E-Learning Amidst COVID-19 in Nepal

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Abstract

The COVID-19 pandemic prompted a seismic shift in global education, propelling E-learning to the forefront. This research systematically evaluates E-learning effectiveness in Nepal during the lockdown. A series of online questionnaires were used to gather responses conducted through Google Forms. The study delves into demographic details, participation, and perceptions. Using a Likert scale, responses were quantified for analysis. Employing the Mann-Whitney U test, differences between groups were assessed. Notably, Kathmandu University students perceived E-learning as more flexible ($U = 245.0$, $p = 0.0448$). Geographical nuances were evident, with non-valley residents finding presentations clearer ($U = 170.0$, $p = 0.6474$). Technological access significantly impacted aspects like timely responses ($U = 230.5$, $p = 0.071$) and evidence of flexibility in E-learning ($U = 268.5$, $p = 0.002$). These nuanced findings offer actionable insights for policymakers and institutions navigating E-learning challenges in the post-pandemic landscape.

Introduction

Originating in Wuhan, China, in December 2019, COVID-19 became a worldwide pandemic, profoundly impacting millions. Swift global responses, including social distancing and closures, led to a widespread adoption of E-learning to ensure continuity in education. In Nepal, the closure of educational institutions prompted a shift to E-learning, presenting challenges unique to the country's socio-economic landscape. With a surge in COVID-19 cases, Nepali education transitioned from on-campus classes to virtual lectures, posing challenges for both students and educators. Our study delves into insights from students across Nepali colleges, assessing the effectiveness and satisfaction with the transition to online learning. The findings contribute to existing literature, addressing challenges faced by students and educators in adapting to online learning within Nepal's socio-economic and cultural context.

Research Questions

- How effective was E-Learning in Nepal amidst COVID-19 pandemic?
- How effective was E-Learning in Kathmandu University with Respect to another university?
- How was effectiveness of E-learning based on Residency of students?

Objectives

- To identify the major challenges faced by students and educators while transitioning from traditional learning to E-Learning.
- To understand the current state of E-Learning in Nepal.
- To explore potential solutions to overcome the identified challenges and make the current state of E-Learning better in Nepal

Related Works

Challenges Before COVID-19

Barriers in Asynchronous Learning

Asynchronous learning lacks real-time feedback, creating challenges in replicating the format of offline classes. Students experience a lack of community, technical issues, and difficulty understanding instructional goals (Dhawan, 2020).

Student-Related Challenges

Students face issues such as monotonous learning scenarios, visual fatigue, difficulty managing time, and insufficiently engaging course content. Additionally, challenges arise from a lack of appropriate learning materials, student attitudes, self-discipline, and inadequate learning environments (Willging & Johnson, 2019).

Challenges During COVID-19

Shift to Online Learning During COVID-19

The pandemic necessitated a global shift to online learning in educational institutions, presenting challenges due to unstable internet connections and causing attendance and engagement issues (La Velle, 2020).

Impact on Student Engagement

Teachers' techno-pedagogical skills emerged as a crucial factor affecting student engagement, with a positive correlation between students' grades and teachers' technological abilities (Masry-Herzallh and Stavissky, 2021).

Adapting Teaching Strategies

Future teaching strategies should focus on students' interests to ensure higher levels of engagement in online learning (Palanisamy, 2020). Teachers are encouraged to explore innovative approaches to enhance communication and facilitate effective knowledge transfer.

Psychological Impact on Students

The uncertainty surrounding the end of outbreak restrictions has caused anxiety among students, impacting their willingness to learn online. Regular communication between teachers and students is recommended to address personal challenges and psychological stress during these challenging times (Haider & Al-Salman, 2020).

Monitoring and Supporting Students

Closely monitoring students' feelings is suggested to positively impact their learning experiences, emphasizing the need for educators to cater to students' psychological needs and alleviate inner turmoil (Morgan, 2020).

Effectiveness of Online Learning

Effectiveness of Online Learning During COVID-19

Online learning, while aiding in infection prevention, has been less effective than traditional methods. Technical issues, socio-economic factors, human and pet intrusion, digital competence, assessment and supervision, and heavy workload can impact online learning effectiveness (Adedoyin and Soykan, 2020).

Challenges and Teacher Intervention

Students, particularly in underdeveloped areas with poor connectivity, struggle with online learning. Challenges include technical issues, and the need for timely responses in virtual conferencing applications. Teacher intervention is identified as a factor that can enhance students' learning efficiency to a certain extent.

