



University of Bahrain
College of Health & Sport Sciences



Are we ready for e-learning after COVID-19?



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Session Learning Objectives

1. Highlight the e-learning tools used at College of Health and Sport Sciences (CHSS) in Biomedical Sciences courses.
2. Exhibit the effectiveness of e-learning tools used at CHSS through research outcomes.
3. Demonstrate the strategic approaches and teaching philosophy for e-learning at CHSS.

E-learning

- E-learning has been introduced as a tool in the learning process in many international universities and it has been defined as “anything delivered, enabled, or mediated by electronic technology for explicit purpose of learning” [Cheng, 2006].
- E-learning is used as another option for face to face education due to the increase of the number of students.

E-learning

- During the past few years, much effort has been undertaken by College of Health and Sport Sciences (CHSS), University of Bahrain, to maximize the benefits of implementing e-learning tools in the curriculum.
- Blended learning approaches have been used in number of courses at the College. I have used it since 2003.
- However, COVID-19 pandemic highlighted online learning with a rapid deployment of virtual learning using different ICT tools and all the instructions moved to virtual settings with changes in teaching strategies.

E-learning tools used at CHSS

Before COVID-19 (2004- 2012)

MOODLE, free learning management system, which enables the creation of powerful, flexible and engaging online courses and experiences (Rice, 2006).

MOODLE course was used:

- To create course materials (PPT, text page, web page, URLs),
- To create interactive course material (assignments)
- To create and grade quiz and conduct surveys,
- To allow students interaction (chat, forum, glossary, wiki).

E-learning tools used at CHSS

Before COVID-19 (2012- onwards)

Blackboard was used as open LMS to manage the course content and provide a rich interactive learning experience for students.

The Blackboard course used for:

- Creating Files & Folders (teaching materials)
 - Uploading URLs , multimedia , videos etc.
 - Creating and grading Tests and Assignments
 - Using Discussion Forums
 - Integrating publisher's tools
 - Communicating with students (emails, announcements, etc,)
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- **Microsoft Office 365 (OneDrive, SharePoint, Teams, Forms)**

E-learning tools used at CHSS

Biomedical Sciences courses

Before COVID-19 (2003-onwards)

Other LMS were used such as:

- Online tutorial and homework system. E.g. MasteringChemistry® from Pearson.
- LMS for Online assignment.
- E-textbook from Pearson.

E-learning tools used at CHSS

After COVID-19 (March 2020-onwards)

Blackboard Collaborate Ultra allows:

- Conducting virtual classroom sessions in real time with recording functions.
- Audio and video conferencing as well as PowerPoint presentations, using interactive whiteboard and screen sharing.
- Conducting real-time polling and quizzes.
- Students interaction and participation via classroom chat and hand raising.
- Students collaboration with peers in break-out rooms for small group discussion.

E-learning tools used at CHSS

After COVID-19 (March 2020)

Microsoft Teams as a communication and collaboration platform allows teachers to;

- create collaborative classrooms,
- upload teaching materials,
- used for persistent chat,
- conduct meetings,
- Store file storage
- distribute, provide feedback, and grade student assignments turned-in via Teams using the Assignments tab.
- Create quizzes through an integration with Office Forms.

E-learning research at CHSS

- It is evident that there are extensive benefits of using e-learning tools in education for its users (students).
- Thus, number of studies were conducted at CHSS:
 - to evaluate the e-learning tools used and,
 - to assess student's perception, attitude and acceptance of e-learning tools.
- Results from such studies increased the awareness of what is required to optimally facilitate e-learning and also helped in improvement of the e-learning implementation as well as it provided indicators of students' acceptance to e-learning.

E-learning research at CHSS

- In 2012, a study was conducted to evaluate how the students perceive the use of MOODLE as a tool in the e-learning process in order to improve the quality of MOODLE based instruction.
- A questionnaire was designed consisted of number of categories:
 - course content
 - course appearance on MOODLE
 - links, audio-visual aids
 - teacher's role
 - assignments
 - tests and grades
- 211 students registered in 9 courses participated in this study.

E-learning research at CHSS

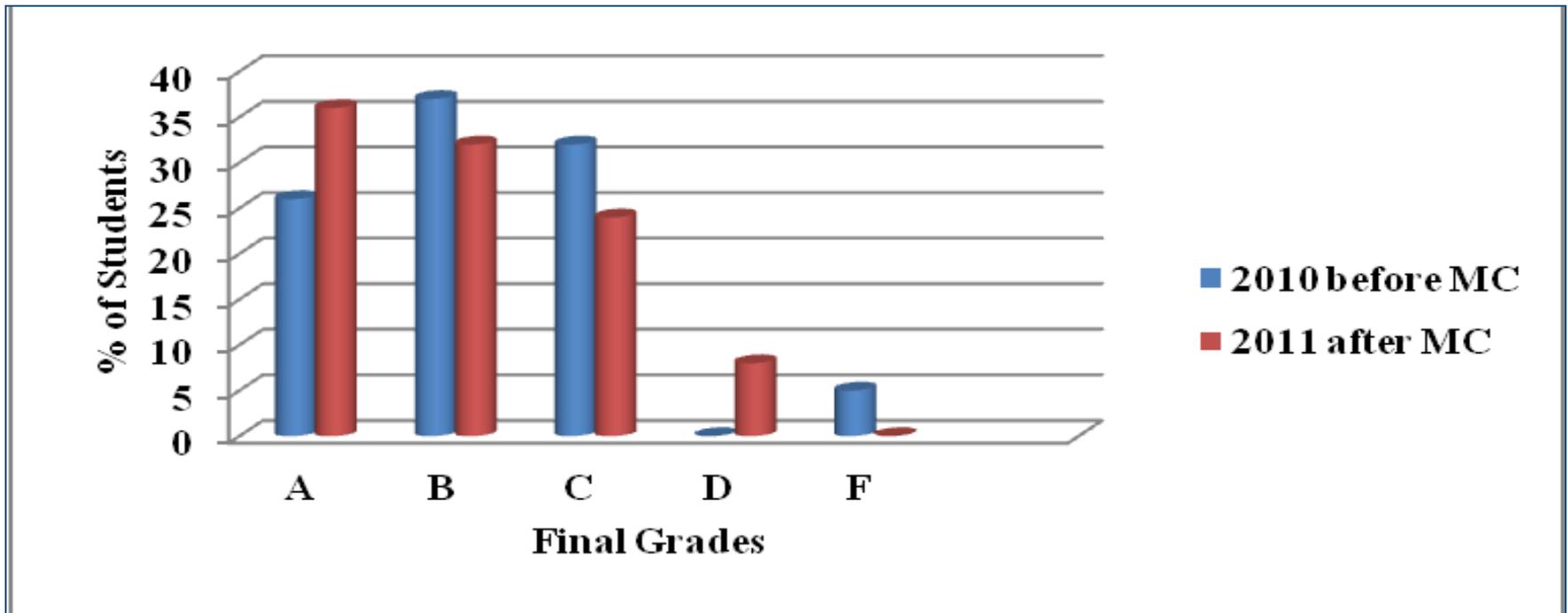
- Overall, results indicated participants' positive responses on the benefits of using the MOODLE platform to access the instructional materials and its ease of use.
- The areas of improvements:
 - MOODLE appearance were made more attractive.
 - the quality of the audio visual aids used was enhanced.
 - Communication made more effective through the MOODLE.

E-learning research at CHSS

- In 2013, another study was conducted to investigate the effectiveness of MasteringChemistry®, an online tutorial, homework, and assessment system.
- This system provides students with all learning resources:
 - PowerPoint Presentations.
 - online tutorials.
 - online case studies.
 - review questions and quizzes with feedback.
- We hypothesized that implementing the system would be associated with better course performance by comparing the final grades of two groups of students; before and after implementing the system. 50 students participated in this study.

