THE EFFECTIVENESS OF RECORDED LECTURES ON UNIVERSITY
STUDENTS’ ACHIEVEMENT

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ABSTRACT

Objective: This study investigates the effectiveness of recorded lectures on the performance of university students. In addition, how the effect of covid-19 has made students more flexible to use technology in their study.

Methods: The study sampled 96 university students specialized in humanities-related fields such as Economics, Law and English Literature. The participants were given a questionnaire consisting of 14 items designed to examine students’ performance based on their opinions.

Results: The findings show that recorded classes highly influence students’ performance which means that recorded classes give more space to revise the material at any time. In addition, there is no negative feedback on students’ performance of using recorded classes. To achieve better results according to the research, students’ success in higher education may be enhanced by videotaped classes. By combining the benefits of adaptability, accessibility, and self-paced learning with the demands for feedback and engagement, teachers may create a blended learning environment that supports students’ academic growth and success.

Keywords: blended learning, university students, achievement, recorded classes.

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A EFICÁCIA DAS PALESTRAS GRAVADAS SOBRE O DESEMPENHO
DOS ESTUDANTES UNIVERSITÁRIOS

RESUMO

Objetivo: Este estudo investiga a eficácia das palestras gravadas sobre o desempenho dos estudantes universitários. Além disso, como o efeito da covid-19 tornou os alunos mais flexíveis para usar tecnologia em seus estudos.

Métodos: O estudo incluiu 96 estudantes universitários especializados em áreas relacionadas com humanidades, como Economia, Direito e Literatura Inglesa. Os participantes receberam um questionário composto por 14 itens destinados a examinar o desempenho dos alunos com base em suas opiniões.

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Resultados: As descobertas mostram que as aulas gravadas influenciam muito o desempenho dos alunos, o que significa que as aulas gravadas dão mais espaço para revisar o material a qualquer momento. Além disso, não há feedback negativo sobre o desempenho dos alunos ao usar aulas gravadas. Para alcançar melhores resultados de acordo com a pesquisa, o sucesso dos alunos no ensino superior pode ser aprimorado por aulas gravadas em vídeo. Combinando os benefícios de adaptabilidade, acessibilidade e aprendizagem individualizada com as demandas de feedback e engajamento, os professores podem criar um ambiente de aprendizagem combinado que apoie o crescimento e o sucesso acadêmico dos alunos.

Palavras-chave: aprendizagem combinada, estudantes universitários, realização, aulas gravadas.

1 INTRODUCTION

The use of recording in modern classrooms has revolutionized the teaching and learning process. Teachers can now record lectures and give students access to course materials thanks to digital technology, allowing students to participate in class at their convenience. Globally, the COVID-19 pandemic has had a significant impact on education, pushing institutions to make urgent adjustments to support online learning. As a result, using recorded courses is growing in popularity because it makes it easier to carry on with educational activities. For students, this means more accessibility and flexibility (Harstinki, 2008). According to Omonov, Rikhsiyeva, Nasirova, Khashimova, Khalmurzaeva (2023), the article’s findings suggest that by offering interactive platforms, adaptable learning materials, and individualized learning experiences for students with different requirements, mobile applications can improve inclusive education. Instructors also noted a favorable effect on motivation, academic accomplishment, and student engagement.

Amid the pandemic, the shift to remote learning has become urgent as governments take measures to limit the spread of the virus. Institutions have quickly shifted to a distance learning model, relying heavily on online platforms and recorded courses. The direct goal of recording lectures is to give students the flexibility to approach content at their own pace (Hodges and Moore, 2020). Along with the benefits of flexibility and accessibility, recorded lessons give students the freedom to access lessons anytime, anywhere. This is especially beneficial for students who have difficulty participating in physical classes or have various difficulties. In addition, recording courses offer many other benefits.

Including further gains. By allowing students to access course materials whenever they choose, they first provide flexibility and convenience for the students. This flexibility
allows students to customize their schedules to meet their needs (Gupta and Thakur, 2020). Second, especially when learning challenging material, recorded classes provide students the option to freely review and repeat lectures. Students might play the audio again to confirm their understanding or put any last-minute doubts to rest (Cavanaugh and Jacummin, 2017).

