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Faculty Perspectives on Redesigning Classrooms with Active Learning Technology Tools

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Problem

The use of active learning technology tools is a key element of 21st century learning that has stagnated at the local university. Challenged with outdated technology access and traditional classrooms, one university initiated a strategic plan to update classrooms and laboratories with the 21st century technology.

The problem of the study was that limited information existed regarding **faculty perceptions regarding benefits of and barriers to integrating active learning technology tools**.

Purpose

The purpose of this **qualitative exploratory case study** was to **uncover the faculty members' views and perceptions** about redesigning classrooms with the active learning technology tools.

Significance

The project study was a unique contribution because there was limited knowledge within the university regarding how faculty members viewed the use of active learning technology tools in the classroom setting.

The results of this study **increase understanding of the faculty members' views and perceptions** on redesigning the classrooms with active learning technology tools, which may be generalizable to other settings.

Insights support both the university leadership and faculty members to integrate faculty members as essential stakeholders in the process and facilitate effective integration of active learning technology tools in classrooms.

Social Change Implications

Positive social change may result from this study, **improving 21st century higher education classrooms** through more effective implementation of active learning technology tools.

Theory or Framework

Davis's (1989) **technology acceptance model (TAM)** as the framework to explore this study and to analyze the faculty members' perspectives towards implementing active learning technology tools.

Relevant Scholarship

Role of Classroom Technology

Active learning technology tool integration is a process of combining different pieces of technology to support student-learning environment (Chan et al., 2016; Daniel & Tivener, 2016; Eichler & Peeples, 2016; Freeman et al., 2014).

Uses of Active Learning Technology in Classrooms

Active learning technology tools increased students' performances in science, engineering, and mathematics (Freeman et al., 2014).

Student Perceptions of Active Learning Technology

Student perceptions seemed to correlate with some underlying factors of accepting technology in classrooms. However, not all students are ready to use new tools in classrooms (Han & Han, 2014).

Faculty Perceptions of Active Learning Technology

Introducing active learning technology tools to might require faculty to learn new skills. In gathering feedback from faculty members, students, and administrators, DiVall et al. (2013) stated that 64% of faculty members of one college used various available classroom technology while claiming that using classroom technology enhanced teaching practices.

Barriers and Challenges of Technology Integration

Technology integration is increasingly happening in classrooms (Hilton, 2016). However, not all technological improvements were successful as there were challenges that cost time, money, and focus.

Research Question

What are the **faculty members' perspectives** regarding the implementation of the active learning technology tools such as the Cisco Spark™ and Microsoft Surface Hub™ smart whiteboards as well as clickers in their classrooms?

Participants

A **stratified purposeful sampling** approach was used to select 8 faculty members from four departments of the engineering college at the local university.

Procedures

Data were collected with semi-structured, face-to-face and phone **interviews** that were audio recorded and later transcribed. The interviews ranged from 20-40 minutes.

Fifteen open-ended interview questions were developed to capture the views and perceptions of the faculty members regarding redesigning classrooms with active learning tools (Patton, 2015).

Analysis

Data analysis included manual and NVivo coding to identify themes from the interview data. Overall, there were six cycles of coding. The collected data was synthesized for any patterns by using an inductive approach (Gabriel, 2013).

Findings

Three major themes and subthemes emerged from this study:

- 1) **Choosing a fit technology**
 - overall trends
 - classroom trends
 - Instructor fit
- 2) **Perceived benefits**
 - student-related benefits
 - instructor-related benefits
- 3) **Perceived barriers**
 - student-related issues
 - instructor-related issues

Interpretation

Overall, the findings suggest that the **teaching technique and style** of the faculty members in the use of the active learning technology tools that determined the nature of their perception of success, rather than the active learning tools themselves.

Limitations

One of the limitations of the study was the sample size. The participants in this study represented only a fraction of faculty community in the local university.

Likewise, the study was limited to the engineering college and the local university is composed of 10 academic colleges.

Recommendations

The classroom space design **should meet the needs** of the faculty members' expectations.

The classroom active learning technology **tools should fit** the faculty members' preferred style of teaching.

The **best teaching practices** with the active learning technology tools to influence and engage more faculty should be captured.

Administrators should **identify technical issues** experienced by the formal and informal use of classroom technology tools by the faculty members.

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