E-learning research at CHSS

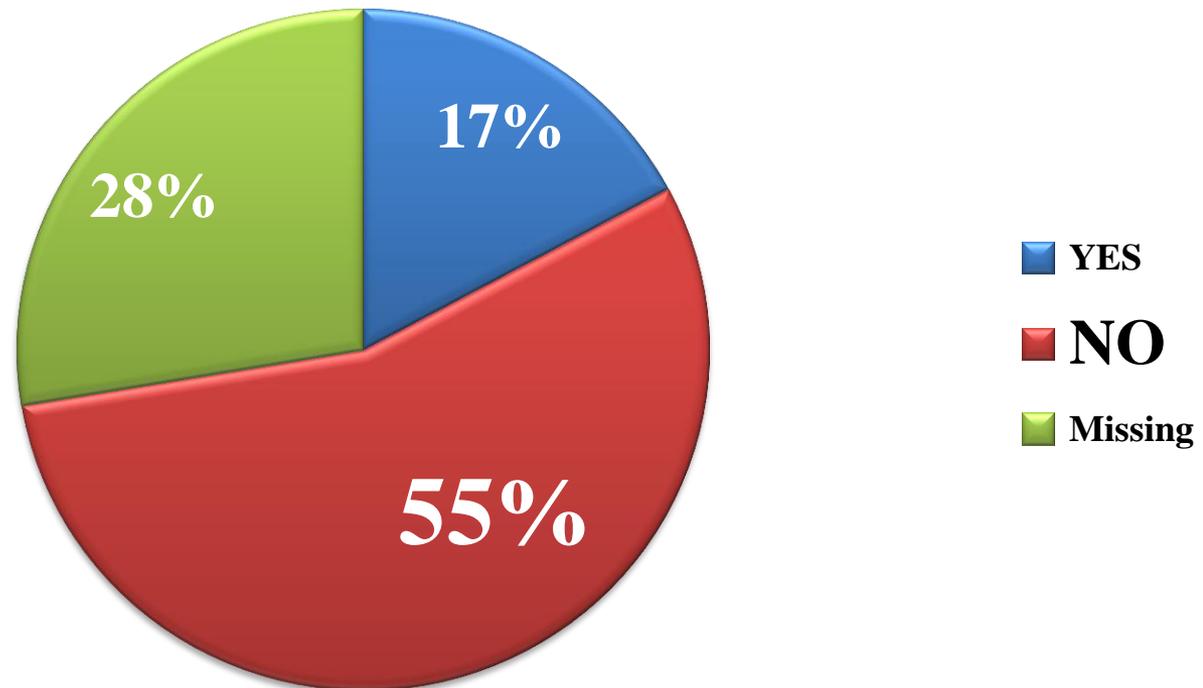
- There was a shift in students grades, and a significant increase in the percentage of students' final grades was noticed (31%) with no failure (F) in the course after using the system.
- This proved that engagement in using the system had a positive effect on student's performance.



E-learning research at CHSS

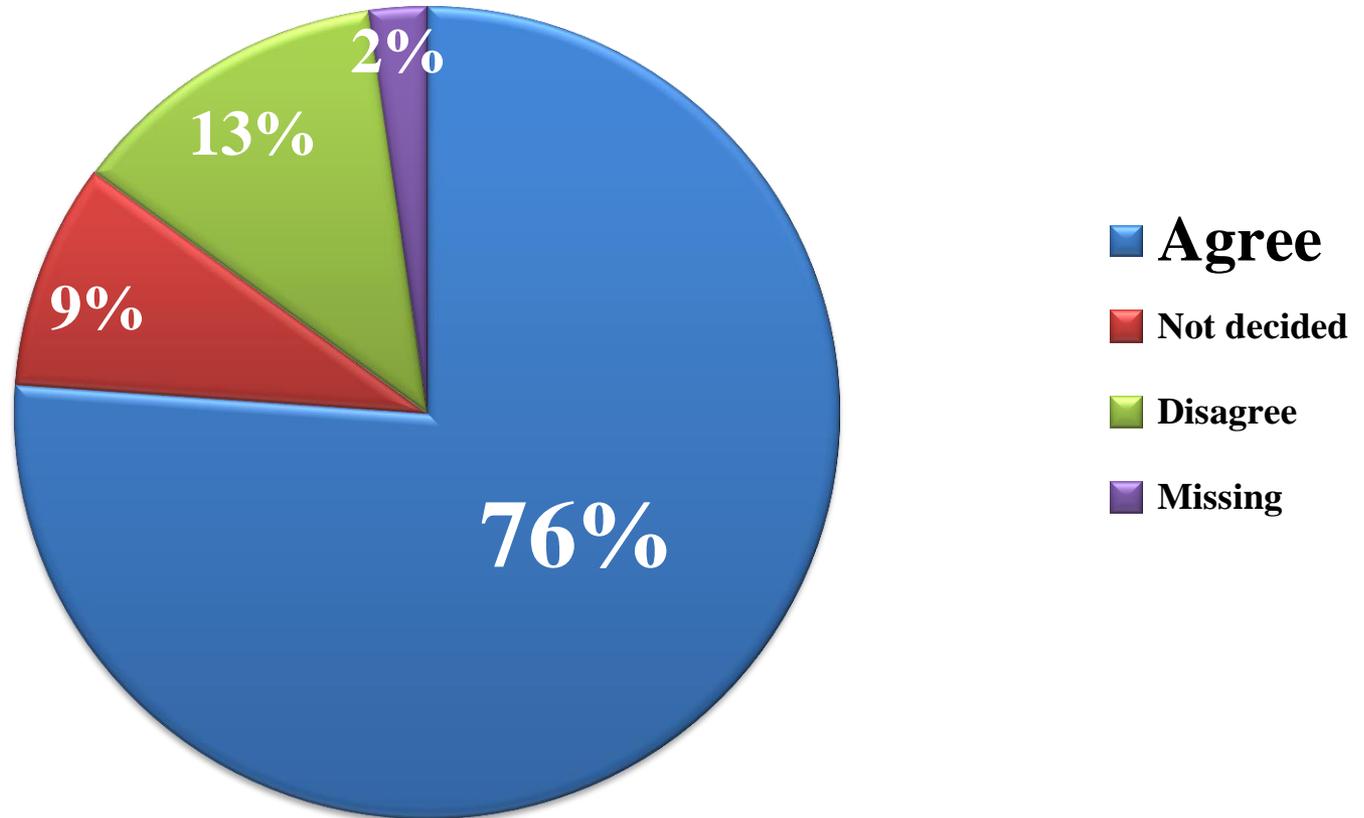
- In 2014, Students were exposed to e-textbook in two courses and their perceptions of e-textbooks were assessed compared to print textbooks. 143 students participated in this study.

Have you had any experience in using e-text book before?



