

Teaching Postgraduate Health Informatics Courses through Video Conference Supported Collaborative Learning Environments

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Dear Dr. Grace Patterson,

Ms. Hanin Shalaby worked directly under my supervision as a research intern with the Department of Public Health & Health Informatics and the College of Medicine-Jeddah, King Saud bin Abdulaziz University for Health Sciences. This was from 07 January 2012 to 04 April 2012. The internship was part the requirements for her Master of Health Informatics with Dalhousie University, Halifax, Nova Scotia, Canada.

During this time I got to know her well, both professionally and personally. Ms. Shalaby is a model employee who has constantly shown devotion to her work and commitment to all assigned projects. She is a delightful person and very professional in her work.

The nature of her internship was to work with me as co-author on a research project titled "Teaching Health Informatics Courses through Video Conferencing Supported Collaborative Learning Environments". This research project was accepted for presentation at the 11th Learning Conference 2012 held in London UK.

She has exceeded my expectations in her performance and has gained a wealth of practical experience as a researcher. She already came with a good theoretical foundation in her general research knowledge; which she was able to practice throughout her internship.

Ms. Shalaby has been very professional and it has been a productive and pleasant experience. I thank you for this opportunity to collaborate with your university and for the solid educational background that she has brought with her.

If you have any inquiries, please do not hesitate to contact me directly.

Sincerely,

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Acknowledgments and Endorsement

This report has been written by me and has not received any previous academic credit at this or any other institution.

I would like to thank the MHI students and faculty for their participation in this research project. Special thanks as well to the IT technicians who participated in the research, and for their technical support

I am thankful to Dr. Grace Paterson for her encouragement, support and cooperation.

Finally, I am pleased to work with Dr. Taghreed Justinia, my research supervisor; under her close supervision, guidance, support and encouragement. Thank you Dr. Taghreed for offering me this opportunity, thank you for your love and thank you for your advice.

Hanin Abdulhameed Shalaby

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Executive Summary

This report discusses a representative subset of an internship project undertaken by Hanin Abdulhameed Shalaby, a Master of Health Informatics student at Dalhousie University. This research project focused on using video conferencing in collaborative learning environments to teach postgraduate health informatics courses at King Saud bin Abdulaziz University of Health Science (KSAU-HS). This internship was facilitated by the department of Public Health and Health Informatics at the College of Medicine, King Saud bin Abdulaziz University of Health Science, Jeddah, Saudi Arabia, between January 7 and April 4, 2012.

The project's research methodology combined qualitative and quantitative research methods throughout the project's various aspects, including research design, data collection, data analysis and interpretation, discussion and conclusion, and in proposing practical recommendations.

The aim of the research project was to examine and analyze the effectiveness of using one particular collaborative learning approach, video conferencing, within the health informatics postgraduate program, in order to evaluate its usefulness for both students and faculty, to assess its success in meeting the program goals and objectives, and to aid in decision-making regarding program improvement.

Throughout the research process, the author examined the effectiveness of using video conferencing in the classroom as a main goal. The manner in which video conferencing technology facilitated interactions between students and faculty within the context of postgraduate health informatics courses is explored in detail through an observational ethnomethodological approach, and findings have been triangulated using interviews, focus groups and a student survey.

The author has critically analyzed the study's findings, and this report emphasizes the strengths of utilizing video conferencing in academic institutions, such as reduced duplications, enhanced knowledge sharing and ability to reach distant locations. The report also highlights the key challenges, such as technical difficulties, lack of training, lack of interoperability and lack of accessibility. The report offers practical suggestions as well, including short and long-term recommendations.

1. Introduction

Recent technological advances are causing traditional teaching methods to evolve, resulting in considerable changes to the classroom environment. Thanks to new technologies, learning and teaching are no longer bounded to specific geographical locations. Distance learning is increasingly used to supplement traditional classroom learning in an effort to enhance the learning experience and help students learn more (Fillion, Limayem & Bouchard, 1999). Distance education uses information and communication technologies in order to provide educational opportunities to students who want to learn despite being unable to attend the academic institution due to time constraints or distance (Hassandoust & Kazerouni, 2011; Fillion, Limayem & Bouchard, 1999)

Video conferencing is one of a number of useful technologies that can be used in distance education settings (Willis, 1996). Video conferencing is, first and foremost, an information technology created through the merging of telecommunications and computer science (Fillion, Limayem & Bouchard, 1999). It can provide students with access to education even if they live away from campus or cannot travel, for any number of reasons, to the university site (Woodruff & Mosby, 1996; Brady, 1997). It supports the use of traditional equipment that is normally used in an interactive classroom, such as blackboards, white boards, documents and projectors (Reed & Woodruff, 1996; Brady, 1997).

Video conferencing has been successfully used to support collaborative learning environments for distance education in universities worldwide. Recently, the King Saud bin Abdulaziz University of Health Science (KSAU-HS) began using video conferencing for its postgraduate programs for health informatics and medical education, in order to enhance communication between instructors and students.

This study examines the effectiveness of using video conferencing, or the functionality of the “video conference classroom,” in terms of the interactions it facilitates in the context of postgraduate health informatics courses. A detailed exploration of the technology’s usefulness was undertaken using an observational ethnomethodological approach. Findings were triangulated using interviews, focus groups and a student survey. This report highlights the strengths and key challenges involved in using video conferencing in the health informatics classroom, while also providing practical recommendations.

1.1 Background

Distance learning was established first in Europe and then in the United States, when “correspondence education” began to gain popularity late in the nineteenth century (California Distance Learning Project, 2011; Valentine, 2002). The definition of distance education has changed over time, however, and in recent decades distance education has increasingly referred to the use of communications technologies to enhance an academic instructor’s ability to communicate with their students and vice-versa. Distance learning began to encompass numerous different learning environments, and then during the 1990s the expansion of computer-network communications took distance learning in new directions, allowing distance learning to occur in real time (Ostendorf, 1997; Valentine, 2002; Cochrane, 1996).

Video conferencing is one of the most effective communication methods used in collaborative learning environments in long-distance educational settings (Rakoczi, Herbst, & Reichl, 2010). It is a widespread communication technology that offers electronically simulated face-to-face interaction as a means of

providing and receiving education (Emery and Schubert, 1993). It supports the use of traditional in-class equipment such as blackboards and documents (Reed & Woodruff, 1996; Brady, 1997) as well as other teaching tools such as the electronic board, personal computer, video-player, and projector, which can all be integrated with the video conferencing technology. The present study proves the effectiveness of using video conferencing as a collaborative learning tool insofar as it helps postgraduate health informatics students enormously, enabling them to share knowledge and gain the latest information on topics related to their courses (Hassandoust & Kazerouni, 2011; Wolfe, 2007).

Video conferencing has been designed to give individuals the ability to confer with one another from multiple locations rather than having to meet in a single place. It allows several geographically dispersed groups or individuals to interact concurrently via video and audio transmissions. It is useful for providing an innovative solution to particular educational needs and for managing some problems where multiple people from different areas are required to meet to find solutions (Kamakari & Drigas, 2010). Electronic collaboration communication tools such as video conferencing are often considered knowledge sharing tools, because they are well suited to educational purposes (Hassandoust & Kazerouni, 2011) Both instructors and students are able to use video conferencing at the same time, allowing the one to teach and the other to be taught via this exciting technology (Kamakari & Drigas, 2010). Learners perceive this approach to communication as novel, which is a strong motivating factor for them to make use of it. As much as it is a novelty, it is at the same time very much like actually being in the classroom with the teacher. Moreover, it appeals to different learning styles and makes learning enjoyable (Knipe & Lee, 2002).

Some interesting definitions and explanations were discovered during a review of articles focused on teaching via video conferencing. Laurillard (1993) defines video conferencing as a “one-to-many medium, making it a sensible way to provide access for many sites to a remote academic expert.” Cochrane (1996) explains that the motivations for using video conferencing are “varied and include providing access to learners in remote areas, ensuring that students are exposed to a technology which is increasingly used in professional practice, and easing course delivery problems when separate institutions merge.” Basically, video conferencing is used to connect people in two or more locations using sophisticated computer technology (Galbreth, 1995; Brady, 1997). Specifically, the equipment used includes screens/monitors, microphones, cameras, and computers (Reed & Woodruff, 1996; Brady, 1997).

1.2 Project Description

This internship project was performed as a research project to explore the effectiveness of using one particular collaborative learning approach, video conferencing, within a health informatics postgraduate program. Its applicability, functionality, usability and challenges posed, for both students and faculty, were investigated to assess its success in helping the postgraduate program meet its goals and objectives, and to aid in decision making related to program improvement and to improving the technology’s effectiveness.

1.2.1 Project Objectives

1.2.1.1 The Purpose of the Internship Project

The research project was in the area of Health Informatics and titled, ‘Teaching postgraduate Health Informatics Courses through Video Conference Supported Collaborative Learning Environments in Saudi Arabia’. The author worked as a research assistant under the close supervision of an Assistant Professor of Health Informatics at KSAU-HS in aforementioned research project. -The purpose of this project was to produce a high quality publishable research project in the health informatics field. It sought to learn more about video conferencing as a teaching method, identify its effectiveness, highlight its challenges and seek to provide users with effective and practical recommendations for overcoming any current difficulties they may have regarding video conferencing.

1.2.1.2 The Purpose of the Study

Since the author’s main assignment was to work as a research assistant, the author has followed the systemic processes and stages of achieving research project objectives and disseminating the findings by writing a research paper.

The aim of this study was to examine and analyze the effectiveness of using one particular collaborative learning approach, video conferencing, within the health informatics postgraduate program, as a knowledge management tool for both students and faculty, to assess its success in meeting the program goals and objectives, and to aid in decision-making regarding program improvement. Study objectives are:

- To increase students’ engagement in the learning methods by enhancing and encouraging a positive interaction between student and staff.
- To enhance students’ contribution to problem solving, involvement in different learning styles, and decision-making.
- To identify any challenges in knowledge transfer between students and staff, and establish effective ways to handle this.
- To enhance a managed learning method that can provide access to learning resources for postgraduates and staff both on and off campus
- To evaluate the extent to which use of the technology enhanced knowledge-based interaction.

1.3 Specific Tasks Undertaken During the Internship

- Specifying the research project design, which is a combination of qualitative and quantitative research.

- Preparation of the research proposal for the research supervisor and submission to the people in the KSAU-HS responsible for approval of the research proposal.
- Review of literature to collect information and evidence from previous studies.
- Ethics submission and approval to conduct the research study
- Development of the data instruments, such as developing the interview and focus group guides that were used during data collection from the research participants; creating the students' survey questions and building it into an online survey tool, and determining the observational and ethnomethodological evaluation criteria
- Collection of the data needed to analyze and examine the research questions.
- Analysis of the data as a basis for discussions of the study results.
- Preparation of a draft of the research project publication and its presentation for the purpose of research dissemination

1.4 Research Project Design

For this research project, the author conducted both qualitative and quantitative research. Qualitative research is normally defined in opposition to quantitative research—whereas quantitative research deals largely with quantities, or with easily measured variables, qualitative research focuses more on the qualities of things. According to Ploeg (1999), qualitative research has become a key method for developing the evidence-based healthcare knowledge that is needed by various fields. Qualitative research includes specific techniques that have been used in this research project, such as interviews, observation, focus groups and other methods for data collection (Pope 2006). Quantitative research was conducted by using the survey instrument.

