

# A Case Study on the Implementation of E-Learning System at University of Garden City

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**Abstract-**Knowledge is fast becoming a robust engine in life. The visions, innovations, and inventions are the building blocks of developing a knowledgeable humane society. Internet, Intranet, and Extranet applications are the most recent method of communication with a distributed audience. Therefore, institutions of upper learning are constantly venturing into new and innovative methods and are radically changing the academic outlook to be competitive. the utilization of emerging multimedia technologies in education will create a significant shift within the educational service paradigm that promises major advantages over the current analogue distance learning and face-to-face systems. Radical changes within the computing infrastructure, spurred by multimedia computing and advanced communication technology, will do quite extend the tutorial system. Technological advances will make the lecture theatres and laboratories way more accessible and effective. Computer-based delivery of coaching, communication, information, and entertainment has matured into the foremost cost-effective medium to achieve an oversized audience. The interactivity possible in these new programs allows the user to possess a novel, custom experience. Newer and faster computers, combined with high-resolution graphics, audio, and video, make electronic delivery possible for training and communication of the many types. Thus, 'multimedia' has redefined many ways during which education is being delivered

*Keywords:* **Knowledge, Innovation, Multimedia, Education, Computer-based delivery**

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## 1.INTRODUCTION

Sudan has created the data and Communication Technology (ICT) environment to assist companies and better learning institutions to check the boundaries of technology and to organize themselves for the long run. The ICT will compile for the primary time an integrated environment with all the unique elements and attributes that are deemed necessary to form an ideal global multimedia environment. Knowledge is fast becoming a robust engine in life. The visions, innovations, and inventions are the building blocks of developing a knowledgeable humane society.

Internet, Intranet, and Extranet applications are the most recent method of communication with a distributed audience. Therefore, institutions of upper learning are constantly venturing into new and innovative methods and are radically changing the tutorial outlook to be competitive. The use of emerging multimedia technologies in education will create a serious shift within the educational service paradigm that promises major advantages over the current analogue distance learning and face-to-face systems (Carver, Howard, & Lane, 1999; Lee & Sullivan, 1996). Radical changes within the computing infrastructure, spurred by multimedia computing and advanced

communication technology, will do quite extend the academic system.

Technological advances will make the lecture theatres and laboratories far more accessible and effective (Carver & Biehler, 1994). Computer-based delivery of coaching, communication, information, and entertainment has matured into the foremost cost-effective medium to achieve an outsized audience. The interactivity possible in these new programs allows the user to possess a novel, custom experience. Newer and faster computers, combined with high-resolution graphics, audio, and video, make electronic delivery possible for training and communication of the many types. Thus, 'multimedia' has redefined some ways within which education is being delivered (Laurillard, 1993).

The original definition of multimedia was within the context of a computing system with the capacity to deliver visual and audio information to a user interactively (Gonzalez, 2000). Specifically, multimedia is an attribute of a system associated with multiple data modalities and interactivity. within the context of education, multimedia will provide flexible information, which is sometimes related to instructional design and authoring skills.

Multimedia learning system (MMLS) is an interactive Learning Management System. Basically, this method provides an interface for academicians and instructors to publish their course content on to the online. It also provides an interface for them to retrieve various reports on students' progress. the most objective of the system is to observe the scholars like after they are browsing the course content. additionally, it also is a medium for the scholars to boost their understanding of the course content besides following the traditional and traditional way of learning. The authors believe that the MMLS is an efficient method to reinforce the teaching quality while reducing the teacher-student meeting time.

A basic requirement for MMLS is that the effective delivery of web-based course contents from the server to an end-user client. Successful MMLS requires well-planned and elegantly written content, attractive and functional graphic design, and rapid

implementation at an affordable and affordable cost. Quality in video production isn't any longer a luxury; it's a necessity. However, it's difficult to succeed in today's sophisticated audiences without spending a fortune on video development. It requires a mixture of innovative creative design, precise artistic direction, and strict hands-on project management. Therefore, there are important considerations on what should and will not be placed on-line and what tools work best to achieve an instructional goal.

Developing content for any course on MMLS begins with the analysis stage. Analysis may be a process of defining what's to be learned by the scholars in our courses. There are three stages of analysis: Needs Analysis, Learner Analysis, and Content Analysis/Task Analysis.