Thirdly, recorded classes make learning more inclusive, particularly for students with disabilities. All students will have access to the same educational materials thanks to these recordings. Fourth, the importance of recorded classes' scalability and reuse. Learning is facilitated by building a library of recorded lessons that students can access whenever they choose., promoting flexibility and accommodating a larger number of students (Pistili and Arnold, 2010).

Blended e-learning, which combines diverse e-learning formats with traditional face-to-face training, is the result of combining different learning approaches. It involves different instructional methods and presentation. registering for a course can help you become more focused on your career, your studies, and your goals. Most students are even more driven when they are directed. An instructor may assign a group of students to complete a self-paced online module in addition to bringing the group together for in-person lessons, presentations, and group discussions as part of a blended online education program (Alonso, 2005).

The flipped classroom concept can be implemented more easily with recorded classes since they give students access to the material outside of typical classroom settings. According to Hoogheide and Loyens (2016), this strategy improves communication and engagement between students and teachers. Additionally, lectures that are videotaped help distant learning, which was crucial during the COVID-19 pandemic. By bridging the distance between students and teachers through the use of online learning, including recorded lessons, virtual learning, and video resources, uninterrupted education was made possible (Mayer, 2003).

Additionally, by addressing a variety of learning styles and student requirements, recorded lessons support inclusive education. They give access to instructional resources as well as chances for evaluation and reinforcement (Kay and LeSage, 2009). Moreover, assessments and comments can be done with the use of recorded lessons. Utilizing the advantages of recorded materials, teachers can evaluate students through oral presentations and video submissions (Schwan and Riemppi, 2004).
In the context of recorded lessons, teachers perform critical roles. It is their duty to present the material methodically and concisely while integrating pertinent examples and supporting data. This guarantees that the educational materials provided to students are accurate and thorough. Teachers are also in charge of carefully arranging the structure and coordinating it with the right aims and objectives for recorded classes.

Furthermore, teachers act as facilitators and guides for the learning process even when they are not present physically. They encourage opportunities for active engagement by incorporating questions, exams, challenges for critical thought, and opportunity for reflection. Two other essential components of teachers’ roles in recorded classes are assessment and feedback. They assess students' progress using a range of techniques, such as exams, quizzes, and homework, and they provide feedback by making comments on tasks that have been performed. Teachers also foster a learning atmosphere that is supportive and encouraging (Lehman and Conceicao, 2010).

It has become more common to use recorded and pre-recorded classes, especially as online learning has become so popular. With this strategy, there are certain restrictions though. The absence of engagement is a major drawback, to start. Meaningful engagement and dynamic learning experiences can be hampered by a lack of real-time communication between professors and students. Second, students who may need individualized strategies to meet their unique learning demands and styles face difficulties due to the lack of adaptability (Chen and Wu, 2015). Thirdly, another drawback of recorded classes is the lack of immediate and direct feedback and assessment. Immediate feedback may not be provided to students, which could hinder their ability to advance and grow in their learning (Guo and Rubin, 2014).

The lack of institutional training for online learning, low technological literacy among parents and students that hinders participation, and the limited availability of mobile devices, smartphones, tablets, laptops, signals, data packets, and Internet network services were found to be the three main causes of this discrimination (Khulkar, Mirzakhmedova, Omonov, Rikhsiyeva. Nasirova, Khashimova, Khalmurzaeva, 2023).

It is crucial to understand that the restrictions placed on recorded classes can change depending on the subjects and information covered. As a result, addressing and minimizing these restrictions in blended classes can greatly facilitate learning and provide positive results.
Prior research has mainly taken one side when focusing on integrated learning. This study added a new angle by concentrating just on recorded classes and their effect on college students. How much of an impact do recorded classes have on students' academic achievement?

2 LITERATURE REVIEW

Recorded classes are becoming more and more popular among university students as a result of technological developments and a move toward alternative teaching approaches. There are many advantages to using recorded classes, including increased flexibility, accessibility, and participation. The ensuing studies aim to review pertinent literature that explores the effects of recorded lessons on university students' academic performance, results, and satisfaction.