2. Description of the Organization

2.1 Description of KSAU-HS and NGHA

During the last few years, Saudi Arabia has witnessed a considerable increase in the number of universities and colleges that exist throughout the country. This is in addition to the recent economic, demographic, social and environmental changes the country has undergone. In the mid-1980s, NGHA started a couple of respectable programs that offered postgraduate studies in various medical fields and subspecialties. NGHA's advanced medical facilities at King Abdulaziz Medical Cities in Riyadh, Jeddah and Damam have been instrumental in the success of these programs, and led to the university's inception in 2005. KSAU-HS is another landmark educational institution in Saudi Arabia. Established under the aegis of the National Guard and the Ministry of Higher Education, it was initiated in March 2005. However, KSAU-HS was officially initiated only on May 13th 2008. Its headquarters are situated in Riyadh, with two additional campuses in Jeddah and Al Damam. KSAU-HS's principal objective is to

become an educational institution that attracts the most competent and outstanding students from all over the Kingdom of Saudi Arabia. The university also aspires to hire the best and most qualified faculty, and to become a scientific and educational beacon locally and regionally (KSAU-HS, n.d.)

2.2 Master of Health Informatics Program at KSAU-HS

The MHI program engages students from various backgrounds in the multidisciplinary field of health informatics education. The aim of this program is to prepare MHI students for leadership positions by teaching them how to manage the demands of the health informatics domain and how to provide expert consultation to healthcare sectors (Altwaijiri & Aldosari, 2008).

MHI is a course-based, two-year, full-time program. Each semester of this program consists of four courses that each includes three hours of lectures per week, for a total of 12 lecture hours per week. The MHI program requires a minimum of 14 courses totaling 42 semester credits. MHI students have to complete two foundation courses based on their background. In addition, they are required to complete seven courses from the health informatics knowledge area, two courses from the knowledge area of medical, health sciences, and health system organization, and three courses from Informatics knowledge area sectors (Altwaijiri & Aldosari, 2008).

2.3 Overview Concerning Video Conferencing Implementation within the Master of Health Informatics Program at KSAU-HS

As was previously mentioned, the MHI program was offered from a central area, Riyadh, where the instructor would be physically present for the students. Then, when it was decided to offer the MHI program in Jeddah and Damam as well, but it would have been difficult to find an instructor in each of these cities to teach the class. For this reason, program was offered through a video conferencing supported, collaborative learning environment. The Polycom HDX 9000 Company installed the video conferencing equipment at the KASU-HS.

Polycom HDX 9000 was used because of this system's capabilities. Using the Polycom HDX 9000 system, communications can be point-to-point or between multiple points. At KSAU-SH, the utilized video conferencing equipment enhanced multi-point communications, where more than two locations were connected simultaneously and the participants at each location could see and hear what was happening at the other locations clearly.

The Internet bandwidth that was used at the three locations for the video and audio transmissions was 1024 kbps, which allows an acceptable quality of signal transmission.

The video conferencing equipment consists of a camera, a microphone and two screens, one for displaying the other location(s) and one for displaying PowerPoint presentation slides.

The physical classroom environments and were different for each location, and as a result the video conferencing equipment was installed differently in each classroom. Starting with Riyadh, as the central point where the instructor held the class, the camera was placed at the back of the classroom, which is quite far from the instructor's position. However, the camera's position allowed it to view the entire classroom, including the instructor, rather than the instructor only. Since the students faced the

electronic board and the instructor, the camera could not record their faces clearly, and the microphone was located in the middle of the class. The Damam classroom was basically a conference room that was used for formal meetings. The Damam students were seated in a horizontal line, too close to the camera, and the microphone was placed in front of them. The Jeddah students were seated around a conference table, which enhanced their ability to communicate with each other. Also, they were facing the camera, allowing it to view them properly, and the microphone was placed in the middle of the classroom, where it should be positioned.

3. Description of the Work Performed at the Organization

3.1 Job Description

As it is mentioned the main author's responsibility was to work as research assistant in a research project. The author followed the systemic processes and stages of conducting a research project and writing the research paper. Other responsibilities that achieved and performed in the KSAU-HS and NGHHA during the internship were:

3.2 Roles and Responsibilities

3.2.1 Creating a Project Timeline

A key responsibility was developing a project timeline to introduce tasks that need to be accomplished and to create a deadline for each task. The project timeline for this research is included with this report (Appendix A).

3.2.2 Preparing and Submitting the Research Proposal

In order to obtain approval and start the research paper, it was obligatory to identify the project goal and objectives and prepare and submit a research proposal to the research supervisor with a brief summary of the research topic and the research methodology.

3.2.3 Training in the Medical Rerecord Department

In addition to the research undertaken during this internship, the author also received training from NGHHA's medical record department. Having the opportunity to train in NGHHA's medical record department was beneficial to the author for several reasons. Since NGHHA is in the process of moving from using paper medical records to using electronic medical records through the QuadraMed system, the author was able to work with medical records staff in the filling room to see the old process of using physical paper records to check in or check out from the department and to also see how this is done using the electronic system. This experience gave the author a better understanding regarding the importance of using electronic medical records from the user's perspective.

Workers in the coding room used ICD-10 to code the medical terminology. A few years ago, they used ICD-9. However, due to the current implementation of QuadraMed, ICD-10 now works better. That's enhanced the author to learn more about both of them.

The author was able to understand the importance of using the electronic medical records from the users' perspective and this practical hands-on experience was helpful in applying theoretical underpinnings.

3.2.4 Designing Nursing Informatics Course

The author also contributed to designing the curriculum of an undergraduate nursing informatics course (NINF 471), which is an elective course offered to the nursing students. This was an invaluable opportunity. The author was able to draw on her knowledge of health informatics and her background as a registered nurse to suggest course topics, develop practical assignments, and design quizzes and projects under the supervision of her research supervisor who was the coordinator for this course

4. Research Methodology

4.1 Define Research Problem and Review of Literature

Defining the research problem for this project was fairly straightforward because it was an idea the author had thought about: to find the strengths and weaknesses of using video conferencing in the Health Informatics classroom, and how it can be improved. Reviewing the literature was one of the essential tasks to be completed for this research project, as the published material and evidence helps validate and contextualize the present research paper. The author has used several methods for finding relevant literature discussing video conferencing. Searching for relevant literature helped the author understand the impact of using video conferencing in distance education settings for graduate students.

4.2 Research Design

4.2.1 Setting

In 2004, a postgraduate program in health informatics was initiated at KSAU-HS in Riyadh, Saudi Arabia, which is the headquarters of the university. In 2011, the program was expanded to Jeddah after Damam initiation, Saudi Arabia. It is a full-time, two-year program that requires the completion of 14 courses, for a total of 42 credits. This Master program includes students and healthcare professionals from different fields (with respect to their fulltime jobs). The Master of Health Informatics was designed to prepare graduates with state-of-the-art technical and humanistic skills in the health informatics domain. In this program, the teaching methods are conducted through face-to-face interaction in Riyadh, and through using video conference in Jeddah and Damam (Altwajjiri & Aldosari, 2008). This study requested the participation of health informatics students and staff.

4.2.2 Sample Size

In this study, the sample consisted of 24 participants from various healthcare and information technology backgrounds and perspectives. The sample was made up of 10 students from Riyadh, 4 from Jeddah, and 4 from Damam, as well as 4 IT technicians from Jeddah and 4 instructors from Riyadh.

4.2.3 Data Collections Instruments

In this research project, the researcher did not count on any one particular source of data. Triangulation, which is achieved by using several data sources or instrument to collect the data, was applied. Data was collected through interviews, a focus group, a survey, and observation (see Table 1). Applying triangulation in data collection was done to ensure data reliability and validity (Golafshani, 2003).

4.2.3.1 Interview

In our semi-structured interviews, we raised specific topics in order to give greater autonomy to the interviewer to explore specific topics. This method allows for clarification but is also used when more in-depth information is needed (Jackson, 1999). Its advantage over an administered questionnaire is that it yields a higher quality of information and the refusal rate is much lower (Polit & Beck, 2008; Jackson, 1999).

4.2.3.2 Focus Group

A focus group is a semi-structured interview that may involve two separate groups. The first group was a group of students who took lectures via video conferencing in Jeddah city and two evaluators who were leading the discussion (selected sample for the focus group). Another group was a group of IT technicians who worked in the IT department at the College of Medicine, KSAU-SH, Jeddah. The purpose was to discuss specific topics to gain insight into people's opinions, attitudes, problems, experiences, and solutions on specific issues raised by the moderator (Jackson, 1999). This type of interview allowed participants to raise key issues that may not have been anticipated by the researcher. The moderator played a pivotal role by ensuring that all group members participated and that a minority of vocal participants did not dominate the discussion. The moderator was able to get a feel for where there is wide consensus or disagreement on points made (Polit & Beck, 2008).

4.2.3.3 Survey

The initial stage of the project intended to determine how the video conferencing approach currently proceeds within KSAU-SH. A survey was conducted with the aim of verifying the quality of teaching, interaction and knowledge sharing through using Video conferencing medium. A total of 18 students from the MHI program in the three sites of KSAU-HS (Riyadh, Jeddah and Damam) completed the online survey. This survey aimed to obtain a statistical value to delve into the video conferencing experience as a collaborative learning method. It consisted of sections on participant's background information, course content and delivery, the extent to which technical issues may arise and backup solutions, using video conference technology as a collaborative tool; and the extent to which this tool was used to facilitate communication or enhance knowledge transfer.

A mixture of multiple choice, Likert scale e and open-ended questions were used to determine the rates of technology implementation and usage, perceptions regarding the technology as a learning and communications tool, and the extent to which experiencing video conferencing contributed to sharing and producing knowledge. Additionally, open-ended questions were used and some motivational quotations were incorporated.

Using the online survey website KIWIK, the author set up an on-line survey and then emailed the link to this survey to the participating students. The on-line survey was facilitated in such a way that the identities of the respondents were kept anonymous. The author received the results of the survey through her KIWIK account.

4.2.3.4 Ethnomethodological Analysis of Video Recordings

Ethnomethodological studies create an important literature of "findings" and data collecting (Silverman, 2004). They also provide an analytic resource through which to enhance the opportunities offered through video (Heath & Hindmarsh, 2002). Generally speaking, ethnomethodological studies glean ethnographically observed data through the analysis of video recordings (Heath & Hindmarsh, 2002).

Ethnomethodological research explores how we can use video recordings of everyday settings. It focuses on documenting the methodic practices through which society members produce their world (Heath & Hindmarsh, 2002). It is also concerned with the capture and analysis of social interaction (verbally and bodily) in daily settings, and allows us to track gestures and to determine where and what people are looking at, and how they behave.