Needs analysis enables the identification of problems associated with teaching and learning that are specific to content in courses. it's a process of gathering data from the important environment. The results of the requirements analysis will help determine if the MMLS is wont to solve problems encountered within the conventional lectures. Needs analysis helps to spot skills and knowledge lacking in students that may be addressed through MMLS.

The purpose of learner analysis is to spot general characteristics of the audience or students, their readiness for the course, and their preferences and limitations. this is often done using the assay (or pretest) to work out students' levels of subject expertise.

Instructions that cater to students with different entry levels or preparations are given. Physical limitations of the audience (sight, hearing, and other disabilities) must be considered within the analysis. Audience skills that are needed in using MMLS, like technical expertise in using the online as a tool, computer skills, study skills, communication skills, and language skills, are vital in ensuring the effectiveness of MMLS. Learner analysis provides a stronger understanding of scholars to enable better planning for a learner-centered program and to higher guide students to process online information.

Design is that the process of specifying how the content is to be learned and presented on MMLS. The

system is closely examined to style a learning program to be delivered over the MMLS that may ensure mastery of competencies within the area of data, skills, and attitudes (Shih & Davis, 1997). From here, the three levels of design are required within the MMLS content development process. These are course framework design, pedagogic design, and micro-design, as shown in Fig. 1.

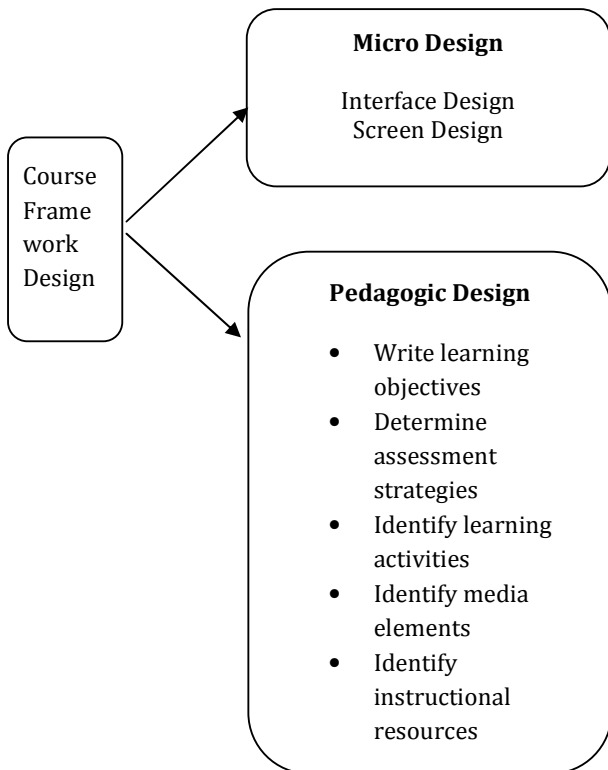


Figure.1 Course Framework Design

The purpose of the course framework design is to spot important information about the course to be communicated to students. The course framework is to tell students of the knowledge about the course, the way to run the course, learning materials, and things associated with student administration. The MMLS is employed to arrange a course framework design template and to differentiate the important information and helpful advice for studying on-line. The content of the course framework is organized supported the initial task analysis and content analysis.

The learning materials and presentation are planned within the pedagogic design stage. As usual, a particular and concise learning objective is set by judging from the task analysis. this can be to supply attention for content, strategies, and media selections. This serves to direct the learners' attention to the expected learning outcome and desirable performance. so as to attain the expectation from the scholars, the objectives are classified in keeping with levels of learning and to line the factors for measuring the training outcomes. Pedagogic design also involves providing opportunities for active learning and opportunities for the coed interaction to be distributed in an on-line environment. From there, the media elements are selected supported learning activities, content, and students' preferences. Micro design involves designing the interface and therefore the screen for presentation. the design and therefore the feel of the training materials are guided by the pedagogic design specifications. Here, the Graphical program (GUI) ensures that the human-computer interaction is straightforward. It is important that the computer program is user-friendly, accessible, functional, and motivating. Besides, the interface also ensures a high-level interactive design (including user control, branching, and testing). A metaphor or a topic that's appropriate to the subject of the course content and therefore the target market is chosen. this is often followed by drawing navigational tools on the template with a hierarchy chart and a flow sheet to indicate the hypertext links between all pages. Screen design plays an important role in ensuring visually attractive and motivating presentation.