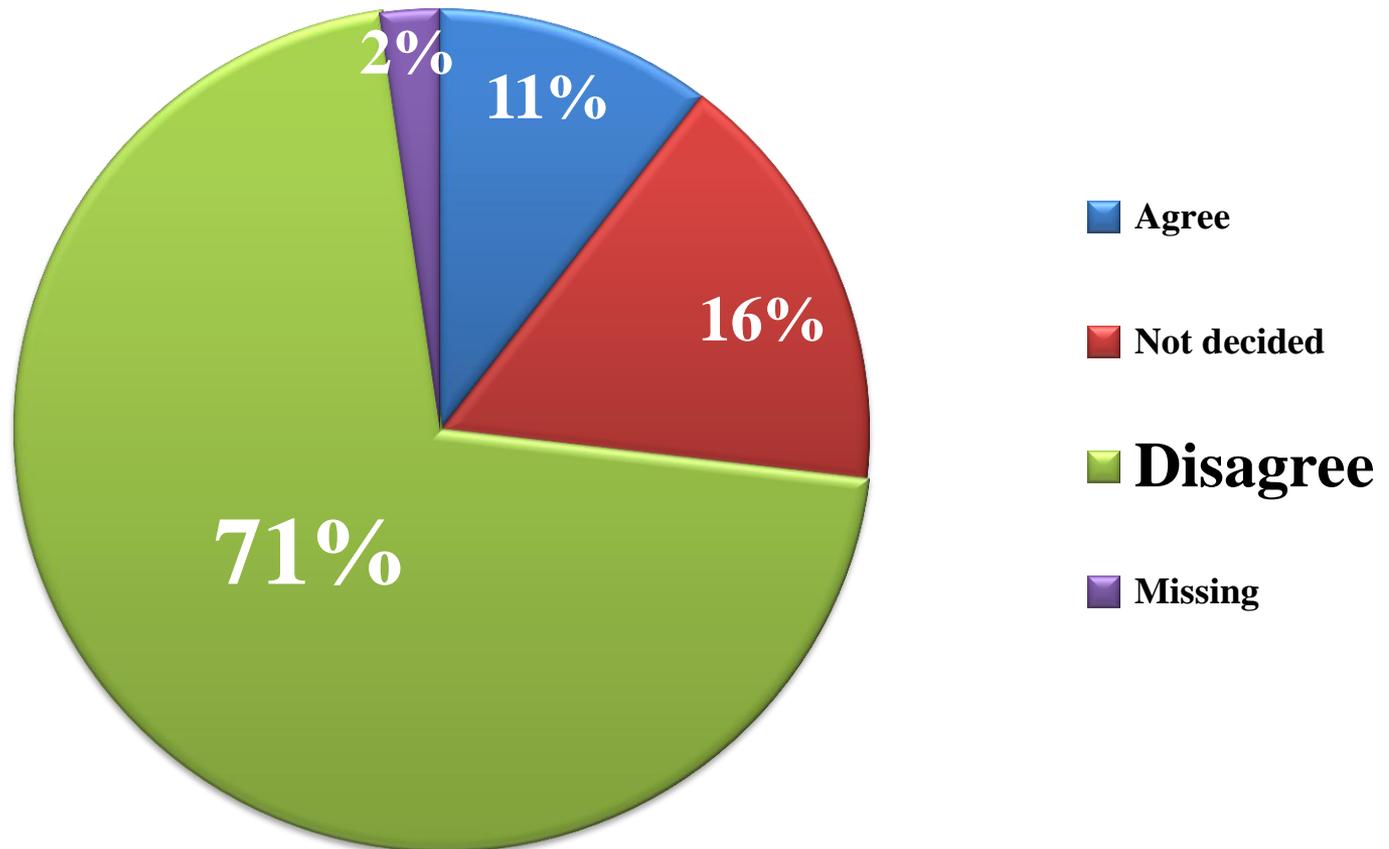
E-learning research at CHSS

If I had a choice I would prefer to use the traditional textbook



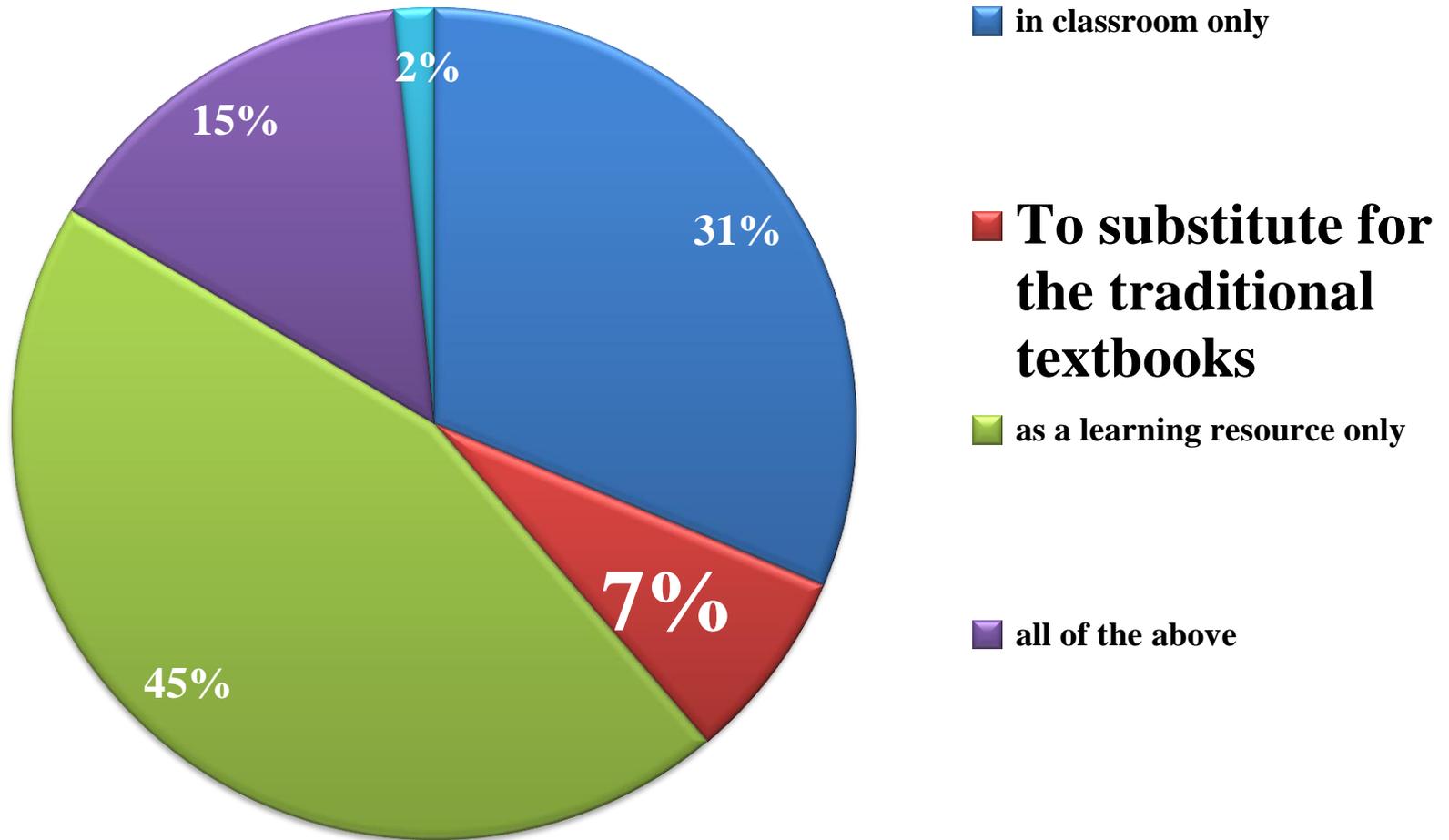
E-learning research at CHSS

If I had a choice I would prefer to use the e-textbook



E-learning research at CHSS

I would prefer using e-text book



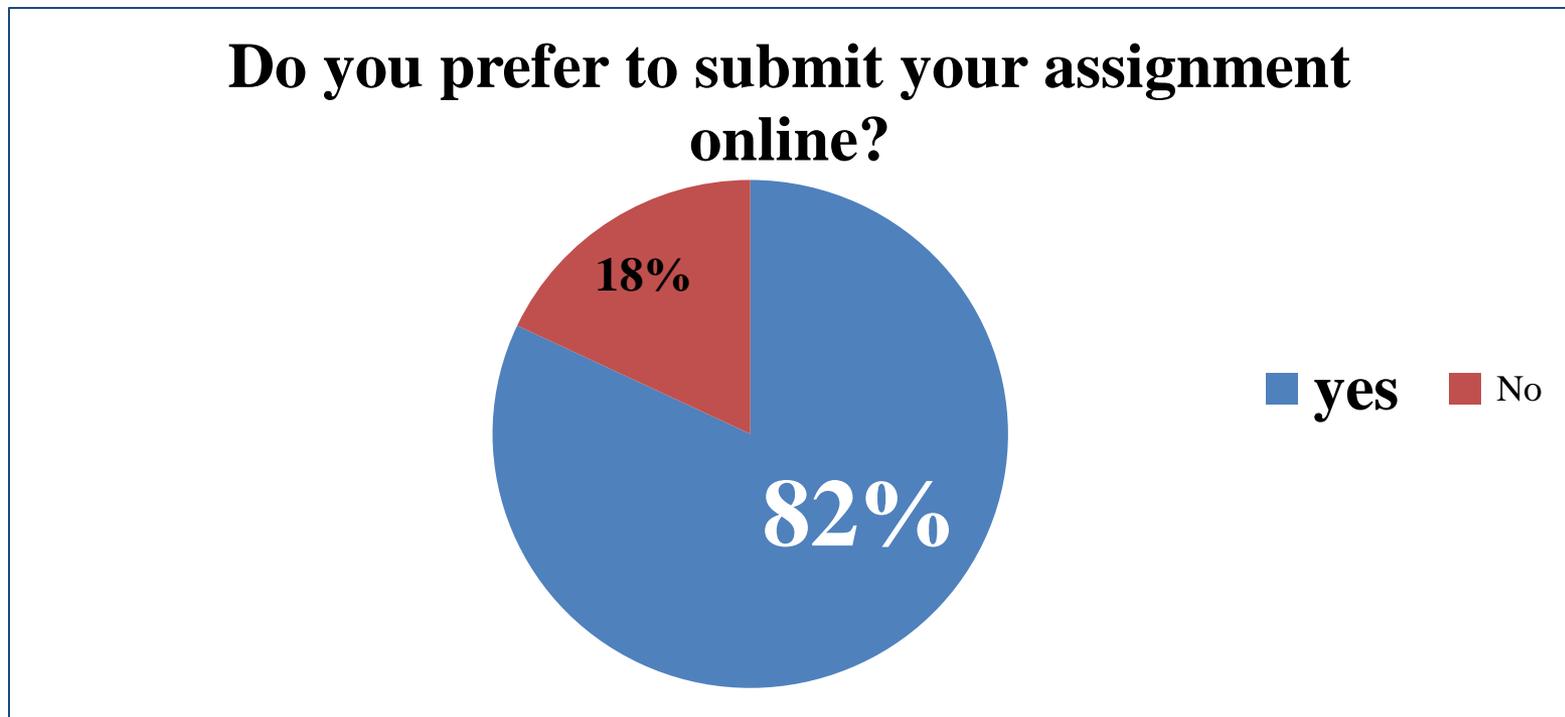
E-learning research at CHSS

It was recommended to promote the culture of e-learning at CHSS

- Promote e-learning infrastructure; thorough LMS, virtual and simulations.