Video recording preserves the video conferencing experience for ethnomethodological analysis. Video recording is a useful method to collect and analyze certain actions or expressions relating to the research sample. To illustrate my point, it is useful to collect data about student activities or behaviors in class. The video record can help the researcher, allowing them to watch it many times in order to fully investigate it, and to focus on multiple targets, which might not be possible to "catch" during initial observation. In this case, video recording required the project researcher to station the video camera in the class for a period of time long enough to gain the benefits of using this method and collect sufficient data.

Data Collection Methods					
Data collection instruments	Description	Data sources (Stakeholder)	Implementation Technique	Data analysis methods	Examples
Interview	<ul style="list-style-type: none"> - Semi-structured interviews were conducted with two different instructors with different perspectives - (Professor 1) was male and taught Introduction of Health Informatics Course (HI-503) - (Professor 2) was female; she teaches Research Methods (HI- 540) 	MHI faculty	<ul style="list-style-type: none"> -These were one-on-one telephonic interviews. -Using specific interview guides to lead the discussion.. -The interview was recorded with permission 	Semantic qualitative methods	Interview guide and notes are available in appendix B
Focus Group	<p>Semi-structured interviews were conducted for two different groups. Each consisted of 4 participants.</p> <ul style="list-style-type: none"> -(Focus group 1) It had 4 IT technicians. -(Focus group 2) It had 4 students (2 male and 2 female students) who are NGHA employee, with IT background 	<ul style="list-style-type: none"> - Students -IT technician 	<ul style="list-style-type: none"> -The focus group was conducted through a face-to-face meeting. -Used specific interview guides to lead the discussion. -Focus group 1 was video recorded using the video conferencing equipment, with permission. -Focus group 2 was recorded with a recorder. 	Qualitative methods	Focus group guide and notes are available in appendix C
Observation	<p>None participants' observation. Observations were made twice, during two different class sessions with two different professors.</p> <ul style="list-style-type: none"> -The main focus during the observations was to observe the class participations, student and faculty attitudes towards the use of video conferencing as a teaching method, students behaviors, technical issues, administrator and IT technician support during the class session 	<ul style="list-style-type: none"> -Faculty - Students -IT technician 	Took extensive notes while attending the class sessions with the study participants		Observation notes are available in appendix D
Ethnomethodology	<ul style="list-style-type: none"> - Video recorded the class session using the video conferencing equipment to collect data and observe the class session environment. 	<ul style="list-style-type: none"> -Faculty - Students -IT technician 	<ul style="list-style-type: none"> - Made use of Polycom (video conferencing) equipment to video record the session. -Also, used specific criteria to evaluate the class session. 	Qualitative methods	Ethnomethodology criteria are available in appendix E
Survey	<ul style="list-style-type: none"> -Online survey involved all MHI students in each location. Combination of qualitative and quantities questions were included, as well as a mixture of multiple choice, Likert scale e, and an open-ended questions. 	-Students	Used KiwikSurvey, the online survey tool, to ensure the students' privacy	Using graphs and charts through using Microsoft Excel software	Students survey are attached as a speared file

Figure 1 Triangulation matrixes of data collection instruments

4.3 Research Methodology

4.3.1 Methods and Procedures

The project's sample consists of 24 participants (students, faculty and IT technician). The focus group was conducted with students and the IT technicians in Jeddah. Each group consisted of 4 participants and two moderators (evaluators), and the time allotted for each session was 30 minutes. The moderators directed the topics, and two focus groups were held—one in an attempt to represent a group with Riyadh students and the other with Jeddah and Damam students.

Furthermore, an online survey containing several qualitative and quantitative questions was distributed to all students. Multiple choice, Likert scale, and open-ended questions were included in this survey.

As well, interviews were conducted with the instructors teaching health informatics students in the spring semester. Similar to the focus group method, the time allotted for each session was 30 minutes, and the moderators directed the topics.

5. Ethical Considerations

The participants were informed about the purpose of the research project and their consent was confirmed prior to proceeding with the interviews (Appendix F). The participants were assured that confidentiality would be maintained and they could speak freely and honestly. All participants were encouraged to actively participate in the research, and were asked to share their own opinions and personal experiences, which were respected. Participants were reminded that there are no right or wrong answers, and that the study was an opportunity to share their opinions and ideas for program improvement.

All interviews and focus group discussions were video recorded with the permission of the participants and the organizations involved. Also, all results and findings gleaned during the data collection were kept anonymous and confidential.

Participants were not forced to participate in any way. The data collection process did not interfere with normal classroom proceedings or with course teaching. All measures to ensure the comfort of the participants were made by arranging for flexible scheduling and organizing to meet at suitable and convenient locations.

This study gained approval from the Dean at the College of Public Health and Health Informatics. (Appendix G)

Objectivity in this research project was one of the most important considerations (Noyes, Popay, Pearson, Hannes & Booth, 2008). All measures were taken to ensure that the researchers' personal biases and opinions did not interfere with the research and that all perspectives were given fair consideration (Pope & Mays, 2006).

6. Data Analysis and Management

6.1 Quantitative Analysis Methods

Although the sample was completely made up of students enrolled in the MHI course, it was still a relatively small sample. The purpose of the survey was only to gauge the student's opinions on the various topics, but not to generalize the results. The results were all tabulated and charts/graphs were created using Microsoft Excel software.

6.2 Qualitative Analysis Methods

The one-on-one interviews, the focus groups, the observation data and the ethnomethodological data were analyzed using an inductive grounded theory approach. Many general codes emerged and were later merged/deleted/revisited until they could be refined into more specific themes. These themes are presented as the following five categories; each with its codes outlined within the table:

THEME S	Technical Issues	Knowledge Sharing	Classroom Facility	Policies & Preparation	Recommendations
1	Audio quality	Enhance learning	Equipment	Regulations	Course material
2	Bandwidth limitations	Community within community	Seating and tables	Interruption policy	Backup solutions
3	Interruptions	Group work	Instructor	Training	E-learning
4	Interoperability	Independent learning	Ambience	Recording	Social connections

Figure 2 Quantitative and qualitative analysis codes

6.3 Research Discussion

During this phase of the research project, the author analyzed the collected data, and interpreted and discussed the results in relation to the research goal and objectives and existing knowledge.

6.4 Recommendations and Conclusion

In the last phase of this research project, some recommendations based on the results are provided to help improve the use of video conferencing in distance education settings.

7. Discussion on How the Work Relates to Health Informatics

Recent developments in Saudi Arabia surrounding the merging of healthcare service delivery with information technology have expanded the degree of innovation present in various healthcare domains. This interest in combining healthcare with information technology has led many individuals to undertake academic studies in an effort to keep up with the latest trends in healthcare. Even some well-

established healthcare professionals and information technologists are applying for postgraduate programs focused on health informatics, to enhance their knowledge concerning how these fields are merging, even while they continue to serve the public. Since the Master's program in Health Informatics established in Saudi Arabia's universities is one of the first such programs in the Middle East, it was essential to examine the program's effectiveness in an effort to potentially improve the program.

As it is mentioned, the main focus of this research project was to examine the use of supported collaborative learning methods for educating postgraduate health informatics students. More specifically, the focus was on the utilization of video conferencing in this context, and in particular the use of this technology to facilitate the sharing of information and knowledge between local and distance students and their instructors.

As part of the author's education at Dalhousie University, she acquired beneficial information regarding the Health Informatics program, which is the basis of this project. Many relevant subjects were drawn from as the author considered various research methods, project management tools and knowledge management theories to be used for the present study.

The author gained particularly indispensable knowledge through the Research Methods Course (HINF 6020) For instance; the author used her research methodology and research design skills to complete this research project. Based on this experience of taking this course, the author learned more about formulating a research hypothesis, collecting data, analyzing the collected data and discussing it, and drawing the final conclusion to prove the research hypothesis.

Moreover, the main concept underlying this research—the importance of sharing information and knowledge among information technology users—was developed while the author was taking the Knowledge Management for Health Informatics (HINF 6230) course. This has moved the focus of the research project towards student learning and knowledge acquisition and retrieval. These concepts were evident throughout the project and noticeably affected the educational process within various learning environments

The author gained time management and prioritization tasks skills through the Project Management for Health Information Projects Course (HINF 6300). Topics related to the management of specific project implementations were also very useful, considering that video conferencing is an IT project implemented within the Department of Health Informatics at KSAU-HS. Much of the focus of the study was on concepts related to IT project implementation and the various factors that need to be addressed from a technological perspective.

Furthermore, through taking the Health Information Flow and Standard Course (HINF 6102), the author gained important knowledge concerning interoperability among information systems and the importance of improving interoperability.

The author's educational and experiential background in Health Informatics proved very useful and was thoroughly used by the author over the course of completing the present project.

8. Critical Analysis of Some Problems

Some interesting findings were revealed during the course of this research project. Some of the reported results support the use of video conferencing, while critical issues were revealed as well. These outcomes are discussed in detail in the following section.

8.1 Strengths of Using Video Conferencing for Postgraduate Health Informatics Courses

While analyzing the teaching of postgraduate health informatics courses through video conferencing supported collaborative learning environments in Saudi Arabia, the author has found that the adoption of video conferencing is a beneficial approach for collaborative learning in distance education. This was evident from the following points of discussion.

8.1.1 Reduce Duplication

It was observed that using video conferencing to teach health informatics students in three different locations in Saudi Arabia reduced the amount of pressure on academic and teaching staff in terms of their contact hours. Whereas they would have otherwise had to prepare and present the same material three times and discuss it at three different sites, they only had to present and discuss the material once by using video conferencing. One of the instructors explained during their interview that *“teaching individuals from different prospective in three sites allow instructor..... and give them enough time to prepare the materials and make it available for their students in advance”* (Professor 2). Freeman (1998) (as cited in Knipe and Lee, 2002) argues that video conferencing offers outstanding benefits to its users (i.e., teachers and students), such as providing teachers with possible solutions for reducing the teaching of duplicate lessons. He also suggests that using video conferencing would enable teachers to concentrate on providing students with valuable materials in one class, at one time, instead of dividing his or her efforts to present the same materials in a number of classes. Freeman explains that this has the potential to save the educator time and allow them to focus their enthusiasm on a single class, rather than losing interest as they present the material for the second or third time. Maintaining the teachers' enthusiasm, Freeman argues, could help keep the students in the course engaged.

8.1.2 Enhance Knowledge Sharing

From the perspective of course delivery, knowledge sharing and knowledge acquisition are considered essential parts of learning and are both applicable in relation to health informatics teaching. Some experts consider video conferencing to be an information communication technology (ICT) tool (Hassandoust & Kazerouni, 2011) that can also be used to facilitate knowledge sharing amongst users (Dwivedi, Bali, James, Naguib, & Johnston, 2002). This tool facilitates the exchange of information and knowledge on various topics between students and their professors (Musselbrook, Mcateer, Crook, Macleod & Tolmie, 1999). By facilitating cooperation among students from different backgrounds, and promoting the sharing of their experiences and points of view, video conferencing offers students an opportunity to exchange two types of knowledge; tacit and explicit knowledge (Sonnenwald, Solomon, Hara & Bolliger, 2002). Video conferencing provides an ideal environment for this type of knowledge exchange by bringing together the insights of students who are physically apart. This was explained by

one of the interviewed instructors when they said: *“I also treat them [the students] almost separate and when it comes to discussion I seek the different perspectives at the same time”* (Professor 1).