## II. LITERATURE REVIEW

There is ongoing debate about whether it's the employment of a selected delivery technology or the look of the instruction that improves learning (Clark, 2001; Kozma, 2001). it's long been recognized that specialized delivery technologies can provide efficient and timely access to learning materials; however, Clark (1983) has claimed that technologies are merely vehicles that deliver instruction, but don't they influence student achievement. As Clark notes, meta-analysis studies on media

research have shown that students gain significant learning benefits when learning from audio-visual or computer media, as hostile conventional instruction; however, the identical studies suggest that the explanation for those benefits isn't the medium of instruction, but the academic strategies built into the training materials.

According to Bonk and Reynolds (1997), to market higher order thinking on the net, online learning must create challenging activities that enable learners to link new information to old, acquire meaningful knowledge, and use their meta cognitive abilities; hence, it's the academic strategy and not the technology that influences the standard of learning. Kozma (2003) argues that the actual attributes of the pc are needed to bring real-life models and simulations to the learner; thus, the medium does influence learning. However, it's not the pc in and of itself that creates students learn, but the look of the real-life models and simulations, and therefore the students' interaction with those models and simulations.

Different terminologies are used for online learning; a undeniable fact that makes it difficult to develop a generic definition. Terms that are commonly used include e-learning, Internet learning, distributed learning, networked learning, tele-learning, virtual learning, computer-assisted learning, Web-based learning, and distance learning. All of those terms imply that the learner is at a distance from the tutor or instructor, that the learner uses some type of technology (usually a computer) to access the educational materials, that the learner uses technology to interact with the tutor or instructor and other learners, which some type of support is provided to learners.

This paper will use the term "online learning" throughout. There are many definitions of online learning within the literature, definitions that reflect the range of practice and associated technologies. Carliner (1999) defines online learning as educational material that's presented on a computer. Khan (1997) defines online instruction as an innovative approach for delivering instruction to a far off audience, using the online because the medium. However, online learning involves over just the presentation and delivery of the materials using the Web: the learner and therefore

the learning process should be the main target of online learning. As a result, the author defines online learning because the use of the web to access learning materials; to interact with the content, instructor, and other learners; and to get support during the training process, so as to accumulate knowledge, to construct personal meaning, and to grow from the training experience.

Increasingly, organizations are adopting online learning because the main delivery method to coach employees (Simmons, 2002). At the identical time, educational institutions are moving toward the employment of the web for delivery, both on campus and at a distance. However, for organizations and institutions to create this often-expensive move, there must.

Be a perception that using online learning provides major benefits. a number of the advantages for learners and instructors are outlined below. For learners, online learning knows no time zones, and placement and distance aren't a problem. In asynchronous online learning, students can access the web materials at any time, while synchronous online learning allows for real time interaction between students and also the instructor. Learners can use the net to access up-to-date and relevant learning materials, and may communicate with experts within the field during which they're studying.

Situated learning is facilitated, since learners can complete online courses while functioning on the work or in their own space, and may contextualize the training. For the trainer, tutoring are often done at any time and from anywhere. Online materials is updated, and learners are ready to see the changes directly. When learners are able to access materials on the web, it's easier for instructors to direct them to appropriate information supported their needs. If designed properly, online learning systems are often accustomed determine learners' needs and current level of experience, and to assign appropriate materials for learners to pick from to attain the specified learning outcomes.

Figure 2 shows interactive strategies to push higher level learning (Berge, 1999; Gilbert & Moore,

1998; Schwier & Misanchuk, 1993). Hirumi (2002) proposed a framework of interaction in online learning that consists of three levels. Level one is learner-self interaction, which occurs within the learner to assist the learner monitor and regulate their own learning.

Level two interactions are learner-human and learner-non-human interactions, where the learner interacts with human and non-human resources. Level three is learner instruction interaction, which consists of activities to attain a learning outcome.