- Staff development in e-learning.
- Share best practices of e-learning,

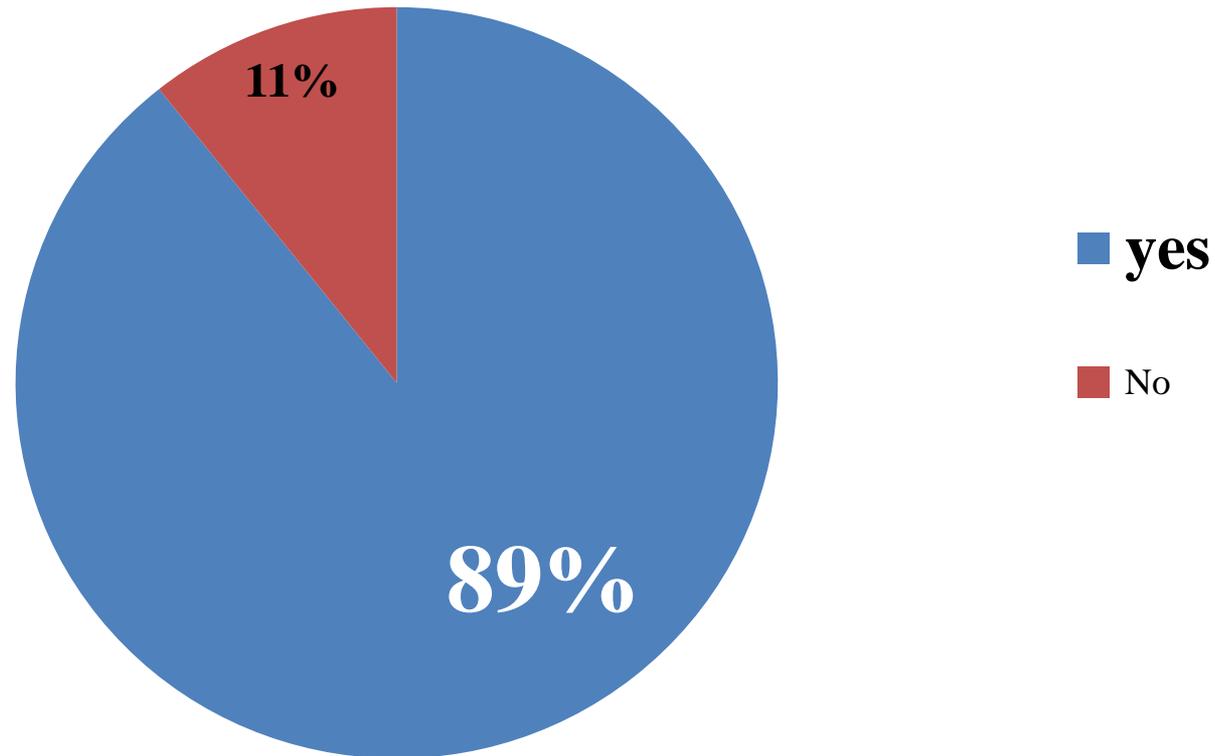
E-learning research at CHSS

- in 2015, a study conducted used both quantitative and qualitative research design to identify the perceptions of students and faculty about using online assignment submission system.
- 140 students and 8 teaching faculty participated in this study.



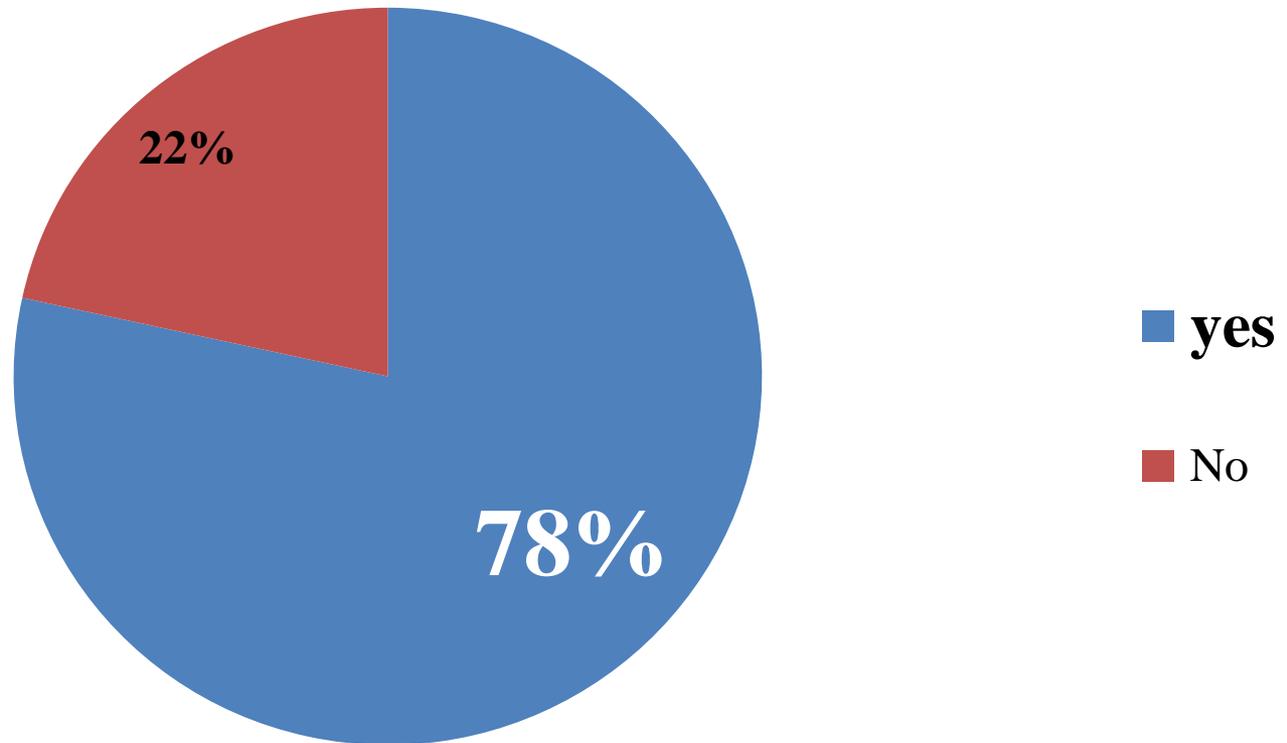
E-learning research at CHSS

Do you prefer to get your assignment marks online?



