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ENHANCING ONLINE LEARNING AND TEACHING: A STUDY ON THE EVOLUTION OF EDUCATIONAL FORMATS IN THE DIGITAL AGE

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ABSTRACT

This research delves into the challenges and obstacles associated with the utilization and development of online learning and teaching within specific academic disciplines. The study employs a mixed-methods approach, utilizing questionnaires and in-depth interviews with students and instructors. Data analysis includes descriptive research statistics, encompassing frequency, percentage, mean, standard deviation, and content analysis. The study reveals that the predominant issues in online learning revolve around the readiness of technological resources for effective usage. To address these challenges, strategies for promoting increased utilization and enhancing accessibility of online learning resources are emphasized. The importance of practical training sessions, the establishment of performance indicators for instructional management, and the implementation of follow-up assessments to comprehend the significance and benefits of online learning are underscored. In terms of perceived benefits, respondents rated the advantages of online learning in the studied course at a moderate level overall (mean = 2.71). Notable benefits include online classrooms aiding in achieving teaching goals and enhancing student learning. However, the ability of online classrooms to link to other information received a comparatively lower rating. Conversely, the study outlines the perceived challenges and constraints in using online classroom systems for teaching and learning. Respondents expressed confidence in various capabilities, with an overall opinion level of "Can do" (mean = 2.61). Managing teaching media in the online learning platform was identified as a significant challenge, while checking and grading homework in the online classroom received a higher rating.

Keywords: Development Strategies, Online Teaching and Learning, Online Education

INTRODUCTION

The burgeoning digital landscape has fundamentally reshaped educational paradigms, prompting a paradigm shift towards innovative online learning and teaching methodologies. This research delves into the intricate tapestry of this evolving educational format, meticulously examining the challenges and opportunities it presents. At its core, our investigation seeks to illuminate the intricate interplay between existing obstacles in online learning for academic disciplines and the vast potential to enhance teaching methodologies through strategic digital interventions. (Chinploy.W,2010)

Our unwavering pursuit is threefold. Firstly, we aim to meticulously dissect the existing challenges and impediments that hinder the robust development of online learning within specific academic disciplines. Secondly, we seek to empower educators with innovative online teaching methodologies, meticulously tailored to enhance the educational experience within their respective fields. Finally, we delve into the transformative potential of web-based resources, exploring how the strategic integration of hyperlinked documents can broaden the

scope and deepen the understanding gleaned from online learning experiences. (Kanthawong.R, 2007)

To chart the course of this inquiry, we meticulously constructed a conceptual framework that vividly illustrates the interplay between online learning's inherent hurdles and the transformative power of technology-driven enhancements. This framework underscores the notion that a comprehensive understanding of existing challenges is paramount to unlocking the full potential of online learning. It further posits that web-based documents, interwoven with rich links to diverse knowledge sources, can serve as potent tools for expanding the horizons of learning and fostering a deeper engagement with the subject matter. (Ek Wong.C,2009)

The intricate tapestry of this investigation is further enriched by the employment of a mixed-methods approach. We commence by embarking on a rigorous and meticulous quest through the vast repository of existing literature, meticulously scrutinizing scholarly articles, textbooks, and pertinent research works. This comprehensive review lays the groundwork for the subsequent phases of our investigation, guiding the meticulous crafting of research tools and informing the meticulous execution of each outlined step.

Our research population encompasses a vibrant cross-section of individuals directly involved in the educational fabric. At the heart of our inquiry lies the invaluable perspective of subject instructors, their insights serving as a compass, guiding us towards a clearer understanding of the nuances and intricacies of online learning within their respective disciplines. We further enrich our investigation by incorporating the voices of students, immersing ourselves in the lived experiences of those who navigate the online learning landscape daily. Our sample group comprises a diverse array of no fewer than 3,000 individuals, their voices collectively painting a vivid picture of the perceived benefits and challenges associated with online learning in academic subjects.(Academic Services Division,Suansunandha Rajabhat University,2023)

To glean valuable insights from this diverse pool of participants, we meticulously crafted data collection tools tailored to each research phase. For the quantitative strand of our investigation, we designed a comprehensive questionnaire, meticulously constructed to capture the nuances of online learning within academic disciplines. This instrument is further subdivided into two distinct sections: the first delving into the demographic characteristics of respondents, while the second meticulously explores the perceived benefits they associate with online learning experiences. To ensure the validity and reliability of our findings, we meticulously developed a robust scoring and interpretation system. This system employs a five-point Likert scale (Likert, R.,1967). with each score level meticulously calibrated to reflect the degree of perceived benefits participants associate with online learning.

Through this intricate and multifaceted investigation, we seek to weave a tapestry of understanding, elucidating the challenges and opportunities that lie at the heart of online learning for academic subjects. By meticulously examining the existing hurdles and exploring innovative solutions, we strive to empower educators and learners alike to navigate the ever-evolving digital landscape of education with confidence and efficacy. As we embark on this scholarly journey, we remain fueled by the unwavering belief that by harnessing the transformative power of technology, we can unlock a future where online learning flourishes, nurturing a generation of well-equipped and globally-minded individuals.