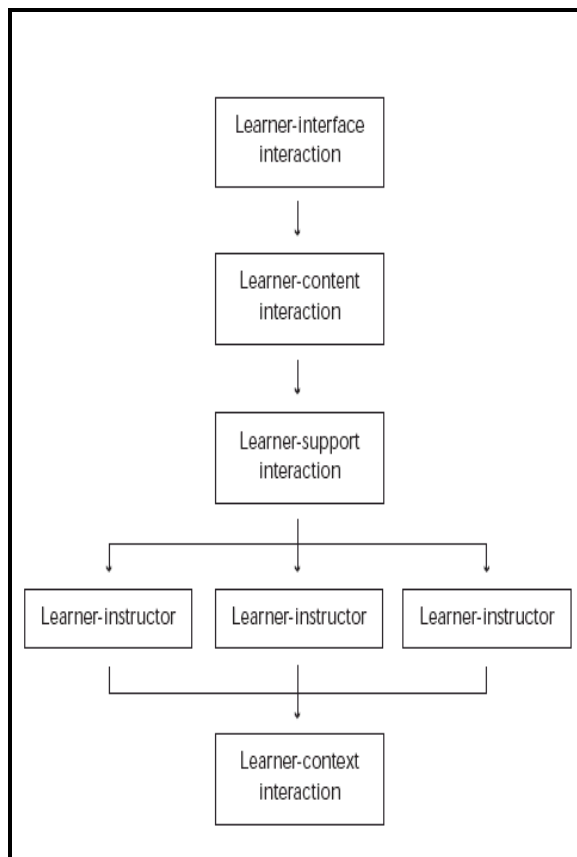


Figure.2 Interactive Strategies to Promote Higher Level Learning

At rock bottom level of interaction, there must be learner-interface interaction to permit the learner to access and sense the data. The interface is where learners use the senses to register the data in sensory storage. In online learning, the interface is with the pc to access the content and to interact with others.

Once learners access the web materials, there must be learner content interaction to process the data. Learners navigate through the content to access the components of the lesson, which could take the shape of pre-learning, learning, and post-learning activities.

**Toward a Theory of Online Learning**

The Web offers a bunch of very powerful affordances to educators. Existing and older education provisions are defined by the techniques and tools designed to beat the constraints and exploit the capacities of earlier media. for instance, the earliest universities were constructed around medieval libraries that afforded access to rare hand-written books and manuscripts. Early varieties of distance education were constructed using text and therefore the delayed styles of asynchronous communications afforded by mail services. Campus-based education systems are constructed around physical buildings that afford meeting and lecture spaces for teachers and groups of scholars. the net provides nearly ubiquitous access to quantities of content that are many orders of magnitude larger than those provided in the other medium.

From earlier discussion, it realized that the online affords an unlimited potential for education delivery that generally subsumes the majority the modes and means of education delivery previously used, with perhaps the exception of the rich face-to-face interaction of the classroom. Also, seen that the foremost critical component of formal education consists of interaction between and among multiple actors, humans and agents included. Thus, an outline of a theory of online learning interaction that means that the varied sorts of student interaction may be substituted for every other, counting on costs, content, learning objectives, convenience, technology, and available time. The substitutions don't lead to decreases within the quality of the educational that results.

The challenge for teachers and course developers working in an internet learning context is to construct a learning

environment that's simultaneously learning centered, content centered, community centered, and assessment centered.

There is no single, right medium of online learning, or a formulaic specification that dictates the type of interaction most conducive to learning all told domains with all learners. Rather, teachers must learn to develop their skills so they will answer student and curriculum needs by developing a group of online learning activities that are adaptable to diverse student needs. Table 1 illustrates how the affordances of those emerging technologies are often directed so on create the environment that's most supportive of "how people learn."

**III.DATA ANALYSIS**

In education, interactivity has transformed the standard classroom setting into a possible active media environment. Interactivity is a vital component for learning to require place. Learners learn best after they are actively and continually involved within the learning process.

Yet the standards for interactivity within education today are by no means clear. Educators and multimedia designers are confronted with questions concerning the effectiveness of interactive courseware as learning tool, such as: how multimedia is often successfully integrated into the classroom, what level of interaction should be included, and which programs are most suitable?

Does interactivity relate only to interaction with the media or can it also apply to interaction with content? the current researchers see interactivity because the ability to interact with both the media and content.

As this new area of learning evolves, those involved in interactive learning are discovering that developing material with a multimedia interface is solely not enough. Courseware designers are being challenged like never before to provide material that deepens understanding, promotes interactivity and encourages self-direction. This report presents the present situation of implementing MMLS for E-Learning at University of Garden City.

The problems that would arise when MMLS is incorporated newly are examined, and steps are shown as a way to minimize them.

With the assistance of a SWOT and force-filed analysis recommendations, that ought to ensure wider incorporation of MMLS because the e-learning platform at this university. the requirement for on-site technical assistance and therefore the need for a top-down strategy for creating the new area of e-learning a successful venture are stressed.