The usage of blended learning that incorporates recorded classes was looked at in higher education in a study by Harrison and Vayhan (2008). To ascertain the effect on social presence and instructional time, the researchers examined surveys and transcripts of group leader discussions. The results showed that recorded classes had a definite advantage in promoting cognitive conversation.

Using E-learning System at Jordanian Universities During the COVID-19 Pandemic: Benefits and Challenges is the subject of a paper by Abu Al-Aish (2021). The purpose of this study was to investigate the difficulties associated with utilizing e-learning systems at Jordanian universities as well as the technical and managerial factors that affect their effective implementation and use during the COVID-19 pandemic. Online surveys were sent to Jordanian university instructors using a questionnaire. The study involved 184 academic members in all. The report offers suggestions based on these findings to assist higher education policymakers, University leadership teams, and software developers in developing a plan to successfully install and use online learning systems during the COVID-19 pandemic.

A study on blended learning in higher education by Lopez and Rodriguez (2011) examined the usage of recorded lessons. The study underlined how recording lectures increased accessibility by giving students the opportunity to review material whenever and wherever they like, encouraging self-directed learning, and accommodating various learning preferences. The study, which included a sample of 1431 students, found that blended learning significantly improved exam results.
Kay (2012) examined the usage of video podcasts, including recorded lectures, in education from 2002 to 2011 with an emphasis on academic success. The investigation showed that recorded classes had a beneficial effect on students' academic achievement. According to the study, students who used recorded classes had better learning outcomes, received higher grades, and retained information more efficiently.

Picciano (2017) did a study that highlighted online learning and blended classes while examining the effects of theories and frameworks on online education. The researcher dissected each element of these theories and discussed each one's benefits. Given that this method is widely used across many fields, the findings highlighted the significance of blended learning classrooms in the contemporary educational landscape.

Obidat, Nassr, Harfoushi, Hamarsheh, and Assaf examined the impact of blended learning on students' academic performance at the University of Jordan in a study that was published in 2014. The survey was administered by the researchers, who employed a survey methodology, to the 427 students of the King Abdullah II School for Information Technology. The results demonstrated that blended learning significantly and favorably affected academic achievement.

In another study published in 2018, Owess (2018) investigated how employing a blended learning approach affected the motivation and achievement of students. 34 students were randomly chosen for the study, and they were split into experimental and control groups. While the control group received direct instruction from the teacher, the experimental group used a computerized program combined with the conventional teaching approach. The outcomes showed disparities in performance between the experimental and control groups, with substantial evidence of motivational variations within each group.

3 METHODOLOGY

A quantitative research approach was used in this study to evaluate the impact of recorded lectures on university students’ achievement. The participants of this study were from different disciplines. The recorded classes scale (EIS) was used as the primary tool to check academic recorded classes levels.

Data were collected by self-report surveys distributed to sample participants. Statistical analysis was performed to check the levels of recorded classes via the different sub-scales, including means and standard deviations. Inferential analysis, such as t-tests.
and ANOVA, was also used to investigate the impact on recorded classes levels. The data analysis findings revealed information about the relationship between recorded classes performance.

3.1 SAMPLE SELECTION

96 male and female students from a range of humanities fields, including law, economics, and political science, made up the study sample. They were chosen at random from Jordanian institutions that use an integrated educational system, including Petra University, Al-Balqa Applied University, and Irbid National University.

3.2 STUDY SELECTION PROCEDURES

A questionnaire consisting of 14 questions was designed to investigate students’ performances based on recorded classes. Students were asked to react to each statement by deciding whether they strongly agree, agree, moderate, disagree, or strongly disagree. The questionnaire was distributed online among the students; each one took about no more than 7 minutes to fill the answers.

Many efforts were done to check the validity and reliability of the questionnaire, first, after reviewing the study literature on recorded classes and the effect on performance, the questionnaire items were produced to evaluate many sides of university student’s performances, for example, problem solving ability, dealing with online classes, interacting with the new form of learning. Second, a pilot test was applied with a small university students sample who were not included in the real sample, it was only to check the reliability of the questionnaire. In addition, this test was made to check the clarity of the whole items, the time which it is needed to complete the questionnaire, or any other sides issues. As a result, some minor changes were made.

