\_\_\_\_

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#### **Interviewees' Background**

1. What's your current role in your span?
  2. How long have you been in this role?
  3. Can you describe your over all activities?
- 

#### **Knowledge Sharing Practice**

*(Focused on the concrete, the particular and the everyday knowledge sharing practice)*

1. Can you give me a brief overview of the specific work-related cases you have encountered so far?
2. What was the most difficult or challenging?
3. What did you do to deal with these challenges?
4. What constitutes especially valuable knowledge for these work-related cases?
5. Did you have the required valuable knowledge for the cases?

6. How do you acquire, share and integrate relevant work-related knowledge with other paediatricians in this hospital?
  7. How do you acquire, share and integrate relevant work-related knowledge with paediatricians in other hospitals?
  8. Do the levels of participation in knowledge sharing activities differ across the department (among paediatricians in this hospital)? Why?
  9. What did you learn from the physicians you worked with in the hospital? What do you think you taught them?
  10. What methods/techniques are used to share and acquire knowledge in your department?
  11. How frequently do you ask for help or advice? Are you comfortable with that?
  12. Are there certain periods, for example during calm periods (example tea break, holydays, lunch time) where there is extra focus on learning, knowledge exchange or does it happen when needed?
  13. Did you ever come across an innovative idea to bring about change in the existing practice? If yes, did you press on it?
  14. Are you willing to share your knowledge more widely? Or do you want explicit incentives to do so (recognition, financial rewards, etc)?
  15. What do you feel about deploying a knowledge sharing system?
-

# Appendix –B Knowledge Sharing Practice Readiness Assessment Survey

Addis Ababa University

Faculty of Informatics

Department of Information Science

## Purpose

*The purpose of the survey is to assess the knowledge sharing readiness and to guide the development of communities of practice within government hospitals in Addis Ababa. Your cooperation by giving careful and honest answer is essential for the results of the survey to be valid and effective.*

## Facts about the respondent:

Name: \_\_\_\_\_

Qualification: \_\_\_\_\_

Level of Education: \_\_\_\_\_

Title: \_\_\_\_\_

Total number of work experience: \_\_\_\_\_

Relevant work experience in the current job: \_\_\_\_\_

E-mail: \_\_\_\_\_

## Instructions

*The questionnaire contained 9 major fields of questions , each containing a number of multiple-choice questions and a total of 40 multiple-choice questions are included as shown in the questionnaire table. For each question, you may give your answer by checking the most appropriate rating value in scales of three shown below.*

Choice	
1	Disagree/not faced
2	Neutral/to some extent
3	Agree/faced

## Questionnaires

<b>Your past experience in acquiring and sharing knowledge related to your profession with other pediatricians in your hospital</b>	<b>1</b>	<b>2</b>	<b>3</b>
I quickly access and easily apply relevant knowledge from paediatricians in this hospital			
I acquire the right knowledge which is critical for me to do my job at the right time from paediatricians in this hospital			
Problem solving skill and knowledge acquired resides in individuals head			
Knowledge related with child care is, collected, organized and documented into a repository for future reference			
<b>Your past experience in acquiring and sharing knowledge related to your profession with paediatricians in other hospitals</b>	<b>1</b>	<b>2</b>	<b>3</b>
I quickly access and easily apply relevant knowledge from paediatricians in other hospitals			
I acquire the right knowledge which is critical for me to do my job at the right time from paediatricians in other hospitals			
Problem solving skill and knowledge acquired resides in individuals head			
Knowledge related with child care is, collected, organized and documented into a repository for future reference			
<b>Actions taken to acquire and share the required knowledge</b>	<b>1</b>	<b>2</b>	<b>3</b>
Knowledge is acquired & shared by regularly updating databases of good work practices, lessons learned or listings of experts			
Knowledge is acquired & shared through documentation such as lessons learned, training manuals, good work practices			
Knowledge is acquired & shared through informal personal interactions			
Knowledge is acquired & shared through reading articles and best practice			
Knowledge is acquired & shared by looking for resources on the internet			
<b>Reason for not sharing your experience and knowledge with colleagues</b>	<b>1</b>	<b>2</b>	<b>3</b>
Getting busy with other more pressing work			
Lack of organizational culture			
Not having the opportunity			