In order to look at the suitability of MMLS, and to spot its advantages also as disadvantages surveys were conducted. Questionnaires were handed over personally to the participants.

"How people learn" framework (Bransford et al.)	Affordances of the current Web	Affordances of the Semantic Web
Learner centered	Capacity to support individualized and community centered learning activities	Content that changes in response to individualized and group learner models
Knowledge centered	Direct access to vast libraries of content and learning activities organized from a variety of discipline perspectives	Agents for selecting, personalizing, and reusing content
Community centered	Asynchronous and synchronous; collaborative and individual interactions in many formats	Agents for translating, reformatting, time shifting, monitoring, and summarizing community interactions
Assessment centered	Multiple time- and place-shifted opportunities for formative and summative assessment by self, peers, and teachers	Agents for assessing, critiquing, and providing "just in time feedback"

Table.1 Emerging Technologies toward how people learn environment

Participants were students located in UGC. About 130 copies were distributed and conducted as 100 copies because the sample size so on minimize the sample frame.

In order to search out out how the scholars who have used MMLS for a minimum of one year evaluate the platform, 100 students attending full time courses in UGC were contacted, while the short period played as a main reason to not specialize in MMLS developers/lecturers.

The students belong either to the college of Management (FOM), Faculty of knowledge Technology (FIT) and college of Engineering (FOE) from different academic levels.

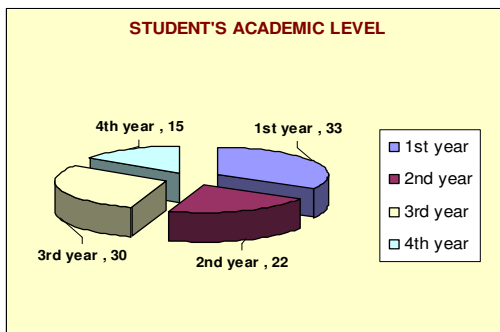


Figure.3 Student's Academic Level

Most of the scholar sex type is equivalent, that 56% are male while 44% are female among the fourth academic levels

To determine what students, who don't have any experience with MMLS, expect from such an e-learning platform, the researcher made some explanations of some questions that it's going to seems strange or difficult to be answered. Moreover, 76% of the participants' age falls between 18-23 years whereas 24-29 years are 19%, and just 5% are between 30 and 35 years old.

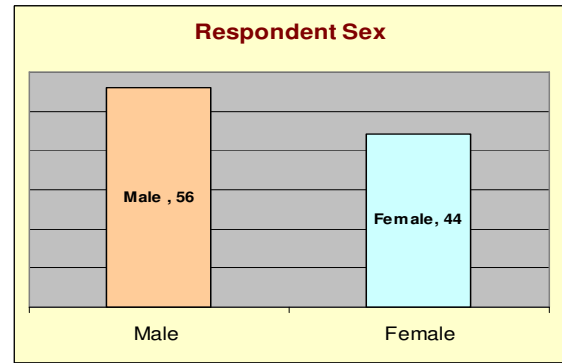


Figure.4 Respondent Sex

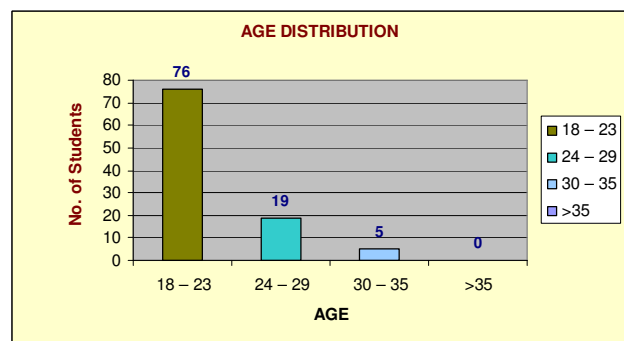


Figure.5 Age Distribution

The results given here are supported the combined response of the scholars from FOM, FIT and FOE in UGC. When students were asked Indicate learning efficiency of resources, it's clear that everyone modules have an honest response.