Tacit knowledge is personal and not documented, but implementing video conferencing for educational purposes allows users (students and faculty) to draw on their tacit knowledge; enabling them to exchange perceptions, insights, experiences, and craftsmanship within their educational environment (Wolfe, 2007). Throughout this study, the author explored video conferencing’s potential for transferring knowledge. One instructor shared positive perspective regarding this point; *“with 20 students or a lesser number of students, the knowledge sharing experience works good—yes, you can do that and having video conferencing from Damam, Jeddah and Riyadh using different perspectives, different areas of the same organization”* (Professor 1). In the student survey, one student commented that; *“knowledge acquisition from different regions will add the variety of the content and discussion”* (Student 8).

Some interesting findings also emerged from a focus group discussion with students. The discussion revealed that using video conferencing is effective for transferring and exchanging knowledge; the students explained that *“video conferencing is effective since having class presentations, or activities with different students in different sites enables sharing and exchanging knowledge—especially with the students who are employees in the IT department like we are; and working in the same institution with the same policies but in different sites—we definitely share ideas and give deep insight based on different experiences to handle similar problems”* (Focus group 2). Conversely, one of the students from the same focus group argued against this point and reported some disadvantages to video conferencing as a knowledge transfer tool, including that it can sometimes distract from their focus on the instructor: *“using VC is not facilitating knowledge sharing among students due to the inability to focus on the lecture, and due to ineffective class participations during the class session or class discussion”* (Focus group 2).

Ramanujan and Kesh (2004) argued that tacit knowledge can be only captured through efficient communicative interactions and sharing. Ramanujan and Kesh goes on to explain that with the development of e-collaboration and other communication technologies, groups are increasingly communicating by using new methods for interaction and collaboration. These new forms of interaction are useful for knowledge acquisition and knowledge creation. Knowledge can be developed through the various video conferencing supported exchanges and interactions, as observed in the present study. The evidence gained in this study demonstrated that the majority of participants (94%) either agreed or strongly agreed with the statement that video conferencing can be used to facilitate knowledge exchange (Figure 3).

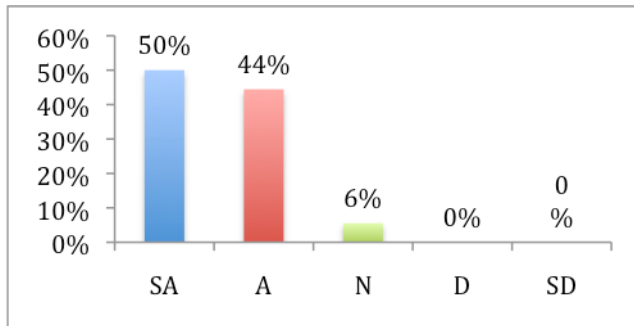


Figure 3 Percentage of participants who agreed with the statement that video conferencing can facilitate knowledge exchange. (SA=Strongly Agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly Disagree)

Due to the fact that video conferencing can be easily recorded, it offers an opportunity for anyone who missed the conference to “catch up” on what they missed. Not only that, but also these recordings can be saved in the department’s database for the future. In this way, as a knowledge-sharing tool, video conferencing technology can also be used to collect and retrieve data (Wolfe, 2001; Kamakari & Drigas, 2010). Further positive results were found by this study regarding the use and retrieval of knowledge through video conferencing. One of the surveyed students commented that, *“if it is recorded we can go back and review it if we miss it”* (Student 3). Another student highlighted some of the advantages of recording the video conference sessions, stating that, *“I can catch up if I miss one class...the ability to view them anytime...in case one of the students is absent he can view the lecture...if we did not understand something we can go back to the lecture...if the instructor is talking too fast...if there was a technical problem with the voice ”* (Student 1). The results of the survey regarding this point were also generally positive (Figure 2).

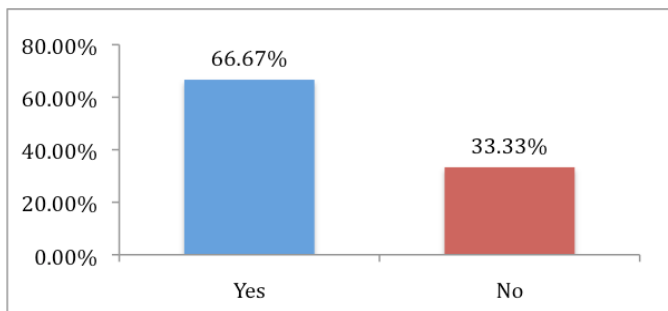


Figure 4. The percentage of the participants who felt that there were advantages to video recording classes that make use of video conferencing.

There are a few critics of this approach to knowledge transfer. Rakoczi, Herbst & Rechl (2010) reported criticisms of video conferencing and found out that grade level of distance students who used video conferencing was not improved that led to decline of the quality of teaching. The reason behind this was that the video conferencing as a communication tool did not provide the knowledge to the user as it was only used to exchange ideas, thoughts and opinions among users.

This study’s data strongly suggests that video conferencing is useful to share knowledge.

8.1.3 Reach Distant Locations

Among the significant findings of this study were the reported benefits of using video conferencing as a teaching tool. Instructors and students reported that without the current video conferencing setup, the Health Informatics program under discussion would not have been offered in the other two regions and the remote students would not have been able to attend the course. Providing the course in one region only would have been a significant obstacle for those students from other regions who wanted to attend but did not have the means to relocate to another city. Video conferencing was proposed as a solution to enable all distance students to enroll in the program; and this solution was appreciated by the students, faculty and university administrators involved. One of the students mentioned during the focus group discussion that, *“This course is not available in Jeddah; so its great benefit that we are able to apply on the program and attend the lectures through using video conference”* (Focus group 2). In the survey, many students commented on this point as a strength; *“It gave an opportunity for other students to benefit from the program from the comfort of their local residence”* (Student 1); *“It gave us the ability to study the master even if we are not in the same region”* (Student 2); *“It provides good opportunities for the distanced students to continue their academic degrees without affecting their personal or professional life”* (Student 6).

8.2 Challenges for Using Video Conferencing in Postgraduate Health Informatics Courses

Despite the noticeable advantages of using collaborative learning video conferencing, there were some observed issues that need to be addressed. These include technological limitations, lack of training, classroom facilities, lack of interoperability and lack of accessibility.

8.2.1 Technical Issues

The most widely reported challenges concerning video conferencing are technical issues, such as voice or visual interruptions. These types of problems are associated with confusion between students and instructors, and they could result in undesirable delays and sometimes cancellation of classes. Through research observations of the classroom setting, and while analyzing video recorded data ethnomethodologically, the author noticed some visual and audio interruptions, disconnection and loss of contact with one or both of the other sites; *“at that time there were some technical issues due to disconnection that cut off the voice and the picture”* (Observation 1; 2:42pm).

Freeman (1998) criticizes the use of video conferencing as a teaching method, saying that students and instructors found that educational activities were not improved due to technical issues and the greater likelihood of interruptions in remote areas. Knipe and Lee (2002) also discuss evident technical issues and recommend resolving them to improve the educational experience.

During the focus group meeting, participants made a number of points related to technical issues. They discussed the instructors' lack of basic knowledge related to dealing with video conferencing equipment and the inability to connect with other regions independently. One of the participants explained that, *“Instructors are not aware about basic things or methods for re-connecting with the students in other*

sites if any sudden disconnect arise –they usually waste time in calling for technical support while it is so easy to do and they should be aware about it”(Focus group 2)

Another point was the instructors’ lack basic of knowledge regarding how to display the course material on other sites’ screens. For example, participants reported that *“train the instructors to be familiar of how to speak, pronounce specific words, where they’re supposed to stay……. instructors do not know how to present materials and share it with other sites, how to be sure that the content was displayed in each site—they need to know how to share it”(Focus Group 2)*

Moreover, when technical issues arose, there was no policy or standard regarding backup solutions to resolve these problems. According to the student survey comments, *“ When technical interruptions arise one of the scenario happens, disconnecting then we will lose total communication with the main center in Riyadh. Second scenario, we will lose attention because of the lack of communication ”(Student 4).*

8.2.2 Lack of Training

A lack of essential training has affected the quality of instructors’ performance when using video conferencing equipment. For example, some findings reported that users of video conferencing for postgraduate health informatics courses lacked training in various aspects of dynamic video conferencing, such as dealing with students in remote areas, interacting with video conferencing equipment, and how to handle any technical issues that may arise. Clarke, Hewson, and Pomfrett, (1994) and Valentine (2002) recommend providing video conferencing users with basic training that includes specific instructions and polices. They also advise providing formal training sessions for video conferencing users that can ensure seamless video conferencing and can also remind users of the basics concerning how to work with multipoint conferences, if there are multipoint facilities. This issue was noted in the focus group discussion, as they advised to *“train the instructors to be familiar of how to speak, pronounce specific words, where they’re supposed to stay……. instructors do not know how to present materials and share it with other sites, how to be sure that the content was displayed in each site—they need to know how to share it”(Focus Group 2).*). One of the interviewed professors also advised providing training sessions for instructors before bringing video conferencing equipment to their classes. When asked if they were provided with any formal training, the instructor replied; *” No, unfortunately I think years ago I read study about video conferencing and what color blouse to wear, how to speak; but I forgot it all and I never read it before the class. It would be great to have a training session ” (Professor 1).*

8.2.3 Class Accommodation and Facilities

Another observed concern was related to classroom organization, and the physical class environment. This includes the equipment positioning, adequate class lighting, students and instructor positions. According to the makers of the Polycom HDX 9000 equipment that was used in the KSAU-HS classrooms, they have specific recommendations and instructions to prepare the class environment. Examples of their recommendations are: *“be sure that the microphones are positioned correctly. Also, make sure that the background and the speakers are well lit.”* For example, *“use a minimum of two 250 W halogen lights on the background and one on the presenter to view them clearly. Ensure that people are sitting between 3 and 20 feet from the camera. Ensure that the Touch Control is conveniently located*

for use during a meeting” (Polycom, 2011).