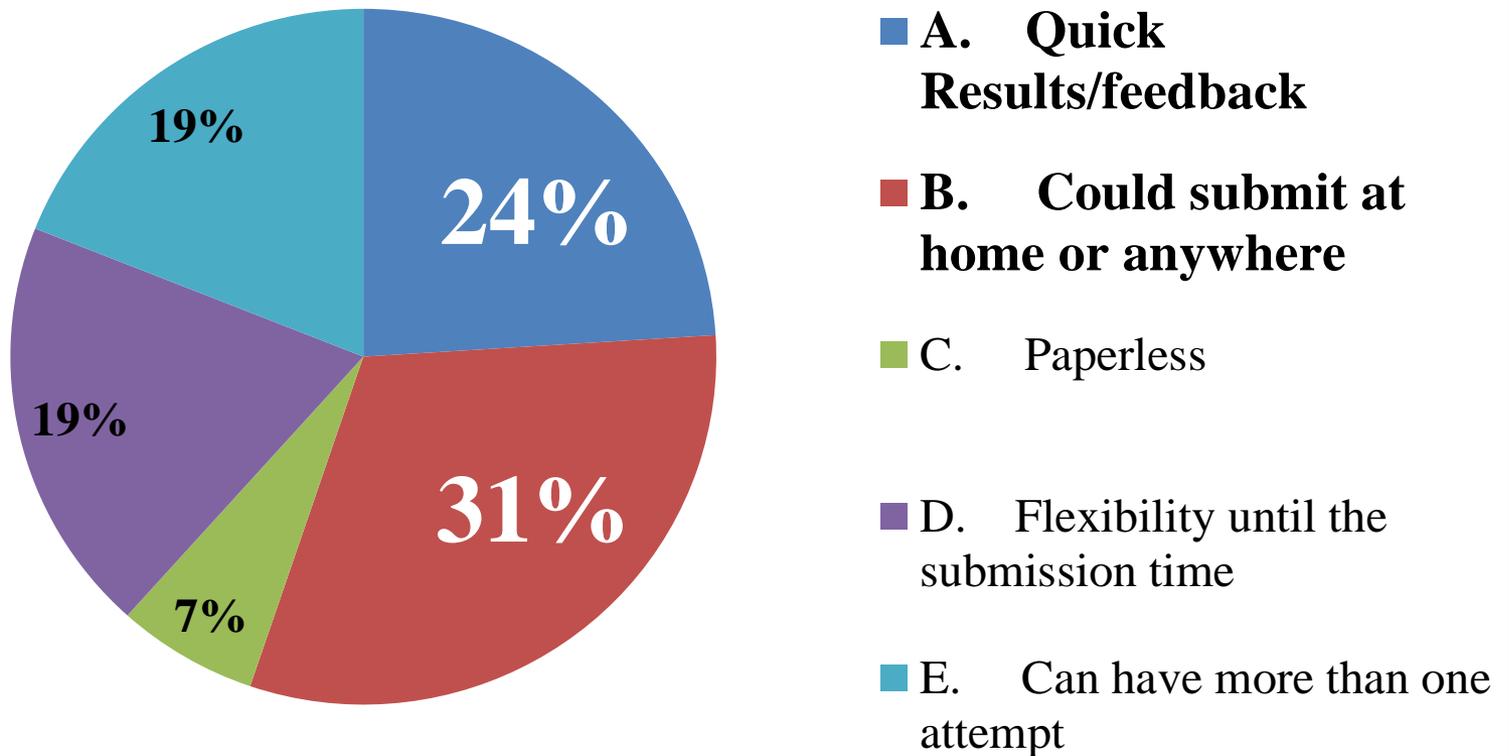
E-learning research at CHSS

Do you prefer to get your assignment feedback online?



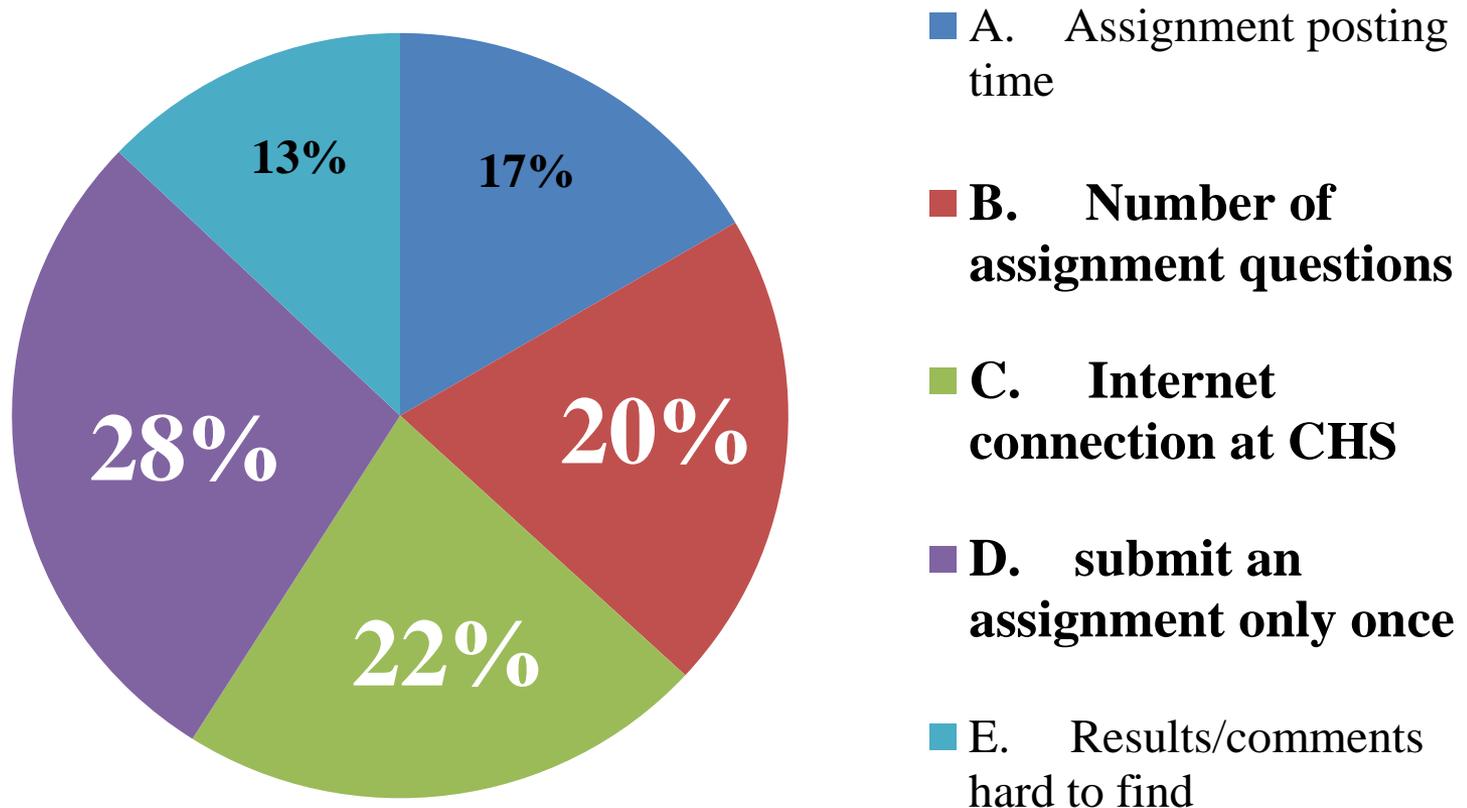
E-learning research at CHSS

What aspects of online assignment did you find most useful ?