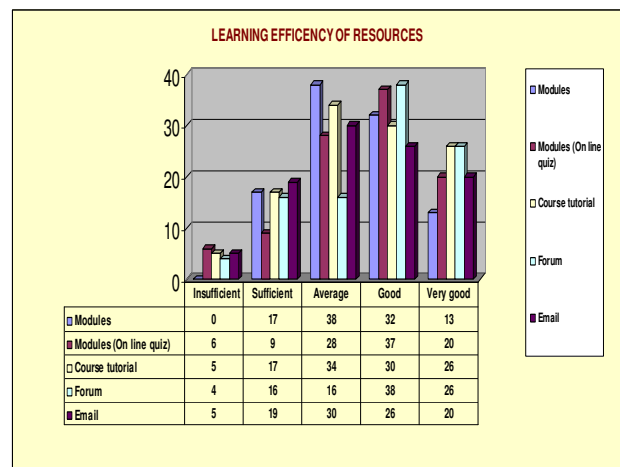


Figure.6 Learning Efficiency of Resources

Moreover, MMLS plays a crucial role as an e-learning platform that augments the category hours.

The tutor/lecturer could play a serious role of creating a virtual community among the scholars together with the category group, of making an environment where their learning efforts are encouraged. This has been paid off. A figure 7 shows that the scholars are able to take online quizzes, forum and course tutorial. a degree must be noted that students are needing to take online quizzes but they have to be trained within the method of taking such quizzes. The nature of the quizzes that may be conducted using MMLS is additionally limited to multiple choice questions, short answers, etc. Preparing such quizzes is time intensive, and therefore the quite quizzes possible in MMLS courses at the time might not suit all subjects. The chart below shows (Figure.8) that a high response from students to be told new things via computer. this might be as learning the way to create a minimum of one main page in html format within which hyperlinks to documents in other format (Word, Excel, PowerPoint, PDF) are made.

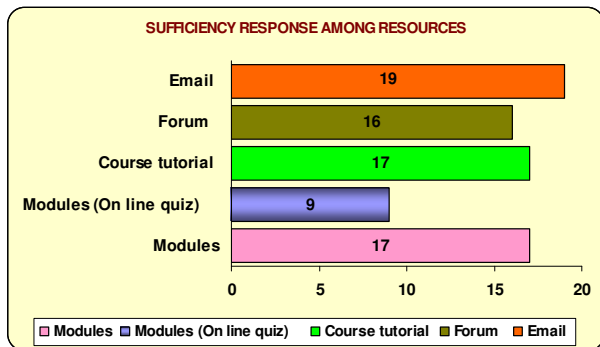


Figure 7 Sufficiency responses Among MMLS Resources

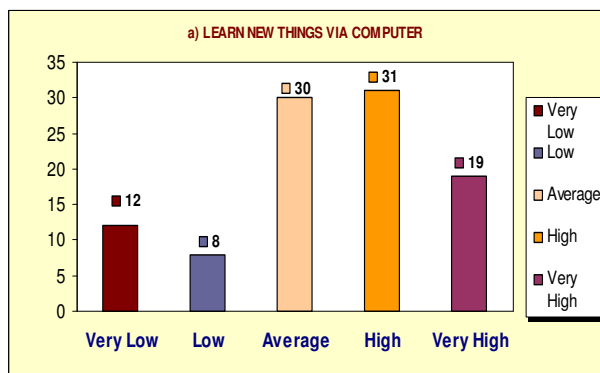


Figure 8 Learning New Things (Using Computer)

In order to urge a transparent picture, the responses of all the instructors and students who participated within the survey are combined during this section. The initial scenario of adapting an internet course consists likely of an enthusiastic but lone instructor trying to place together a MMLS course with the assistance of a manual but without the assistance of any quite on-site assistance. Students who worked during this manner with MMLS identified the subsequent factors.

Factor	Number of students who cited this being a problem
Limited computer facilities	31
Limited knowledge/skills in handling computer software	48
No suitable courseware	17
Lack of skills in handling computer software	30
No internet facilities	43
Lack of skills/training	15
Slow access speed	38
Lack of facilities (computer)	12
Server down	61
Cost	21
Non user friendliness	23
Others, please specify	4