RESEARCH OBJECTIVES

This research study was aimed to

1. To examine the existing challenges and obstacles in the development of online learning and teaching in the form of academic disciplines.
2. To enhance online learning and teaching methodologies within specific academic disciplines.
3. To broaden the scope of learning and deepen knowledge through web-based documents with embedded links to additional sources, thereby expanding the depth and breadth of learning experiences.

CONCEPTUAL FRAMEWORK

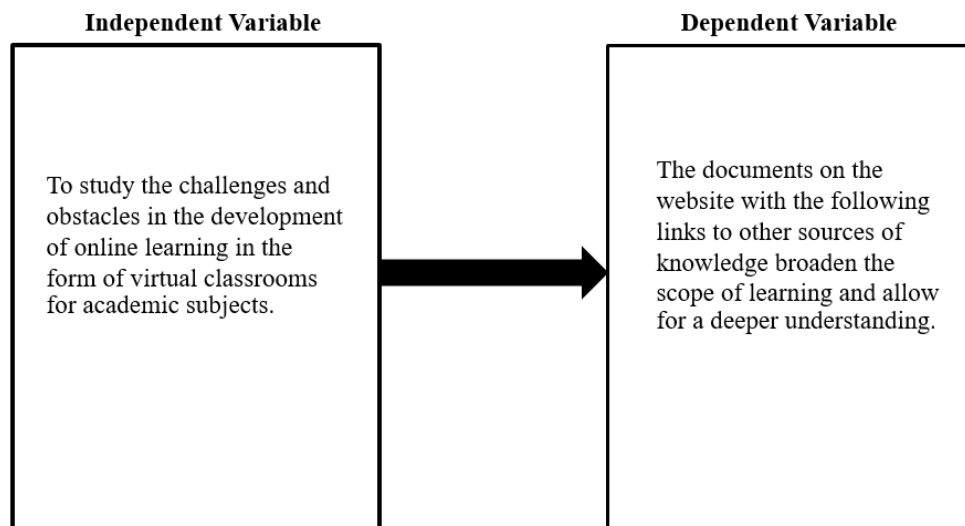


Figure 1. Conceptual Framework of the Study
Ek Wong, C. (2009). Components of learning through electronic media (e-Learning)

This diagram illustrates the challenges and obstacles encountered in the development of online learning for academic subjects. The independent variable, "To study the challenges and obstacles in the development of online learning in the form of virtual classrooms for academic subjects," is shown on the left. The dependent variable, "The documents on the website with the following links to other sources of knowledge broaden the scope of learning and allow for a deeper understanding," is shown on the right.

The arrows between the variables indicate the causal relationships between them. The arrows coming from the independent variable show that the challenges and obstacles in the development of online learning can affect the scope and depth of learning. The arrow coming from the dependent variable shows that the use of web-based documents with embedded links can help to overcome these challenges and obstacles, thereby broadening the scope of learning and deepening knowledge.

The specific challenges and obstacles that are identified in the diagram include a lack of access to technology, a lack of teacher training in online, and a lack of student engagement. The diagram also suggests that these challenges can be overcome by using a variety of online learning tools and resources, such as video lectures, discussion forums, and collaborative activities.

METHODOLOGY

This research employs a mixed- methods approach to investigate the challenges and obstacles in the development of online learning for academic subjects. The researchers conducted a comprehensive review of literature, textbooks, articles, and related research works to guide the creation of research tools and to follow the outlined steps:

The study population consists of regular subject instructors.

The sample group includes students enrolled in academic subjects, totaling no fewer than 3,000 individuals.

Data collection tools for quantitative research include summarized questionnaire responses, focusing on the development of online learning for academic subjects. This comprises two sections:

Part 1: General information about the questionnaire respondents.

Part 2: The most significant benefits perceived from participating in online learning for academic subjects (Kaewrattanapat et al., 2023).

Criteria for scoring and interpretation are as follows:

Score Levels:

5: Signifies the highest perceived benefits.

4: Indicates high perceived benefits.

3: Represents moderate perceived benefits.

2: Denotes low perceived benefits.

1: Reflects the lowest perceived benefits.

Criteria for Interpretation:

Average Score Interpretation

4.51-5.00: Strongly Agree with High Perceived Benefits

3.51-4.50: Agree with High Perceived Benefits

2.51-3.50: Agree with Moderate Perceived Benefits

1.51-2.50: Agree with Low Perceived Benefits

1.00-1.50: Agree with the Lowest Perceived Benefits

RESULT

Table 1 presents general information about the respondents in the questionnaire.

Demographic	General Information	Number	Percentage
Gender	Male	114	50.7
	Female	111	49.3
Age	18-20 years	80	35.6
	21-26 years	78	34.7
	24-26 years	64	28.4
	36-40 years	2	0.9

From Table 1, it is evident that the majority of respondents are male, comprising 50.7%, while female respondents constitute 49.3%. Regarding age distribution, 35.6% fall within the 18-20 age range, 34.7% are aged between 21-26, and 28.4% are in the 24-26 age range. Notably, a small percentage of 0.9% consists of teachers within the 36-40 age range.