E-learning research at CHSS

What aspects of on-line assignment submission were inconvenient to you?



E-learning research at CHSS

Teaching Faculty:

- 88% of the faculty supported and encouraged the use of online assignment submissions because it is a powerful tool that enhances the teaching-learning process.
- However, 12% preferred to use it with some reservation; i.e. they preferred using technology for teaching but not for conducting quizzes exams or assignments,

E-learning research at CHSS

- in 2015, a study presented an overview of student's experiences of using an online based learning support and monitoring tool that enable the students to engage with the course content outside the classroom and test their knowledge by providing immediate feedback.
- 85% of the students reported the usefulness of the e-learning tool in improving their learning.
- 87% of the students found that the e-learning tool personalized their learning experiences by providing variety of options.
- 76.6% of the student agreed that timely feedback was helpful to improve their understanding.

E-learning research at CHSS

- In March 2020, the COVID-19 pandemic forced many universities and colleges to go online only, CHSS was not an exception.
- Luckily, CHSS students were engaged in number of e-learning activities for several years even before COVID-19.
- We were certain that CHSS students were well prepared for e-learning before COVID-19, however, we wanted to understand our students acceptance of e-learning tools during COVID-19 pandemic.
- As a result, it was vital to define the term "technology acceptance" to determine the factors that affect the actual use of educational technology in university environment during COVID-19.

E-learning research at CHSS

- Davis (1989) in their Technology Acceptance Model (TAM) examines the factors which could possibly affect the technology actual use or acceptance.
- Factors affecting technology acceptance that lead to the actual usage were external factors, the perceived ease of use of technology (PEOU), the perceived usefulness of technology (PU), and the attitudes toward the use of technology.

E-learning research at CHSS

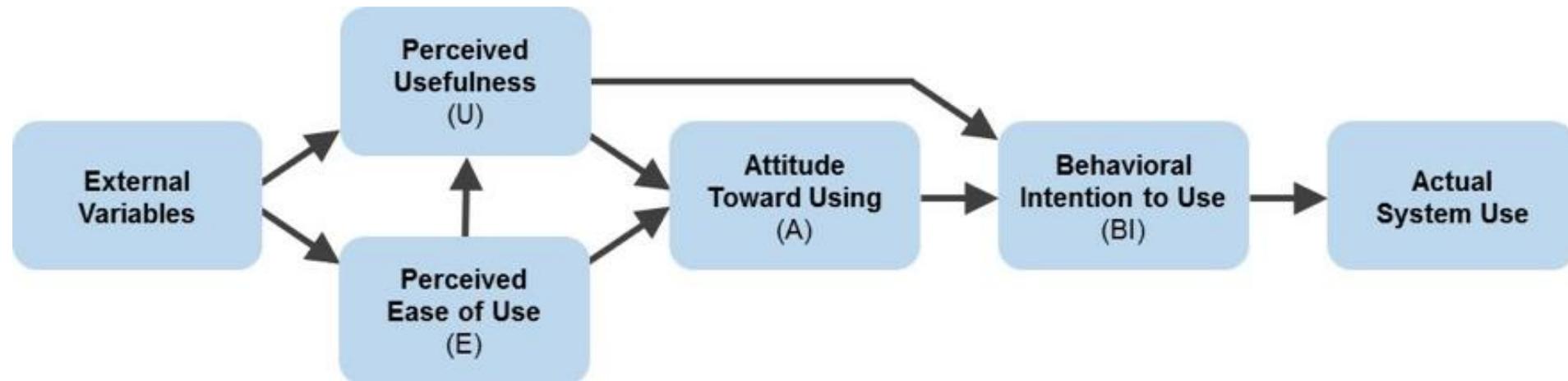


Figure 1: Technology Acceptance Model (TAM) from Davis, 1989

E-learning research at CHSS

- A study was conducted in May 2020 to investigate the students acceptance toward the use of learning management system (LMS) and e-textbook in two courses at CHSS.
- This study focused on Technology Acceptance Model (TAM) originally proposed by Davies in 1989.
- The conceptual model used in this study was a modified TAM model, excluding external variables and Behavioral Intention to use (Figure 2) .

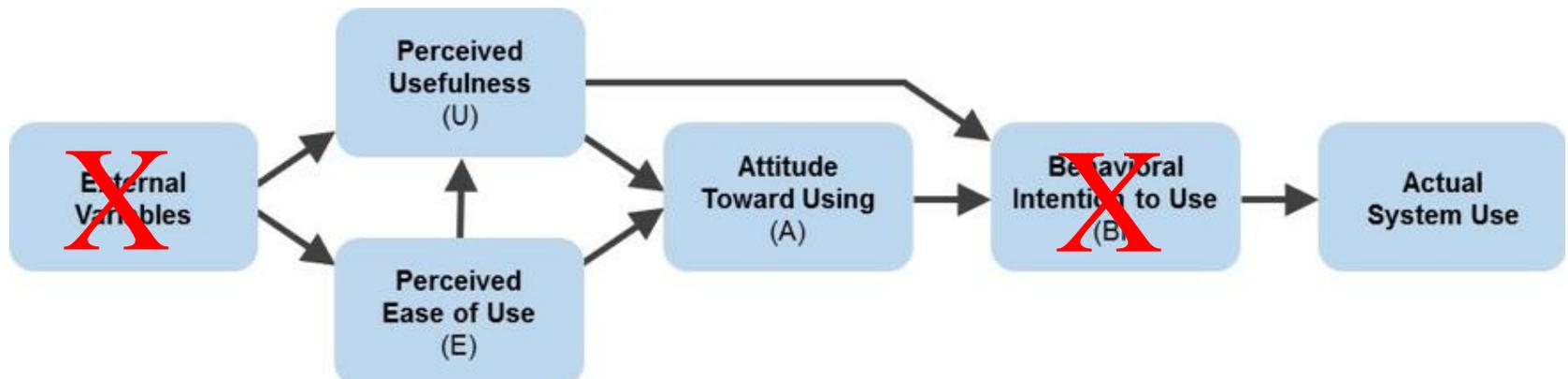


Figure 2: The research model (Conceptual framework)

E-learning research at CHSS

- Perceived usefulness (PU) and perceived ease of use (PEOU) are considered distinct factors influencing the user's attitude towards using the technology, which ultimately determine the accept system use.
- Perceived usefulness (PU): the perception that the technology does something useful. For example, enhance learning performance.
- perceived ease of use (PEOU): the perception that the technology is easy to use.
- Attitude refers to “the degree to which a person has a positive or negative feeling towards e-learning systems” (Escobar-Rodriguez & Monge-Lozano, 2012).