Table 2 MMLS problems due to Students response



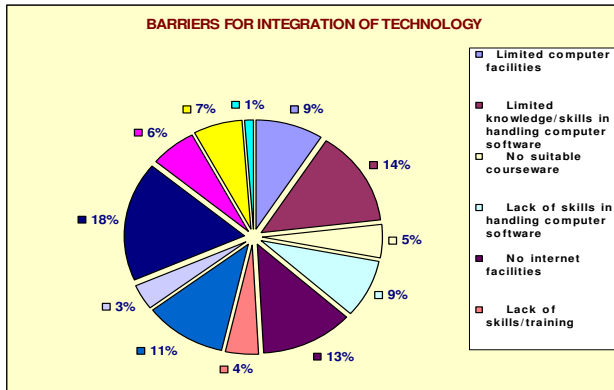


Figure 9 Technology integration Barriers

The most important thing in adapting a brand new tool is to create sure that the platform functions without causing major problems. Unexpected problems might arise when the course goes online. so as to spot problems related to MMLS online courses, students who use my courses were asked whether or not they have any problems with MMLS, and if yes, to spot the character of these problems. A better understanding of the way students' affect online learning and learning behaviors is important to develop MMLS that may facilitate student's decision-making, particularly among first educational level(s). The figure below shows the foremost common problems of technical nature that are identified in lecture students those that use MMLS and people who haven't any experience with any reasonably e-learning platform..

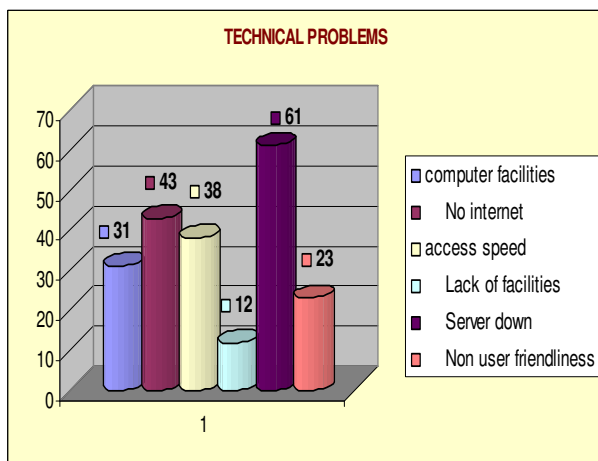


Figure 10. Technical Barriers

The important technical aspects identified thus and reproduced should be taken care of so as to

attenuate problems related to any e-learning platform. in keeping with the above figure, server down, no Internet, access speed (in term of Mbps and download), non-user friendliness and lack of facilities are considered to be the chief worries of these who use online courses.

#### IV. RECOMMENDATIONS

In education, interactivity has transformed the standard classroom setting into a possible active media environment. a real e-learning strategy certainly addresses problems with technology and learning effectiveness, but it also addresses problems with culture, leadership, justification, organization, talent, and change; a well-defined e- learning strategy puts a line within the sand; that (it helps you focus your attention and lets your customers, clients, and employees know where you're headed).

The SWOT analysis identifies three important factors taking care of which could make sure the successful and wider implementation of MMLS for e-learning at MMU, which are:

1. the requirement for instructors well versed within the use of MMLS.
2. On-site technical support.
3. top-down strategy of the university, as shown within the table below so on provides a recommendation for the gap statements:

In addition, there are steps that ought to be taken so as to assist the scholars, who are first-time users of MMLS, to successfully use the platform without having unnecessary trouble with a brand-new tool.

#### V. CONCLUSION

The area of distance education with the web being the technology for providing the knowledge to students is growing and changing rapidly. welfare work educators are rapidly embracing this technology both to be used within the traditional classrooms furthermore as for offering courses at a distance. Research to support instructors in using this technology, however, is falling behind use of the technology.

A basic issue like the effectiveness of using Internet to show course material has not yet been firmly established by research. welfare work education must take a detailed study how the ability of the net will be harnessed to maneuver future social workers into the subsequent millennium. there's little doubt that there are many positive aspects to using the net is social service education.

The volume of knowledge that's readily available and up so far may be a major asset for educators and students. technology provides opportunities for college kids and college to speak in new ways and for college students to access other students in several parts of the planet. Moreover, the first role of the scholar is to be told. Under the most effective of circumstances, this challenging task requires good strategies, motivation, planning, designing and therefore the ability to investigate and apply the knowledge being taught.

## ACKNOWLEDGMENT

**Prof.G.K.Viju**, received his PhD (Software Engineering) in 2006 and PhD (Quality Management) in 2018, presently working with University of Garden City as Professor and Dean (E-Learning), Khartoum, Sudan. He published 25 books and a number of Research Papers in National & International Journals and Conferences. His Research interests are in Software Engineering, Educational Quality Management.

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