These findings provide an overview of the gender and age distribution among respondents in the survey, with a focus on students and faculty members in the specific academic discipline under study.

Table 2 Perceived Benefits of Online Learning in the Studied Course

Topic	Mean	S.D.	Opinion Level
1. Online classrooms help achieve teaching goals	2.78	0.79	Moderate
2. Online classrooms enhance student learning	2.72	0.77	Moderate
3. Online classrooms aid in time management	2.69	0.82	Moderate
4. Online classrooms cover teaching objectives	2.72	0.79	Moderate
5. Online classrooms categorize content easily	2.70	0.84	Moderate
6. Online classrooms control content relevance	2.71	0.79	Moderate
7. Online classrooms use suitable language	2.71	0.79	Moderate
8. Online classrooms convey clear teaching through images, audio, and video	2.71	0.79	Moderate
9. Online classrooms provide relevant examples	2.74	0.82	Moderate
10. Online classrooms align exercises with learning	2.72	0.82	Moderate
11. Online classrooms link to other information	2.64	0.85	Moderate
12. Online classrooms test periodically	2.76	0.78	Moderate
13. Online classrooms offer reflective quizzes on student and instructor quality	2.74	0.77	Moderate
Total	2.71	0.73	Moderate

Table 2. illustrates the perceived benefits of online learning in the studied course. Respondents rated their opinions on a moderate level overall, with an average mean of 2.71. The highest-rated benefit is that online classrooms help achieve teaching goals, scoring 2.78. On the other hand, the lowest-rated benefit is the ability of online classrooms to link to other information, with a score of 2.64.

These findings provide insights into the respondents' perspectives on the advantages of online learning, shedding light on specific aspects that are particularly beneficial or may need improvement.

Table 3. Challenges and Constraints in Online Teaching and Learning

Capability	Mean	S.D.	Ability Level
1. Setting up online classroom systems	2.66	0.66	Can do
2. Managing student lists in online classrooms	2.67	0.67	Can do
3. Creating courses in online classroom systems	2.60	0.68	Can do
4. Managing teaching media in the online learning platform	2.53	0.67	Can do
5. Creating and editing information page	2.61	0.69	Can do
6. Adding website links	2.56	0.69	Can do
7. Inserting images	2.60	0.68	Can do
8. Uploading teaching files (Word, PowerPoint, PDF)	2.57	0.66	Can do
9. Adding audio files	2.62	0.69	Can do
10. Adding YouTube videos	2.63	0.68	Can do
11. Assigning homework or tasks in the online classroom	2.60	0.70	Can do
12. Checking and grading homework in the online classroom	2.68	0.70	Can do

Capability	Mean	S.D.	Ability Level
13. Creating surveys or quizzes in the online classroom	2.65	0.71	Can do
Total	2.61	0.61	Can do

Table 3 outlines the perceived challenges and constraints in using the online classroom system for teaching and learning. Respondents provided an overall mean opinion level of "Can do" with an average score of 2.61. The highest-rated challenge is checking and grading homework in the online classroom, scoring 2.68. On the other hand, managing teaching media in the online learning platform received the lowest score at 2.53.

These findings highlight the respondents' perspectives on the ease of using various features within the online learning environment and point out areas that may require additional support or improvement.

CONCLUSION

In conclusion, the study on the benefits of utilizing online classrooms has revealed substantial advantages for both teachers and students. The online learning system is perceived as modern, easily accessible, and well-aligned with the current digital era. It serves as an excellent platform for continuous learning and development, offering organized and comprehensive content presented through various media formats, such as images, audio, video, and diverse information. Teachers can continuously enhance their instructional methods, making it a cost-effective, convenient, and secure avenue for knowledge dissemination.

However, the in-depth interviews highlighted several challenges and obstacles associated with the use of online classrooms. Teachers face difficulties in allocating time for lesson planning and content updating due to overwhelming teaching responsibilities. Motivation to engage with the online system is lacking, with some expressing disinterest in utilizing it during non-convenient hours. Issues such as slow internet connectivity, computer readiness, and the reluctance of students to participate contribute to the overall hindrance. Additionally, inconvenient access times and limitations in uploading large files due to system constraints pose significant challenges.

Furthermore, the study identified that teachers' proficiency in using the online learning system is generally basic, as irregular usage results in forgetfulness of login credentials and system functionalities. This contributes to a lack of consistency in incorporating online classrooms into regular teaching practices.

In addressing these challenges, it is imperative to provide support for time management, enhance motivation, and improve accessibility to the online learning platform. Additionally, efforts should be directed towards improving teachers' proficiency through regular training and consistent system usage. Overcoming these challenges will contribute to the realization of the full potential of online classrooms in achieving optimal educational goals. Nuanmeesri, S. (2019). Extended study of undergraduate students' usage of mobile application for individual differentiation learning support of lecture-based general education subjects. International Association of Online Engineering.

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