However, during this study, classroom facilities were not observed to be compliant with the manufacturer’s advice. The Polycom guidelines were only applied in the Jeddah location; *“I noticed that since the camera’s position in Riyadh classroom was located at the end of the class, people in Jeddah and Damam can’t see the instructor very good and can’t see Riyadh student at all. That meant the students didn’t pay any attention to their lecture and made them busy with other things” (Observation 2; 2:39PM).*

Another point obtained from the focus group meeting revealed that *“Damam students’ classroom is basically a conference room that is used by the IT department staff, that means their classroom was not prepared well to accommodate a class session” (Focus group 2).*

The classrooms did not all have the same setup; *“Jeddah’s students are sitting around a conference table, while Damam students are sitting in a horizontal line” (Professor 2).* The instructors also had their views on how the varying setups affected the students; *“I think Jeddah’s setup allows students to interact more easily especially when we have group discussion...but Damam setup allows students to focus and pay attention” (Professor 2).*

8.2.4 Lack of Interoperability

A lack of attention to developing and implementing a technical standard when designing video conferencing tools is sometimes an issue for implementers (Simon & Brantner, n.d.). A lack of interoperability of backup video conferencing equipment in the remote areas was also noticed in this study, especially when trying to use the Microsoft Office Communications Server (OCS) as a backup solution to allow collaboration and for students to attend the class off-campus. The lack of interoperability may be due to the lack of integration from inside the university campus as part of the KSAU-SH IT system’s architecture, and the system’s presence beyond the firewall to support access across universities. Attempts were made to reduce the interoperability problem and allow the students to be in touch remotely; however, the students needed to have permission to access the video conferencing equipment from outside the firewall. This also posed some security issues for the NGHIA IT Department and needed to be regulated and monitored closely by them. Bandwidth can also sometimes be a limiting factor, although it is not a frequently occurring issue, as the IT technicians explained in their focus group: *“The only problem is the connection based on the bandwidth means if the bandwidth slow the connection will be affected, however it is usually fine the only problem is from Riyadh site” (Focus group 1).*

8.2.5 Lack of Accessibility

Another observed problem was the lack of accessibility to any data or saved course materials. For example, if the class session is recorded through video conferencing; this recorded session would only be saved in the headquarter location (Riyadh) and no one has access to it except the authorized people. There are specific procedures that need to be followed to retrieve the data, which is informal or not documented in a standardized manner. When asked about the recorded data the IT technicians explained that *“it is usually kept in the Riyadh server, and need permission to access it” (Focus group 1).*

The electronic blackboard system was also reported as not very useful; since most of the instructors did not rely on it or did not use it properly to attach the courses materials or to upload it in advance. This meant the students relied heavily on the presented materials to be made available live during the lectures through the video conferencing system, which was added reliance on the “already limited” technology. One instructor advised to have better access to materials; *“having a computer setup to enhance student access to their materials” (Professor 2).*

There was also the issue of there being no clear policy regarding how to carry on the lectures in case of disruption, failure or adverse conditions in one or all of the regions. As one professor stated, *“to clarify, there is no clear policy for the instructor to carry on the class session and no clear policy for any alternative solution” (Professor 2).*

9. Conclusion

This project was undertaken to examine the use of video conferencing technologies within a postgraduate Health Informatics program. Both qualitative and quantitative research methods were employed. This research project discusses various aspects of video conferencing, including its setup, technological issues, enhancement of knowledge sharing, collaboration methods and alternate backup solutions, considering the author’s observations as well as students’ and instructors’ perspectives. The dynamics interactions within the ‘video conference classroom’ were explored in detail through an observational ethnomethodological study, and findings were triangulated using interviews, focus groups and a survey. Extensive critical analysis was performed in order to highlight the strengths and key challenges posed by video conferencing. A series of practical short-term and long-term recommendations were suggested for how to improve the implementation of video conferencing as an educational tool.

One of the study’s aims was to produce high-quality research to be published in an effort to improve MHI programs in Kingdom of Saudi Arabia. This research project will be presented and published through the 19th International Conference on Learning, which will be held between August 14 and August 16, 2012, in London, UK. (Appendix H).

10. Recommendations

Some practical recommendations are proposed here that should be considered for improving the utilization of video conferencing in classroom settings. The proposed recommendations are divided into short-term and long-term solutions.

10.1 Short-Term Solutions

- Develop orientation courses for instructors on video conferencing educational techniques, including information on displaying the course content to make it available to all distance students and increasing the amount of interaction with students at each site. This orientation would offer special instructions for how to manage any minor technical issues that may arise and alternative communication methods to use in case of disconnection or serious technical difficulties.

- Create comprehensible protocols and standards for the provision of technical support and backup solutions to assist instructors in managing any crises that may arise.
- Provide online materials; stream live lectures in real time; make lectures available online or offline; create virtual chat rooms to benefit the video conference users.

10.2 Long-Term Solutions

- To enhance the KSAU-SH IT architecture, integrate video conferencing systems both on-campus and beyond the firewall, to support collaboration across universities, in an effort ensure the success of video conferencing. For example, video conferencing can be integrated with Cisco WebEx, Microsoft Lync, Adobe Connect Pro, or other similar video and content sharing interactive solutions to provide adequate alternate/backup solutions.
- Create virtual classrooms that support second life courses for training purposes.
- Make course delivery more focused on an “e-learning” approach as opposed to the current approach of “live” and “interactive” course delivery. This would create more flexibility for instructors and diffuse some of the stress associated with dealing with classrooms in different regions simultaneously.
- Create a database of curriculum and improve the learning management system by uploading all course content to it.
- Create forums or online discussion groups to facilitate student interaction and knowledge exchange.

10.3 Specific Advice for Individuals Using Video Conferencing, as Suggested by this Study’s Participants

- *“The first meeting with students should be face-to-face, where the students attend the class physically, to allow the students and their instructor to get to know each other before video conferencing is used”*
- *“Using teleconferencing as a substitute for video conferencing if there are any serious issues with the video conferencing equipment”*
- *“Record the video conferencing sessions as back up in case anyone misses them or misses part of them”*
- *“Use video conferencing equipment designed for educational purposes, not for meetings.*
- *“Allocate the adequate network bandwidth required for video and audio transmission”*
- *“Train instructors regarding how to teach via video conferencing, including advice on speaking loudly, slowly, and pronouncing words clearly”.*
- *“Instructors should use wireless microphones to avoid any audio disruptions”*
- *“Instructors should use pointers to point to the board instead of using their hands”*

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12. Appendix (A) Research Project Timeline

Task	Work Hours (Min-Max)		Targeted Date	Deliverable
Research project overview <ul style="list-style-type: none"> ▪ Description of KSAU-HS and NGHA ▪ Overview of Master of Health informatics Program ▪ Overview about the video conference implementation 	7	10	January 09, 2012	The research overview ready for the research proposal
Identify the purpose of the study <ul style="list-style-type: none"> ▪ Identify the research problem ▪ Identify the research project goal and objective 	2	8	January 11, 2012	The purpose of the study, goal and objective ready for the research proposal
Identify the research methodology <ul style="list-style-type: none"> ▪ Define the research problem and review litterateur ▪ Determine and identify the research design <ul style="list-style-type: none"> ▪ Setting ▪ Sample size ▪ Research perspective ▪ Determine data collection methods 	5	20	January 15, 2012	The purpose of the study, goal and objective ready for the research proposal
Determine research methods and procedures <ul style="list-style-type: none"> ▪ Identify validity and reliability to test the study design 	1/2	2	January 15, 2012	The research methods and procedures ready for the research proposal
Identify the ethical consideration	20	35	January 21, 2012	Receiving the research project approval and the informational and consent sheet was ready for the research proposal
Prepare and Submit the research proposal	70	86	January 25, 2012	Submitted the research proposal
Prepare and Submit the research paper abstract for publication purposes	2	8	February 9, 2012	Submitted the Research paper abstract to the 19 th International Learning Conference

Data Collection instruments <ul style="list-style-type: none"> ▪ Distribute the information and consent sheet ▪ Distribute the link of the online survey ▪ Collect data through none-participant observation ▪ Conduct the instructor interview <ul style="list-style-type: none"> - Instructor interview transcribing ▪ Conduct the focus group interview <ul style="list-style-type: none"> - Focus group interview transcribing ▪ Collect data from video recording (Ethnomethodology) <ul style="list-style-type: none"> - Ethnomethodology transcribing 	250	350	February 29, 2012	Files of the interview transcribing and notes, focus group notes, observation notes, survey results and video recording evaluation criteria ready for data analysis.
Data analysis and managements <ul style="list-style-type: none"> ▪ Qualitative data analysis ▪ Quantitive data analysis 	100	150	March 13, 2012	Files for data analysis ready.
Data interpretation and discussion <ul style="list-style-type: none"> ▪ Write the manuscript of the research paper 	225	300	March 25, 2011	First draft of data interpretation and discussion ready Draft prepared for publication
Prepare the PowerPoint presentation slides	6	8	April 4, 2011	Project PowerPoint Presentation slides ready
Total	688	977		

13. Appendix (B) Instructors Interview Notes

Instructor Interview Notes (1):

Date: March 18, 2012

Time: 01:00 pm

Instructor name: Dr. M (Professor 1)

(<) For interviewer

(<<) For participant

“Italicize—can be used as nice quote”

1) Do you encourage the formation of groups for group activity to be between students from different sites?

“What I do personally is let them to make their own group their own area. I also treat them [the students] almost separate and when it comes to discussion I seek the different perspectives at the same time, but find having group activity from different sites is really difficult to do because the distance between each other, space and time”

2) Do you provide video conferencing meeting with outside the schedule video conferencing lectures for questions or additional clarifications?

No, only through email me or phone

3) Is there reason why you haven't used VC for any meeting?

Usually I prefer using email. Students can send me documents to read it in advance to give them feedback about it. Even if they want to reach me through phone, what I do is sending me the document first to give them comment then send it back with my comment. Then they can call me to go through document together...So video conference or telephone can not share the documents that need to be discussed during video or teleconference, otherwise lots of discussion get lost unless the discussion was for exam or rather than that they can phone me.

4) Are there any benefits of video conferencing for you as instructor?

Teaching student in local area and outside local area (teaching students from different sides –you can share information and the knowledge with others.

5) Do you think VC can be used as a tool for knowledge sharing?

The more people we have are less the ability to knowledge share because we cannot give the opportunity to everyone to speak. When we reach 25, 30 students it is heard to do group discussion and to be open for all, but *“with 20 students or a lesser number of students, the knowledge sharing experience works good—yes, you can do that and having video conferencing from Damam, Jeddah and Riyadh using different perspectives, different areas of the same organization”*

6) Have you ever attended a training session to learn how to use video conferencing?

“No, unfortunately I think years ago I read study about video conferencing and what color blouse to wear, how to speak; but I forgot it all and I never read it before the class. It would be great to have a training session”

7) For the purpose of this master of MHI program you have never received formal training, instruction or guidance in using video conferencing?

“Not formal training only informal--no anything from the university about interacting with VC (Relaying on my personal awareness and effort only).

I got some details about the program but not related to using the video conferencing”

Do you think would be useful for you to have some training on it in advance or having some instruction or guidance? Or do you think it won't a matter either way?

<< Defiantly, I wish to have some training—especially with the technical pieces because a lot of technicians areSo, yes << *“I wish to have basic training like fixing, how to set it up, what where and how to speak how to look all these staff and so forth would be helpful.”*

8) Do you think it is better if distance students have close up to your face?

No, I really get shy from the camera, I prefer distance students to look to all my body rather than my face because students can follow my smiling, my expression, and so on .

It would be great idea if someone can zoom in and out and take that into consideration to make the instructor more comfortable.

Regarding the video recording session, I am really uncomfortable to do so since I will be more formal and be more open for formal discussion only.

“My teaching method would be different with recording the session, it makes me accountable to be more formal rather than informal I don't know why..”