The final version of the questionnaire has 14 items. On a five-point Likert scale ranging from strongly agree to strongly disagree, professors were asked to score their agreement with each statement. The use of a Likert scale allowed students' replies to be quantified, allowing for a more accurate investigation of their perceptions and attitudes toward their own performance in connection to the recorded classes.

The questionnaire was delivered online utilizing a secure and user-friendly platform to ensure accessibility and ease of data collection. Students were given a unique URL to complete the questionnaire, and the expected time for completion (about 7
minutes) was informed to them. The online method made it easier to collect data from a geographically diversified sample of students.

4 RESULTS

To address the results of this study, the following section contains the needed analysis.

4.1 VALIDITY OF THE QUESTIONNAIRE

The correlation coefficients between each item and the overall score were determined in order to determine the relevance of the construct validity of the scale of teachers' views. According to the table (1) below, the correlation coefficients between the items and the tool ranged from 0.37 to 0.80.

![Table 1](image)

Table (1) Correlation Coefficients between the Item and the Total Score for the Attitude Scale

<table>
<thead>
<tr>
<th>Item #</th>
<th>R With total score</th>
<th>Item #</th>
<th>R With total score</th>
<th>Item #</th>
<th>R With total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.76**</td>
<td>6</td>
<td>.41*</td>
<td>11</td>
<td>.80**</td>
</tr>
<tr>
<td>2</td>
<td>.67**</td>
<td>7</td>
<td>.68**</td>
<td>12</td>
<td>.78**</td>
</tr>
<tr>
<td>3</td>
<td>.37*</td>
<td>8</td>
<td>.42*</td>
<td>13</td>
<td>.75**</td>
</tr>
<tr>
<td>4</td>
<td>.73**</td>
<td>9</td>
<td>.76**</td>
<td>14</td>
<td>.73**</td>
</tr>
<tr>
<td>5</td>
<td>.78**</td>
<td>10</td>
<td>.46*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Correlation is significant at the (0.05) level
** Correlation is significant at the (0.01) level

It is clear from the previous table that all correlation coefficients were acceptable and statistically significant degree so none of these items were deleted.

4.2 RELIABILITY OF THE QUESTIONNAIRE

Using the test-retest method, the stability of the study tool was confirmed by administering the scale to a group of 30 people who were not part of the study sample and then administering it again after two weeks. If the Pearson correlation coefficient between their estimates in the two instances reached (0.93), the study tool was considered stable. The Cronbach alpha equation's internal consistency approach was also used to determine the stability coefficient, which resulted in a value of (0.90). These values were thought to be suitable for the goals of this investigation.
Results related to the question: "To what extent does recorded classes affect on students’ achievement?"

In order to respond to the first research question, "To what extent does recorded classes affect on students' achievement?" averages and standard deviations of classes were computed and are shown in tables (2).
Table 2 - Means and standard deviations of classes affect on students’ achievement, ranked in a descending order

<table>
<thead>
<tr>
<th>Rank</th>
<th>N</th>
<th>Item</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11</td>
<td>Recorded classes give more space to revise the material at anytime</td>
<td>4.42</td>
<td>.893</td>
<td>high</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>Recorded classes changed my study routine</td>
<td>4.14</td>
<td>1.010</td>
<td>high</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Recorded classes are useful</td>
<td>4.13</td>
<td>1.066</td>
<td>high</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>My experience with recorded classes was successful</td>
<td>4.04</td>
<td>1.087</td>
<td>high</td>
</tr>
<tr>
<td>5</td>
<td>13</td>
<td>Recorded classes developed some of my computer skills</td>
<td>4.00</td>
<td>1.116</td>
<td>high</td>
</tr>
<tr>
<td>6</td>
<td>14</td>
<td>Using recorded classes give me more roles in the educational process</td>
<td>3.98</td>
<td>1.088</td>
<td>high</td>
</tr>
<tr>
<td>7</td>
<td>12</td>
<td>I feel more responsible when I depend on recorded classes</td>
<td>3.94</td>
<td>1.077</td>
<td>high</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>I courage recorded classes to be in the educational process</td>
<td>3.93</td>
<td>1.223</td>
<td>high</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>Recorded classes give more flexibility in dealing with the courses</td>
<td>3.83</td>
<td>1.238</td>
<td>high</td>
</tr>
<tr>
<td>10</td>
<td>9</td>
<td>Dealing with recorded classes helped me to develop some of my research skills</td>
<td>3.83</td>
<td>1.098</td>
<td>high</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
<td>Using the traditional way in teaching is better than blended</td>
<td>3.53</td>
<td>1.320</td>
<td>moderate</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>I feel board when I listen to the recorded classes</td>
<td>3.11</td>
<td>1.362</td>
<td>moderate</td>
</tr>
<tr>
<td>13</td>
<td>8</td>
<td>Using recorded classes did not help me to understand the content</td>
<td>2.96</td>
<td>1.285</td>
<td>moderate</td>
</tr>
<tr>
<td>14</td>
<td>10</td>
<td>No a positive feedback of recorded classes</td>
<td>2.76</td>
<td>1.221</td>
<td>moderate</td>
</tr>
<tr>
<td>Q all</td>
<td></td>
<td></td>
<td>3.76</td>
<td>.625</td>
<td>high</td>
</tr>
</tbody>
</table>
Table (2) shows that Item 11 "Recorded classes give more space to revise the material at anytime" receives the highest mean (4.42), while item 10 "No a positive feedback of recorded classes" was ranked last with mean (2.76). This table also shows that the classes affect on students’achievement mean as a whole is (3.76).