E-learning research at CHSS

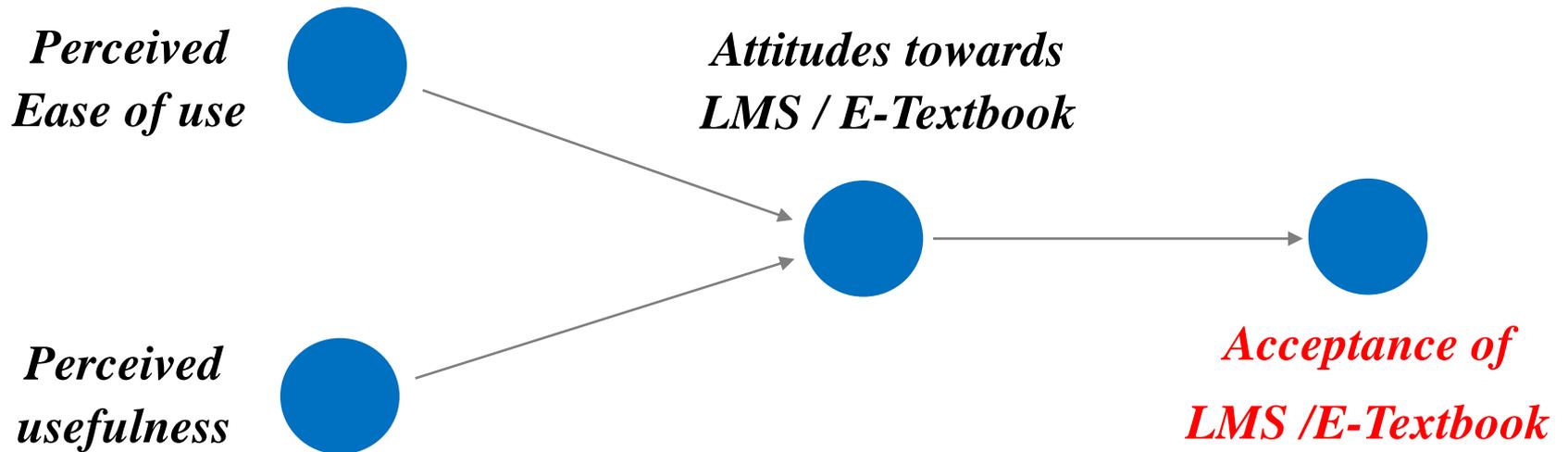
- **The research objectives:**
 - Do perceived usefulness and perceived ease of use affect students' attitude toward the use of e-textbook and LMS?
 - Do attitude towards the use of e-textbook and LMS affect students acceptance?
- 177 students participated in this study.

E-learning research at CHSS

- The following hypothesis were developed:
- **H1:** Perceived ease of use (PEOU) has a positive effect on attitude towards the use of e-learning tools.
- **H2:** Perceived usefulness (PU) has a positive effect on attitude towards the use of e-learning tools.
- **H3:** Attitude play a mediating role in the relationship between the perceived ease of use (PEOU) and the acceptance of e-learning tools.
- **H4:** Attitude play a mediating role in the relationship between the Perceived usefulness (PU) and the acceptance of e-learning tools.
- **H5:** There is a positive relationship between the participants' attitudes and their acceptance of the e-learning tools.

E-learning research at CHSS

- Based on the hypothesis, the graphical representation of the proposed models is as follows:



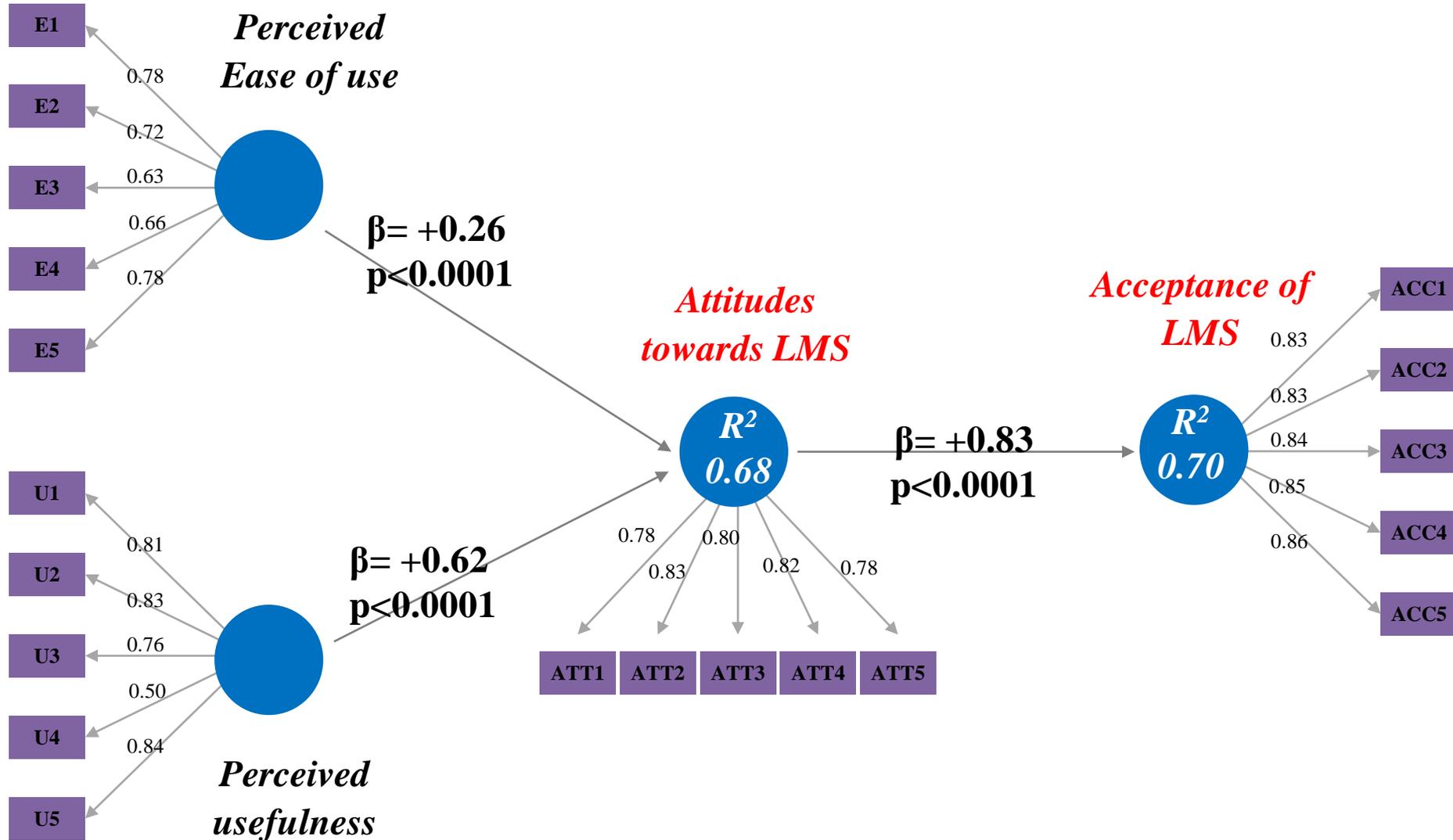
E-learning research at CHSS

Fitting the proposed model (LMS / E-Textbook):

To examine the proposed model, structural equation modeling approach was used where confirmatory factor analysis was employed to build the measurement models of the four concepts. Then, the relationships' paths were estimated (Structural model) with the partial least square regression.