9) Would you object recording the session?

Yes, I would object 100% object..

< Justifying in your reason of the 100% object the recording—Do you find the recording intrusive?

Yes, I would actually it is like afield of discussion, like things going on discussion that have been so sensitive—*“having the recording that restrict me, and instead of focusing on actual lecture, I'll focus on what I'm saying –be careful –it will make me very formal, stick to the slides, no other outside discussion---like when we bring out other discussion and other things I might be cultural sensitive – like people here are restrict to speak about certain topics certain people, and so forth”*

< Do you think outside the recording (without the recording) just having video conferencing camera in your classroom—do you feel VC is intrusive?

I am okay with VC because I have the job to do I think it is not about intrusive it is annoying sometimesI find VC is useful especially for distance students so instead of flying to attend the class it would be better to use VC. Maybe even for local student in Riyadh sometimes it is more difficult to

move if student is out of town and want to come to the North it might take one and half hour it is really stressful to do, really doing VC is really helpful for the students. *“As much the student would be beneficial of using VC I don’t care about my perspective if really having a recorder will add much value for the students I would accept the recording because I really want student to have great benefits”*

10) Would you mind having something like adobe connect or WebEx in addition to the VD o allow student attend the lecture from their own home if there was stuff like traffic or something came up..

Honestly I would love to do that, I don’t mind the whole lecture to be through WebEx I think it would be great –it is much easier to do it from home, having some student face to face and some from distance area need specific skills and it is sometimes hard to do—*“that rather than that you prefer to have all students to be distance or all of them accessing the lecture remotely rather than have some of student in the classroom and some of them on VC –I think this is disadvantages of using VC . How about having some of the students in class room and the other from their own home—that’s what I mean I prefer all student to have either way.. All of them distance or all of them in class—that’s because your mind would be in two places at the same time—it may take your mind in some unconsciousness level, present people and be more engagement with them the than the other –like you know their names, can see their faces however with distance I cant do that..is only one methodology of teaching them..”*

11) Have you ever had technical issues in your classroom?

Yes many,

12) Was there any alternative solution in case any technical problems arise with the video conferencing equipment?

Students usually writing down the lecture and the discussion part then pass it to the other students who were not able to hear or follow us

13) Do you think a back up solution or back up policy should be put in a place?

Yes, it is really should be, like take the simplest approach like teleconference to get them on the phone, just voice, provide them with the slides and any document in advance—so when they disconnect with us we can easily switch to teleconference.

“VC offers seeing the professor, but I think initially the professor should visit the student in the different sites get closer with students, good opportunity to know the students and make a social relationship with them”.

“Recommending that professor who need to visits his/her student in each site because it would be difficult for all the students from different sites to do the same. Recommending that the first meeting should be face to face and attend the class physically to allow the student and their instructor to know each other (like know their names and faces) and after that you start using the VC”

14) Can you tell us about any challenges or limitations of using video conferencing as a teaching method?

- Planning is the key—I think having a proper planning method for good technical staff, training for the professor and having good technical support. Planning is important to take decision.

- Student's attention is more focused with the professor rather than the content

15) Do you have any other advantages of using VC?

From learning perspective, students are focusing more in the discussion rather than the content and the person.

Also, no need to look at the professor all the time they can write notes or something like this.

Distance students have more freedom to focus on the presentation or something else rather than face-to-face student who need to have eye-to-eye contact.

“All distance students did well in my class; I think the distance student did well to prove themselves, more self-reliant on their studies.”

Instructor Interview Notes (2):

Date: 31 -03-2012

Time: 11:00 am

Instructor name: DR. B (Professor 2)

Do you use video conferencing meeting with outside the schedule for questions or additional clarifications?--No

Do you think, it would be useful for additional session or not needed?

- Yes, it would be useful if required—if students have question in their research and be useful for off camps students

Are there any benefits of video conferencing for you as instructor?

As instructor not really, but there are some benefits for students like to get information off camps

What are the benefits for the students?

-Participating in the course from different from different cities—distance students get opportunity to participate and be in class at the same time with their colleagues who are using the traditional methods (like blackboard , discussion group) of being in class.

Have you ever attended a training session to learn how to most effectively use video conferencing?

-Not at all, which would be great if we can have some training because I feel like what I need to do, lost if I miss the connection and the student usually told me what I have to do or getting the technician to come back to the class to set up the connection

Are there any alternative solutions in case any technical problems arise with the video conferencing equipment? Or there is any specific policy to handle it?

-No, cancel the class depends on the severity of the problem. Like one time we had a power cut in the local area and we lost the connection with distance students. At that time we were able to continue the lecture for the local student since we have handout of the lecture, but the problem is the other student

were not able to see or hear us so cancelled the class. I didn't use any other option or alternative solution to handle this problem.

As you mentioned you had power interruption in Riyadh? What happens if any other region got disconnected due to power interruption or bad whether in Jeddah or Damam?

-If that were happened with both regions I would stop the class as well. Like one time it happens with Damam region only, so they connected with us and with their colleagues in Jeddah through computer so I was able to see them but not hearing them.

<To clarify, there is no clear policy for the instructor to carry on the class session and no clear policy for any alternative solution. <<yes, exactly

Do you think you would benefit of having clear policy for same circumstances or o you prefer to leave it for discussion by instructor?

-I think both. Clear policy is great. But leave it for the instructor to discuss it is beneficial due to sometimes not clear policy put in place-- in which circumstances that can be used.

As the instructor, do you have a specific strategy to involve all of the students in your class, from different sites, in a discussion? And how do you ensure that all students have participated?

-To be honest, it is difficult—but I usually ask the students in Riyadh if they have specific question, or ask students in Jeddah if they have specific question as well as in with Damam students. It dose take more time than being in one class, and we did try to get them interact as much as possible and encourage them to participate in any class discussion. But properly I couldn't get them as much interaction as the students in Riyadh

Are there any challenges or limitations of using video conferencing as a teaching method?

-Don't know what is the class environment in other region, or what is the class interaction or discussion in other areas.

- *“Teaching individuals from different prospective in three sites... allow instructor..... and give them enough time to prepare the materials and make it available for their students in advance” (advantage)*

Do you have problem in administrating quiz or exams?

-Not really, except of being sure that there is someone to observe the student while they are administering their exams, distribute the exam paper to the students rather than that there is no problem.

Do you need additional administrative support in the other sites; VC is not enough and you think is it helpful if you can have administrative support in the other regions?

-Defiantly, it will be easy to contact the other regions' students. I have no problem with Jeddah student since they have admin support, but we need the same for Damam students.

Do you have any recommendation to improve using the VC?

-More technical and administrative support for all three regions.

If we are designing the class model for the three regions, what do you think is the best design?

-Having a computer set up to enhance student to access their materials.

Do you prefer to have all students in all regions via VC and teach them from your office?

-It could be but I still have some respect of having the environment of the classroom, to interact with the students. While I am teaching it is important to see their body languages, eye-to-eye contact and how they are feel when they are interact with me.

Are there different dynamics between Jeddah's student and Damam's students or no differences as they distance students are behave the same?

-I think there are different dynamics between Jeddah and Damam student.

Do you think depends on the classroom set up differences?

-Defiantly, since Jeddah's students are sitting around a conference table, while Damam students are sitting in a horizontal line

So which set up do you think is better?

I think Jeddah's setup allows students to interact more easily especially when we have group discussion—since they can discuss easily together, but Damam setup allows students to focus and pay attention

I really want them to be happy, enjoy the way they are setting but some time I need them to be focused and to be paying attention for the lecture

For better focus and better attention straight line, facing the VC is better, but for group discussion and sense of community round table is better

What do you think about video recording the class session through VC?

I don't feel comfortable with that—verbal recording is OK as I can use additional material—but I don't feel comfortable with having VR that can so seen over Andover again.

14. Appendix (C) Focus Group Notes

Focus group (1)

IT Technician in Jeddah

March 02, 2012/ 10:45 am

How many videoconference or (Polycom) do you have in the colleague?

3 VC –one in the MHI classroom, one in the MME classroom and one in the library

What is the purpose of having one in the library?

It is used for meetings and conferences; also, any of the Polycom in any places inside the college can be used for meeting or teaching. But it should be booked and scheduled it ahead to prepare the room.

Would you please explain to me basically how it (Polycom) works? i.e. like the main function of VC or Polycom?

It is basically connected to other sites like for example, in Riyadh and Damam, all sites are using the same networks--it used for meeting for students take up master—Polycom equipment is capable of handling multisite specifically the Riyadh site has the functionality of accessing different nodes or different sites like Jeddah & Damam.

In MHI class we are doing sessions in Riyadh, Jeddah & Damam, but in MME class we're doing session between Riyadh and Jeddah only but it also has the capability of connecting with multisite.

To connect one site to other you are using Internet IP--Yes, we are using IP address, and it is specific ID given by network department to have full access to the Internet—the network department is available in NGHA hospital in Jeddah

What is the main component of Polycom?

Camera, 2 screens, microphone, remote control, CPU that is available inside the box it is like a computer

Why do you have 2 monitors connecting to the Polycom? Is it regular to have 2 monitors or you can use one only?

It can be one monitor only but it is better if we have 2, one for our site and one for the other sites—also we can use one for sharing content like PPT presentation so we can specify left screen for the PPT and the right screen for seeing the other sites, which will be difficult to do so with one monitor. Because if we have one screen only, we will have small windows or small boxes to show the different sites, in addition to the PPT presentation which will be not clear and difficult for the students to follow—that's why it is better in any classroom especially for master students to have 2 screen.

Is it connected with the projector or computer?

We can do that; we have the option to display the content to be projected to the whiteboard.

Is it has a database?

No, it has not any database like SQL –it only has Polycom server in Riyadh for recording purposes and saving the recording with permission.

Video conferencing has any feature of having chat room?

No it hasn't; only the third parties, which is the OCS that has chat room and we can connect to the Polycom.

Is it considered as an open network sharing system, means is it sharing information through central open repository?

It only has storage but no database some thing like that

What are the major technical issues that you are facing throughout dealing with VC?

“The only problem is the connection based on the bandwidth means if the bandwidth slow the connection will be affected, however it is usually fine the only problem is from Riyadh site”

If you have a representative in Jeddah, do you have specific preparation?

There is video conference reservation system that used to book the room— it books schedule time for the meeting, classes. But because the MHI conference room has regular classes, so no need to reserve the room in advance. It is a fixed schedule. What we do is some testing to the picture and the sound.

How do you inform the student about any changes in the schedules?

Admin. assistant in Riyadh will inform us about any changes and then we inform the admin assistance in Jeddah to inform the student.

How do you share power point presentation from Jeddah with the other sites?

There is a cable that connected with the Polycom and it can connect with any laptop to desktop—we use the laptop or the desktop to display the PPT content

Roughly how many times you called for technical support each class?

It depends; some times once or twice and usually no one call us, since we have the ability to monitor the class from our offices

If there are any technical issues from other sites, do you have any responsibilities about that?

No it is not

How often do you do VC maintenance?