Not having the interest			
Feeling insecure about my own skill			
<b>Challenge you face during ad hoc group collaborative activities</b>	<b>1</b>	<b>2</b>	<b>3</b>
Ad hoc searching and obtaining appropriate resource is the most frequent challenge			
Exchanging information to create a shared model of the problem and the solution under consideration			
Coordinating and planning activities such as meetings, common working sessions or scheduling			
Taking part in discussions to resolve a difference of opinion			
<b>Motivations to increase knowledge sharing practices</b>	<b>1</b>	<b>2</b>	<b>3</b>
The need to quickly access the right knowledge at the right time			
Difficulty in capturing worker's undocumented knowledge (know-how)			
Loss of key persons and their knowledge			
Urge to improve collaborative group work			
Low degree of knowledge reuse			
<b>Collaborative activities that would interest you</b>	<b>1</b>	<b>2</b>	<b>3</b>
Exchanging materials like books, journals etc			
Sharing views , ideas and experiences			
Problem solving with peers			
Building common practice (such as body of knowledge, websites and documents)			
<b>Contact you have had with other pediatricians</b>			
Email contact for professional matters			
Sharing useful information with others			
Asking for information			
Telephone contact for professional matters			
Email contact for social matters			
<b>Type of media you prefer to communicate with your peer physicians</b>	<b>1</b>	<b>2</b>	<b>3</b>
Electronic communication is a necessary and efficient way to share our ideas			
Face-to-Face communication is the most effective way to carry out my work			
Documentation is enough as means of communication			
Telephone contact for professional matters			

## Appendix-C Knowledge Assets Assessment/ Knowledge Inventory

Addis Ababa University

Faculty of Informatics

Department of Information Science

### Purpose

*The aim of conducting knowledge asset assessment/ knowledge inventory is to investigate and locate knowledge assets your hospitals have and to know knowledge assets required in the future to carry out paediatrician's daily activities. This helps to identify the knowledge gaps that need to be captured, stored, shared and reused. Your cooperation by giving careful and honest answer is valuable for results of the survey to be valid and effective.*

### Direction:

- ❖ *Select either 'Exists' or 'Not exists but Required' by marking with (X)*
- ❖ *For **Format**: write either **hard copy** or **soft copy***
- ❖ *For **Owner**: write the name of your Hospital*
- ❖ *For **Location**: write the section in which the knowledge asset exists/required*
- ❖ *In the empty rows of the table below, list the knowledge assets that you know 'exists'/ 'not exists but required' in your hospital to do your daily activities (if not listed). And indicate whether they exist or not, identify their **location**, **format**, and **owner**.*

**Note:** *Knowledge assets/resources might be the resources that help you to perform the daily activities/operational activities of the hospital (like manuals, documents, etc).*

Item	Knowledge Asset	Exists	Not exists but Required	Format	Owner	Location
1	Individual patient card					
2	Registration book					
3	Tally sheet					
4	Lab registration log book					
5	Lab registration request form					
6	Radiology examination request form					
7	Radiology examination log book					
8	Surgery request form					
9	Surgery log book					
10	Training manual					
11	Physicians database					
12	Decision Support System					
13	Expert systems					
14	File sharing with other departments					
15	Minutes					
16	Staff and their expert areas					
17	List of ex-staff					
18	Database of external physicians					
19						
20						
21						
22						
23						
24						
25						
26						

## DECLARATION

The thesis is my original work, has not been presented for a degree in any other university and that all sources of material used for the thesis have been duly acknowledged.

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Abebe Regassa Dimmo

The thesis has been submitted for examination with my approval as university advisor.

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Dr. Rahel Bekele, Addis Ababa University, Ethiopia