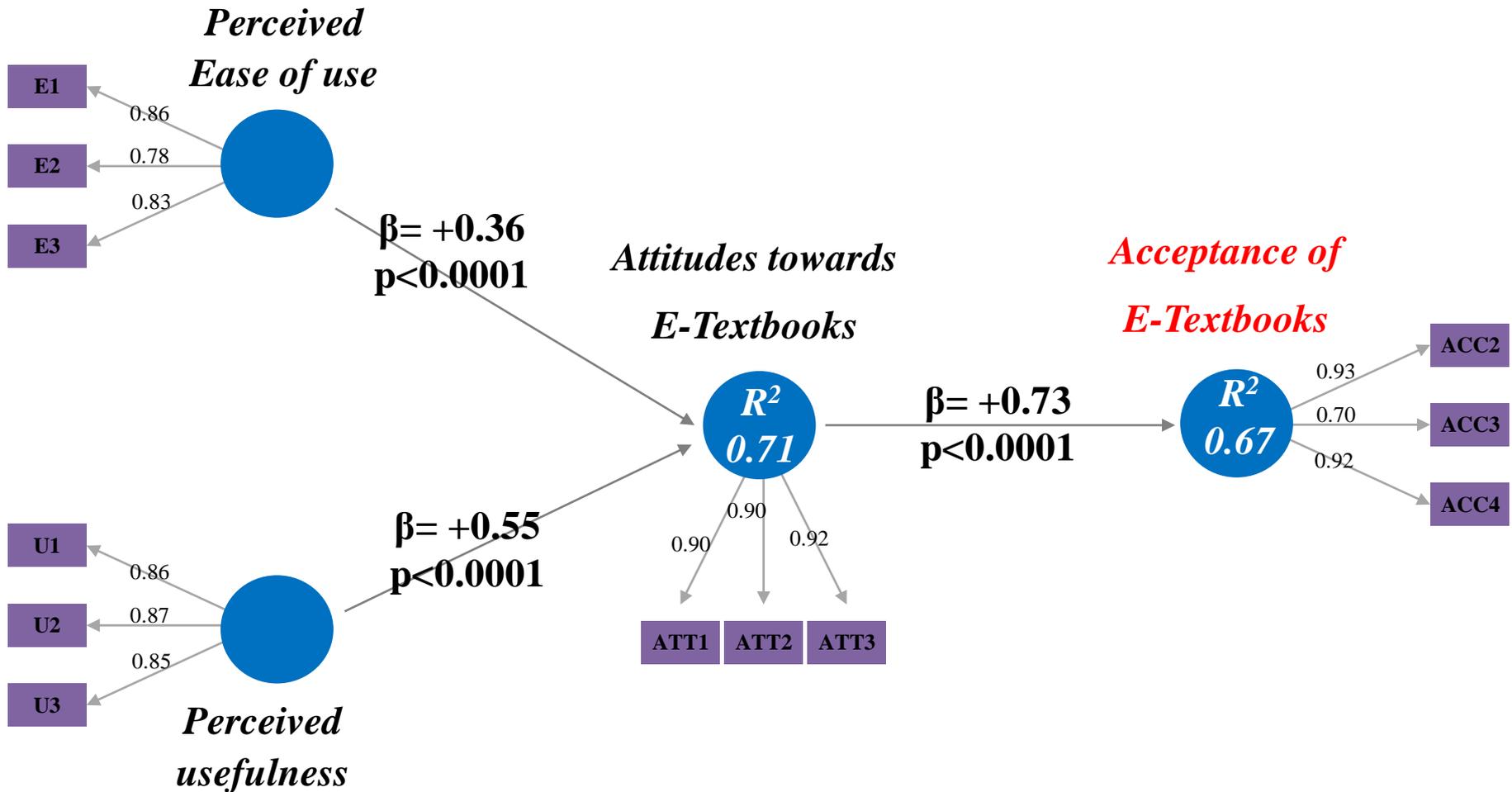
E-learning research at CHSS

Fitting the proposed model (LMS)



E-learning research at CHSS

Fitting the proposed model (E-Textbook)



E-learning research at CHSS

- The main study findings showed that the perceived ease of use (PEOU) and the perceived usefulness (PU) of e-learning tools had a statistically significant positive effect on the participant attitudes toward using the LMS ($R^2=0.68$, $p<0.0001$) and E-Textbook ($R^2=0.71$, $p<0.0001$).
- Over all, Participant's attitudes had a statistically significant effect on their acceptance of the LMS ($R^2=0.70$) and the E-Textbook ($R^2=0.67$).
- The study confirms that perceived usefulness (PU) and perceived ease of use (PEOU) have led to an increase in the students' attitudes and acceptance to use e-learning tools.
- It can be concluded that CHSS can confidently implement e-learning, however, strategic approaches need to be developed.

E-learning strategic approaches at CHSS

- “If you can say the word ‘luck’ with a pandemic, it’s lucky it’s happening in 2020,” when the technology is robust and many faculty members already know how to use it, said Beth Kalikoff, the director of the UW’s
- after COVID-19 pandemic, Prior to implementing e-learning we should establish strategy and develop a teaching philosophy where e-learning can be included into our educational system as an established approach, that considers the various health disciplines and the healthcare system’s needs.
- We need to set clear objectives for the new strategy; consider the benefits and disadvantages of e-learning and the range of possible e-learning configurations that could be adopted in the health educational context.

E-learning strategic approaches at CHSS

- We need to provide answers to the following questions:
- Are we able to do this?
- If we are able to do this, how is it possible to achieve it?
- What will the results be and how do we evaluate them?

It is important to answer this question “**Are we ready for e-learning after COVID-19?**” to identify areas that require attention prior to implementation.

E-learning strategic approaches at CHSS

- The Chapnick Readiness Model (2000) groups different factors into eight readiness categories:
- **Psychological readiness**, which focuses on an individual's state of mind as this impacts on the outcome of the e-learning initiative. This type of readiness is regarded as being among the most significant aspects that could affect the implementation process.
- **Sociological readiness** recognizes the characteristics of the environment in which the course will be conducted.
- **Environmental readiness** considers the forces affecting stakeholders both inside and outside the organization.
- **Human resource readiness** reflects on the accessibility and plan of the human support system.

E-learning strategic approaches at CHSS

- **Financial readiness** relates to the financial resources available in terms of budget size.
- **Technological skill readiness** refers to the availability of technical support.
- **Equipment readiness** deals with the ownership and availability of proper and appropriate equipment.
- **Content readiness** focuses on the substance of the curriculum being developed for teaching.

E-learning strategic approaches at CHSS

- We need to propose a framework for a successful design, development and implementation of e-learning systems.
- The aim of all education initiatives, is to make it possible for students to learn.
- The starting place for the development of the framework is to review what is known about the influences on students as they learn and as they engage in a range of e-learning activities.

E-learning strategic approaches at CHSS

The e-learning experiences of our students influences their learning.

- students value prompt and informative feedback on their work, clarity of faculty expectations of their work, and welcome high levels of participation by other students.
- lack of time is one of the primary reasons that students withdraw from online courses.
- student experience of technology has a significant impact on their participation in e-learning activities and in achieving successful learning outcomes.
- The experience of group work, those students who did not have a positive experience of working in groups did not appear to have achieved the desired learning outcomes.

E-learning strategic approaches at CHSS

Assessment of learning is another issue that influences students learning.

- if the e-learning activity did not count towards assessment of the course, students simply did not use the materials or participate in the activity.
- If assessment of student learning was not modified to reflect any changes made to the content and process of learning, students did not participate. For example, an activity designed to foster improved understanding of subject content, the assessment should not test students' memorization of subject content.
- The degree of resistance to new forms of learning, in particular amongst groups of students who were not experienced learners where they resist all attempts by teachers to involve them in activities that facilitated knowledge construction.

E-learning strategic approaches at CHSS

There are number of phases that influences students learning.

At the planning phase of e-learning, (which includes development of the aims, objectives, and assessment) faculty must pay attention to:

- develop an increased understanding of the students experiences;
- design the assessment of e-learning activities such that they complement the aims and objectives of the course;
- provide useful and timely feedback on students' work;
- Prepare students for different learning activities;
- prepare students for working in groups;
- embed time management skills in the learning activities of courses;
- plan for the particular context of implementation; e.g. Can not place all of lecture notes online and call it an online course.

E-learning strategic approaches at CHSS

Faculty planning of learning experiences is strongly underpinned by their thinking about what learning means.

At the faculty thinking phase:

- Faculty are strongly encouraged to make use of staff development opportunities which encourage them to reflect on their views of learning and the ways in which those views impact on the planning of learning, and the use of e-learning teaching strategies.

high quality e-learning opportunities are made possible, only through increased understanding of how students' learn.

E-learning strategic approaches at CHSS

Faculty strategies phase describes the actual student experience and faculty are encouraged at this phase to provide:

- feedback to students which is timely and informative;
- opportunities for students to understand the learning process prior to engaging in learning activities which they may not have previously encountered;
- activities which assist students to develop their skills in group work.

The combination of the three phases will enhance the student experience of e-learning, and ultimately enable the institution to realize its vision for e-learning.

Conclusion

- On University context, provision of the support and development mechanisms constitute an integral part of an e-learning initiative.
- Positive learning outcomes for students will be achieved when there is right balance of the three phases (Faculty Thinking, Planning, Strategic).
- The benefits of the successful e-learning projects for students will be as follows :
 - improved quality of learning;
 - improved productivity of learning;
 - improved access to learning;
 - improved student attitudes to learning.



*Thank
you*



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