There is no specific maintenance for the VC, we only check the camera, screen and the microphone

If there is technical problem do you have alternative method to handle the class session instead of losing the class?

Using OCS

When you video recorded the session using the VC, where do you usually keep the recording?

“It is usually kept in the Riyadh server, and need permission to access it”

Is there any concerns related using or dealing with VC?

No it is useful and applicable to be used for the educational purposes, meetings and conferences

Focus Group Note

Focus group (2)
MHI students in Jeddah
21-03-2012/ 01:00pm

Do you provided video conferencing meeting with outside the schedule video conferencing lectures for questions or additional clarifications?

--They never used it for any meeting rather than the class sessions—sometimes they used it for general discussion before starting the session -- they used to use OCS.

Do you contact with other student through emails or phone?

--Yes, with Damam student only since they are NGHHA employee, and we have a good relationship with them; however, Riyadh student are not and we dot contact them usually.

When you having a group work activity, do you prefer to work with your collages from your region or from other region?

--In class—we prefer to work with students from our region due to the low bandwidth sometimes that resulted a very bad connection.

Off class—I would prefer working with either ways since we have other methods to contact with each other such as (emails, phones, OCS & MSN)

Do you prefer to turn off the Microphone or keep it on?

--All students were strongly agreed to turn it off—since it is more freedom to do the same. According to them “ as a master students and mature people we have the right to put it in mute and everyone can control his or her behavior no need to left it on to watch our behavior; is the same if we are taking an online course or if we attending the session from home, so each student can manage and control him or her self.”

Do you have any suggestion for improving VC?

--Training –“ *train the instructors to be familiar of how to speak, pronounce specific words, where they're supposed to stay..... instructors do not know how to present materials and share it with other sites, how to be sure that the content was displayed in each site—they need to know how to share it*”

“Instructors are not aware about basic things or methods for re-connecting with the students in other sites if any sudden disconnect arise –they usually waste time in calling for technical support while it is so easy to do and they should be aware about it”

“Equipments—Camera should be focused on the person who is speaking. It will be better if instructors can use laser pen to point out anything in the slides. Providing instructors with bluetooth microphone to hear their voices clearly”

Which method do you prefer to use for learning; VC or physical availability with instructor?

VC-- Students who prefer using VC stated, “ VC- is more freedom—either way of learning I do not relay on the teacher, I relay on my self learning. I cannot concentrate for 3 hours on VC.

The class organization which contain a conference table and all students seating around the table make students have more freedom to speak, pay attention with something other than the lecture.

Physical availability—is more practical to gain information.

How do you rate attending classes in the different sites (Riyadh, Jeddah & Damam)

Based on one student who attended sessions in the three sites stated “ I can focus more in Riyadh since the instructor is available there, the same I Damam since their seating position in one line that make students focus more and most of Damam students pay attention to the lecture most of the time, do not have side discussion or class interruption as Jeddah’s students.

During the class session do you prefer to turn the microphone off? Why?

Most of the students were strongly agree to keep it off—as it mentioned they need to have a freedom as they are mature enough to control themselves and they do not need to be monitored by the their instructors

Are there any benefits of video conferencing for you as a student?

Some quotes “ *acceptable methods* ”

“ *Feel in educational institution* ”

“ *VC is good* ”

“ *freedom* ”

“ *More relax* ”

“ *This course is not available in Jeddah so its great benefit that we are able to apply on the program and attend the lectures through using Video conference* ”

How do you evaluate your knowledge sharing and exchange through the use of video conferencing?

--One of the student mentioned that “ *Video conferencing is effective since having class presentations, or activities with different students in different sites enables sharing and exchanging knowledge—especially with the students who are employees in the IT department like we are; and working in the same institution with the same policies but in different sites—we definitely share ideas and give deep insight based on different experiences to handle similar problems* ”

--Another student argued that since “ *using VC is not facilitating knowledge sharing among students due to the inability to focus on the lecture, and due to ineffective class participations during the class session or class discussion* ”

Are there any challenges or limitations of using video conferencing as a teaching method?

-“ *The limitations are concerning the program organization itself. Students in Riyadh and Jeddah have good facility, good administrative and technical support. However students in Damam are lack of all these supports, they also have no specific institution to undertake the program. Damam students study in unprepared classroom since they have no specific educational institution* ”.

-“ *Damam students’ classroom is basically a conference room that is used by the IT department staff, that means their classroom was not prepared well to accommodate a class session* ”

How do evaluate your instructor interaction with you as distance students?

Most of the instructors give the top priority in different manners such as asking questions, class cancelation; break time (prayer time) for Riyadh students. According to students, if any class has the need to be cancelled due to bad weather; classes in Jeddah and Damam will be canceled as a consequence. However, if there is a bad weather or any critical situation in Damam or Jeddah; instructor still continue their classes without taking any positive action toward the other sites students.

Also, when any instructor directed a specific question or give the chance to Jeddah student to participate; instructors usual say the question and then say “ Jeddah students do you have any question, or Damam student what do you think about this...” according to the participants this way in encourage the student to participate is not useful which make some student participate more than other

Do you think using VC as a learning tool affecting your overall GPA?

Students noticed that Jeddah and Damam’s students got the greatest results comparing with the students in Riyadh. As a resulted, they noticed that VC has no direct relation to their marks or GBA.

15. Appendix (D) None-Participant Observation Notes

Observation Notes (1)

Course Name: Health Administration

Date / Time: Feb 29, 2012

Instructor Name: Dr. D

Student's Name: J, D, M & K

Time	Observation	Comment/ quotes
2:22	<ul style="list-style-type: none"> - Damam site was not showing, only Jeddah and Riyadh sites were appearing on one screen however power point appears on the other screen. - In Jeddah, camera position was not properly showing the students, it is only showing their face. Microphone is always turned off; students turn it on only when they want to speak to people on the other sites. - Personal or side discussions happen usually when the Mic is off - - Students don't pay attention to their lecture and play on their phones and laptops. - Student covered their faces by their hands and put some objects front of them . - Students are not participating in any class discussion except if the class instructor encourages them to participate. - About Riyadh site, the position of the camera is not proper and hence the students can't be seen properly. - The class has no proper lighting - The Mic position is located over the chair in the middle of the class, which restricts transferring the voice clearly - All Damam students were seated in horizontal line; due to this it was not possible to show all students properly. 	-

	- Also they were so close to the camera and the Mic, due to this all students from other sites are not able to see or hear them clearly.	
2:36	- Damam class was prepared properly, since they have no specific classroom to attend the lecture.	
2:37	- Damam site were appear at this moment.	
2: 42	- Instructor said, “ lets discuss with Jeddah’s students – J start please...	-J informed me that the instructor was teaching a chapter that has already been studied by the students in previous quiz –That made students didn’t pay any attention to it.
2:45	- J started to participate and give his opinion about specific topic and at that time there were some technical issues due to disconnection that cut off the voice and the picture	- Jeddah’s students were so happy losing the connection with other sites which let them have more personal discussions
2:47	-Connection back with interruption in the picture but the voice was clear	
2:55	-Connection is good now.	
2:51	-Instructor stared to read from the slides due to this behavior he couldn’t see his students.	
2:59	-Students in Damam site played with their binder that made noise on the other sites	-One of the students asked question in the quiz —instructor asked to Keep that question till the class ends.
3:00		- Students took their calls and didn’t turn their phone off.
3:10		- J asked his colleague “why Jeddah’s students are never interested in their class - D “I am not interested in taking classes via VC”
3:25		- K. and M didn’t not care about VC. - J said “ attending class physically is better than attending it via VC, I can concentrate more than here” - Also Jeddah student mentioned that they can’t totally understand and recognizes people’s speech and faces through VC.

3: 26	Dr. B still reading from the slides, not discussion between instructor and his students, no any other technical issues arise. Instructor has done from his slides.	-
3:35	- All students from different sites were participating in the class discussion at the same time that resulted undesirable interruption in the class.	- Instructor asked “ is there any question— Jeddah student who was asking question about the quiz—please can you repeat it”
3: 40	- Class has done	- At this time—Jeddah’s students gave full attention to their instructor and turned on their microphone.

Observation Notes (2)

Course Name: Information Technology and Management **Date / Time:** March 3, 2012

Instructor Name: Dr.B

Jeddah’s Students: J, D, M & K

Time	Observation	Comment/ quotes
02:00	--Class Time—class started, while the instructor didn’t arrive yet... --Damam students were not showing up, only1 student in Jeddah and 3 Riyadh sites available and the picture was appearing in the Rt. screen --Camera showed the whole class. --Mic was turned on and side discussion was raised between Jeddah and Riyadh students --Voice and Picture was clear..	-
2:04	--Damam site was disappear from the screen	
2:06	-One of the students arrived	

2:06	<p>- Camera's position in Jeddah classroom was changed to catch students' faces only—we couldn't see what they are doing in the class means the camera did show if students paying attention with the lecture or busy with another things. -Mic Turned off.</p>	
2:12	<p>-Instructor was arrived— --She asked about Damam student since she couldn't see them</p>	<p>--She didn't apologize for being late.. --She mentioned "" Damam students can you hear and see me—Yes, Dr.B" -At this time there was a separate window that showed Damam student in the Rt. Screen.</p>
2:15	<p>--Power point appears on the Lt. screen. --It was so clear.. --While sharing the ppt. Dr.B. had discussion with the students about the given assignment-----></p>	<p>--She asked “ Riyadh, Jeddah Damam did you received the assignment—anyone has question or concern in regard it--- <<“Student in Riyadh said—no it is clear” -How about Jeddah and Damam students”” << Jeddah student turned on the Mic and said—no thanks Dr.B.. -Damam student didn't response to the instructor Because of that Dr.B. stated “ Damam Student why are you salient and so quit today... please join us ...any question in the assignment” → No, thanks DR.B.</p>
2:30	<p>--Since no comment or concern from the different sites, instructor has started her lecture.</p>	
2:30	<p>- At this time microphone was turned off and personal or side discussions started between Jeddah students.</p>	<p>→I noticed that students' behavior is completely different when they turned off the microphone—they always busy with other things rather than the lectures—side discussion that are not related to class always arise—answering personal calls during the class—working on assignments from other courses—participating or commenting in any part of the lecture was very rare unless they asked to participate by their instructor. I also noticed that the (B—the person who serve coffee to the staff faculty, used to bring coffee to the student inside the class which made a lot of interruption and this behavior couldn't happened if the instructor were physically available</p>