5 DISCUSSION

The results of this study shed an important light on how recorded classes affect students' achievement. The fact that recorded classes give students the option to review the material at their convenience received the highest mean score for Item 11, showing that students appreciate this feature of recorded lectures very highly. The adaptability and accessibility offered by recorded lessons may help students learn more effectively because they can revisit the material more than once, which strengthens their understanding and recall of it.

Item (10) shows lowest mean score, which indicates that there hasn't been much favorable feedback on the recorded classes, raises crucial questions. The importance of feedback for learning cannot be overstated because it keeps students engaged and helps them understand their progress. The absence of prompt and helpful feedback in recorded classes may compromise students' ability to learn and succeed academically.

A largely favourable view is indicated by the overall mean score of 3.76 for the effect of recorded classes on students' achievement. But it's important to understand that everyone has different experiences and tastes. While the flexibility and opportunity to review material provided by recorded lessons have their advantages, providing timely and useful feedback is still essential if students are to receive the help they need to advance academically.

It is advised to use statics that give students regular opportunity for feedback and interaction to improve the effect of recorded classes on students' achievement. This can entail adding interactive components to the recorded lessons, such quizzes or discussion boards, to encourage participation and give students a place to ask questions or seek clarification. The learning experience can also be improved by putting in place a mechanism that allows teachers to give students rapid feedback on assignments or examinations.

Further investigation should focus on specific elements that affect how recorded lessons affect students' accomplishment, taking into account elements like discipline,
learning preferences, and teacher engagement. By taking care of these issues, instructors and institutions may maximize the advantages of recorded lessons and make sure that students have a thorough and encouraging learning experience that boosts their general performance.

The implications of the mean scores for Items 11 and 10 in connection to the overall effect of recorded classes on students' achievement are crucial to take into account in addition to the findings that have already been mentioned. The high mean score for Item 11 indicates that students' capacity to examine the content at their own pace is positively impacted by the flexibility offered by recorded lessons. For children who need more time or many exposures to understand complex subjects, this can be especially helpful. Revisiting topics as needed can promote greater comprehension and memory retention, which could improve academic achievement.

The lower mean score for Item 10 on the other hand emphasizes the need for additional research into the problem of feedback in recorded classes. Although recorded classes are more flexible, they could lack the immediate feedback and contact that is so important for students' learning. For students to evaluate their comprehension, pinpoint areas for development, and make the required changes to their learning strategy, constructive feedback is crucial. This disadvantage can be overcome and the overall efficacy of recorded lessons increased by including mechanisms for delivering feedback, such as virtual office hours, discussion boards, or routine check-ins with instructors.

It's important to note that the average score of 3.76 for the overall effect of recorded classes on students' accomplishment points to an overall favorable assessment. Although this number provides an average value across numerous disciplines and individual experiences, it should nevertheless be interpreted with caution. As well as requiring varied instructional strategies depending on the topic matter, student preferences and learning styles might also differ. As a result, it is critical to take into account the unique context and customize the use of recorded classes to accommodate different student needs.