2:39	<p>- Instructor 's positions was very far than the camera, and since she was moving back and forth the voice wasn't so clear</p>	<p>→ I noticed that since the camera's position in Riyadh classroom was located at the end of the class, people in Jeddah and Damam can't see the instructor very good and can't see Riyadh student at all. That meant the students didn't pay any attention to their lecture and made them busy with other things</p> <p>- Student coved their faces by their hands and put some objects front of them to be hided.</p> <p>- Students are not participating in any class discussion except if the class instructor encourages them to participate.</p>
2:45	<p>--Students were call for the TI technician not because of any technical issues but because they need an outlet to charge their laptops.</p>	<p>→ Calling IT technician for providing student with outlet make a lot of interruption in the classroom—that made the instructor in Riyadh noticed that there were something wired in Jeddah classroom—then she asked “ Jeddah--Do you have any problem”—student said” No Dr.B. everything is fine—but those are the IT technician cam to install something in the class—Instructor said “ OK that's fine—lets continue”</p>
2:50	<p>-Connection was very good since we started the session till this moment.</p>	<p>→So I found out that the interruption in Jeddah classroom affected the other sites and made interruption in the different sites..</p>
2: 53	<p>- There were noisy sounds in the Riyadh building that made undesirable noise and led to lose the concentration to the lecture.</p>	<p>→Any interruption in one site specially in the instructor's area that affected the different sites</p>
3:05	<p>At this time Dr.B. has asked all student in the different sites about their choices of their research topics..</p> <p>-Riyadh students started to discusses their topics with Dr.B ---then instructor asked Jeddah student about their choices and she asked every one of the students separately and she commented on their topics and encouraged other students to give their opinions about their colleagues' topics—Then she did the same with Damam students.</p>	<p>→ I noticed that Dr. B. has the ability to manage her class discussion—she was able to involve her student in the different sites in any discussion.</p> <p>→ When she commented in any concern or any questions she used to give examples from the real life or from her personal experience—she also, asked other student to give their opinion and share their personal and practical experience to allow students to learn from each other..</p> <p>-and from time to time she used to ensure that all students in the different site are following her and</p>

<p>3:27</p> <p>3:35</p> <p>3:49</p> <p>4:00</p>	<p>--Since we started the class we didn't noticed any technical issues specially between Jeddah site and Riyadh area—voice and picture was clear..</p> <p>Dr. B. stayed close to the instructor's PC, mean she went away from the microphone..</p> <p>Dr.B resumed her class.</p>	<p>they can hear and see here clearly</p> <p>--During the personal discussion among Jeddah, student's, they pointed an important point which was attending classes via VC has some advantages and disadvantages...advantages like having freedom to talk to eat to do whatever they want during the class, and taking the class from their site no need to be away of their places to join the courses...disadvantages like they can't concentrate in the lecture from the begging till the end.</p>
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16. Appendix (E) Ethnomethodology Evaluation Criteria

Date/ Time: March 21, 2012

Course Name: Health Administration

(Score out of 5, which is the best)

Criteria	Comments	Score				
		1	2	3	4	5
1. Technology						
Internet connection	Good				4	
Video quality	Acceptable			3		
Audio quality	Acceptable			3		
Screen quality					4	
Interruption	Minor interruption in the picture			3		
Microphone's position	In the instructor area is on the chair at the middle of the class		2			
Microphone situation	In the distance area was off		2			
Camera's Position	Focus on the students and instructor faces		2			
2. Class environment						
Specific and prepared classroom was prepared to accommodate the lectures	Jeddah—very good In Riyadh –acceptable Damam—poor		2			
Classroom was adequately lit	Jeddah—very good In Riyadh –acceptable Damam—poor		2			
Student's position was suitable	Jeddah—very good In Riyadh –acceptable Damam—poor		2			
Camera's position was enhancing student from different site to see their colleagues and instructor	Not properly		2			
3. Support Services						
Technical support was mostly available	Sometimes			3		
Instructor was adequately	No	1				

knowledgeable about the technology						
4. Course Content & Student Achievement						
Students interaction	Acceptable				4	
Share opinion thoughts and Knowledge	Most of the time				4	
Share different experiences in specific topic	yes				4	
5. Students' attitude						
Students paid adequate attention during class	Sometimes		2			
Class participating was adequate and effective	Most of the time			3		
Side discussion during class time	Yes		2			
Positive comments and feedback was provided	Sometimes		2			
Clarification questions	Yes				4	
Students were enthusiastic about the course, and were open to other students' views and opinions and gain more knowledge from their experience	Yes				4	
6. Instructors' attitude						
Instructor was able to lead the discussion in an appropriate manner	Not properly		2			
Encourage discussion and participations from different sites	Sometimes		2			
Instructor was well organized and sufficiently prepared for each class	Yes				4	
Instructor was enthusiastic about the course, and was open to the students' views and opinions and gain more knowledge from their experience	Yes				4	

17. Appendix (F) Information and Consent Sheet

Teaching Postgraduate Health Informatics Courses through Video Conference Supported Collaborative Learning Environments



Information and Consent Sheet

This research project is designed to determine the effectiveness of teaching postgraduate Health Informatics courses through videoconference supported collaborative learning environments.

You are invited to participate in this research project. Your participation is voluntary. Participation involves a 30 minutes interview or 30 minutes focus group, or completion of a student survey.

For the purpose of the study, four classroom sessions will be video recorded. Appearing in the camera is optional, if you do want to appear in the camera; you have the right to inform your instructor of your preferences and you can change your seat and select another place that is not facing the camera. You may request that the recording be stopped at any time. The instructor interview will be also video recorded. All video recording will be highly confidential; password protected, archived in KSAU-SH, and then will be destroyed within one month.

You are under no requirement to participate in this study and should feel free to decline. Even if you decide to participate, you may withdraw from the study at any time. You will not be penalized for not participating or for withdrawing. No information that identifies you personally will be collected. Your participation will be anonymous and all information will be kept confidential.

If you have any questions or would like to receive further information about the project, please do not hesitate to contact: If you agree to participate in this research project, please read the below statement and sign your acknowledgment,

Principle Investigator:
Dr. Taghreed Justinia, Assist. Prof. Health Informatics,
KSAU-HA.
Tel. No.: 026240000 ext: 26217/26210
Email address: JustiniaT@ngha.med.sa

Co-investigator:
Ms. Hanin Abdulhameed Shalaby,
Research Intern, Dalhousie University.
Tel. No.: 026240000 ext: 26220
Email address: hn918438@dal.ca

I

agree to take part in the project mentioned above. I have been given an opportunity to ask questions about the project. I understand that any questions I answer will be anonymous, and that my identity will not be disclosed at any point. I also understand that my participation is completely voluntary, and I may withdraw from the study at any time.

Name of participant

Sig nature

Date

18. Appendix (G) Research Approval Letters

King Saud bin Abdulaziz University
for Health Sciences



جامعة الملك سعود بن عبد العزيز
للعلوم الصحية

OFFICE OF THE VICE PRESIDENT
TECHNOLOGY & HEALTH INFORMATICS

☎ 43668 📠 43734 📠 2302
Email: CPHHI@ngha.med.sa

Ref#: VPTI/5/2012
Date: 18 January 2012
24 Safar 1433

MEMORANDUM

To : **Dr. Taghreed Justania**
Assistant Director, Information & Communication Technology
King Saud bin Abdulaziz University for Health Sciences

From : **Dr. Majid Al Tuwaijri**
Vice president, Technology & Health Informatics, KSAU-HS
Dean, College of Public Health & Health Informatics, KSAU-HS

Subject: ***HI Internship Program in Conjunction with Dalhousie University***

Congratulations in obtaining Health Informatics Internship program experience with Dalhousie University.

This will be an added prestige not only to the College of Public Health & Health Informatics but the University as a whole having produced a student of their level.

Congratulations once again & looking forward to more internship with Dalhousie University.

Best regards,

CC: H.E. Dr. Bandar Al Knawy, President, KSAU-HS & CEO, NGHHA with regards.
Prof. Youssef Al Eissa, Vice President, Educational Affairs, KSAU-HS with regards.
Dr. Abdulmajeed Al Abdulkareem, Vice President, Postgraduate Education, KSAU-HS with regards.
Dr. Mohammed Al Jumah, Vice President, Research, KSAU-HS with regards.
Prof. Hassan Baaqeel, Dean, College of Medicine, Jeddah, KSAU-HS with regards.

AssafZ

19. Appendix (H) 19th International Conference on Learning Acceptance Information

Accepted Abstract for Research Project and Confirmation of the Acceptance

Teaching postgraduate health informatics courses through video-conference supported collaborative learning environments

09/02/2012 11:53

Teaching postgraduate health informatics courses through video-conference supported collaborative learning environments

By: [Dr. Taghreed Justinia](#), [Ms. Hanin Shalaby](#)

Postgraduate learning no longer needs to be confined by geographical location. Traditional teaching methods have evolved with the aid of technology. Virtual, distant and collaborative learning environments have redefined the classroom experience. This paper more specifically examines using video conferencing technology within a postgraduate Health Informatics programme where students attend the same lecture from one of three classrooms located in different cities. The instructors deliver the course from one of the locations, while student in the other two sites interact with their instructors and other students via video conferencing. This paper discusses the setup, technological issues, knowledge management concerns, content sharing, collaboration methods and alternate backup solutions as they were observed; and from students' and instructors' perspectives. The dynamics of the 'video conference classroom' interaction are explored in detail through an observational ethnomethodological study and findings are triangulated using interviews, focus groups and a survey. Practical suggestions and key challenges are highlighted and recommendations are provided.

To add a paper, [Login](#).

Keywords: Video conference, distance learning, e-learning, virtual classroom, virtual teaching, collaborative learning, content sharing, collaborative learning, ethnomethodology

Stream: Technology in Learning

Presentation Type: 30 minute Paper Presentation in English

Paper: A paper has not yet been submitted.

Dr. Taghreed Justinia

Assistant Professor Health Informatics / and / Assistant Director Information & Communication Technology, Information Technology & Health Informatics, King Saud bin Abdulaziz University for Health Sciences Jeddah, Saudi Arabia

My background and experience are in the Information Technology (IT) and Health Informatics fields. I have a special interest in IT leadership, in organisational behaviour and the socio-technical aspects of applying Medical Informatics solutions; in leadership and change management; and in organisational strategy. As an IT executive, I have a special interest in strategising and planning of healthcare IT projects, leading and managing large-scale corporate change programmes, and improving healthcare and IT through quality management. On the academic side, I am involved with graduate and post graduate teaching and in defining educational Health Informatics curriculums on BS, MS and PhD levels. I am also involved with developing training programs in Health Informatics for healthcare professionals. My research interests are in the above mentioned areas as well as in qualitative research and I hope to encourage qualitative research methods in a largely quantitative field. I to be a positive role model for women, wives, and mothers who choose Health Informatics or IT as their careers and have enjoyed my academic and practical roles in both areas.

Ms. Hanin Shalaby

Masters Health Informatics Student, Faculty of Health Informatics, Dalhousie University Halifax, Nova Scotia, Canada

I have a background in Nursing and in the final stages of my Master of Science in Health Informatics.

Ref: L12P0757

Dear Ms. Hanin Shalaby,

Thank you for your proposal for a 30 minute Paper Presentation at the 19th International Conference on Learning, between 2012/08/14 and 2012/08/16. This proposal has been given the ID L12P0757 which should be quoted in any inquiries, and may be viewed online at:

<http://L12.cgpublisher.com/proposals/757>

Proposals are reviewed within three weeks of submission.

This is an automatically generated message. We will, however, respond as soon as we can to any email replies you may send to the above address.

Yours Sincerely,
Homer Stavely, Ph.D.
Conference Program Development
Learning Conference