The specific elements that contribute to the effect of recorded lessons on students' achievement might be further studied. This could entail looking into how technical advancements, instructional design, and student interaction techniques can improve the efficiency of recorded classes. Additionally, researching how teachers feel and use
recorded lessons could reveal useful information about successful implementation approaches and potential difficulties.

Even while self-paced learning and flexibility are opportunities provided by recorded classes overall, it is vital to address the drawbacks, especially with relation to feedback and engagement. Teachers can create a blended learning environment that promotes students' accomplishment and fosters a good and engaging learning experience by utilizing the benefits of recorded lessons and putting methods in place to solve the identified deficiencies.

6 IMPLICATIONS

This study's conclusions have a number of consequences for educational practice. First off, the fact that recorded lessons are valuable for accommodating various learning styles and preferences is demonstrated by the high mean score for the item relating to the flexibility of material revision. Teachers can take advantage of this element by giving students access to lecture recordings or other instructional materials so they can revisit the topic at their own pace and solidify their grasp.

Additionally, a requirement for instructors to actively address this issue in recorded classes is indicated by the lower mean score for the item relating the absence of positive feedback. Giving students timely and helpful feedback is crucial for their motivation, engagement, and development. To encourage interaction and provide students the opportunity to ask questions or receive feedback on their progress, educators can think about introducing interactive components, such as discussion forums or virtual office hours.

Recorded lessons might be a valuable supplement to the learning process, based on the overall mean score for how recorded classes influenced students' achievement. However, educators must strike a balance between the benefits of flexibility and self-paced learning and the requirement for genuine interactions and tailored feedback. A strategic instructional design and ongoing support for instructors are required for the effective usage of recorded courses as a component of a blended learning strategy.

Institutions and instructors should also take into account the technical requirements and infrastructure needed to provide recorded classes successfully. In order to promote smooth access to recorded content, this entails guaranteeing accessible platforms, dependable internet connectivity, and user-friendly interfaces.
The results also highlight the significance of taking into account disciplinary distinctions when adopting recorded lessons. Understanding these distinctions might help recorded classes perform better in various academic settings where different subjects may call for particular educational tactics.

Overall, the research indicates that recorded classes may have a positive effect on students' success in higher education. Teachers can establish a blended learning environment that fosters students' academic development and success by utilizing the advantages of adaptability, accessibility, and self-paced learning while also addressing the need for feedback and engagement.

7 CONCLUSION

In summary, this study looked at how recorded lessons affect students' success in higher education. The results emphasized the advantages of recorded classes, such as the flexibility to review lessons whenever necessary, which obtained a high mean score. Because of their ability to review material at their own pace, pupils are better able to comprehend and remember the subject.

The lower mean score for the absence of positive feedback for recorded classes, however, suggests that there is room for improvement in this area of the study. It's critical for students' motivation, engagement, and general learning development to receive timely, constructive feedback. This constraint can be addressed, and the usefulness of recorded classes can be increased, by including interactive components and chances for involvement and feedback.

Recorded classes may be a beneficial part of the learning process in higher education, according to the overall mean score for the effect of recorded classes on students' achievement. But it's crucial for teachers to create a balance between the flexibility and self-paced learning that recorded sessions offer and the demand for deep engagement and tailored feedback.

The results of this study's consequences highlight the significance of deliberate instructional design, a technologically sound foundation, and ongoing support for teachers in order to successfully integrate recorded lessons. Important factors to take into account include recognizing disciplinary distinctions and customizing the use of recorded classes to fit the various demands of pupils.
Teachers can construct a blended learning environment that improves student accomplishment and fosters a good and engaging learning experience by utilizing the benefits of recorded lessons and resolving the mentioned constraints. It is advised that more study be done to examine additional elements, such as instructional design techniques, technological features, and the role of teacher involvement, determining the impact of recorded classes on students' accomplishment. In order to assist students' academic achievement in higher education, this would give instructors and institutions the opportunity to improve their methods over time.
REFERENCES


Teachers' Roles in the Technology-Enhanced Classroom (Y. J. Choi et al., 2016)