Research Methodology

Conceptual Framework

- **Type of Test:** Mann-Whitney U test
- **Groups Created:**
    - Students from Kathmandu University versus students from another university
    - Based on access to technology (good or not)
    - Residency in Kathmandu or outside the valley
- **Conceptual Framework Purpose:** Evaluate differences in responses and experiences related to E-learning across distinct groups, providing insights into the impact of the COVID-19 pandemic on the educational transition in Nepal.

Mann Whitney Test

It is also known as Wilcoxon rank-sum test, that works on non-parametric data and two independent groups. It checks if there is difference between two independent groups in terms of distribution.

It has

- Null Hypothesis is statement that says that is derived from the parameters we take. And those parameters have no difference or effect in both the groups
- Alternative Hypothesis is statement that researchers are trying to demonstrate, which suggests that there is significant effect given the parameters
- Ranking of data from lowest to highest
- Calculation of U Statistic
    - Basically, sum of group 1 and group 2, the smaller sum is taken as U
- U value is converted to P value, and Checked

Research Design

This study adopts a mixed-methods research design, combining quantitative and qualitative approaches to comprehensively assess the effectiveness of E-learning in Nepal during the COVID-19 pandemic.

Sampling Technique

Stratified random sampling was employed to ensure representation from various educational institutions across Nepal, enhancing the generalizability of the findings.

Random Sampling

Participants within each stratum was randomly selected to participate in the study. This approach ensures that each individual in the population has an equal chance of being included, minimizing selection bias.

Data Collection

Survey Instrument

A structured online questionnaire was utilized, designed to gather information on demographics, perceptions, challenges, and satisfaction with E-learning. The questionnaire items were adapted from a previously published research paper (Watkins et al., 2008), ensuring the incorporation of validated and relevant questions.

Results

The survey collected responses from a diverse group of participants, including 38 individuals. Key findings include a strong consensus among participants on the availability of technology and basic skills for online classes. The majority agreed that platforms like Zoom, Google Meet, and Microsoft Teams were commonly used.

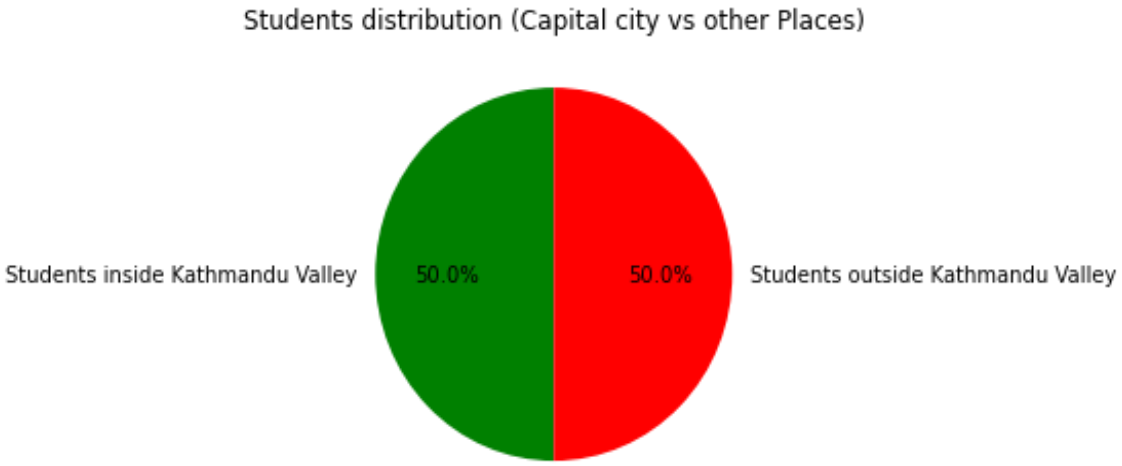


Fig 1: *Student distribution on whether they are from capital city or Other places*

Test based on groups with students from Kathmandu University versus other Colleges

Question	**Mann-Whitney statistic**	**p-value**
I had access to a mobile/laptop/computer with internet	231	0.092751
I had basic skills to operate a mobile/laptop/computer	224.5	0.119863
I could provide timely responses to teachers (assignments)	216.5	0.276916
Presentations were clear and organized	153	0.395158
Instructor simulated student Interest	125	0.089222

Instructor was available and helpful	135	0.162195
Frequent participation was possible in Online classes	116.5	0.051357
E-learning provides flexibility in the learning process	245	0.044778
E-learning provides students with better understanding of lessons	233.5	0.108654
E-Learning saves time	217	0.25627
Nepal had adequate infrastructure for E-learning classes when pandemic started	98.5	0.00998
COVID-19 had impacted your learning pace	110.5	0.028565
I was productive during covid time	168.5	0.717504

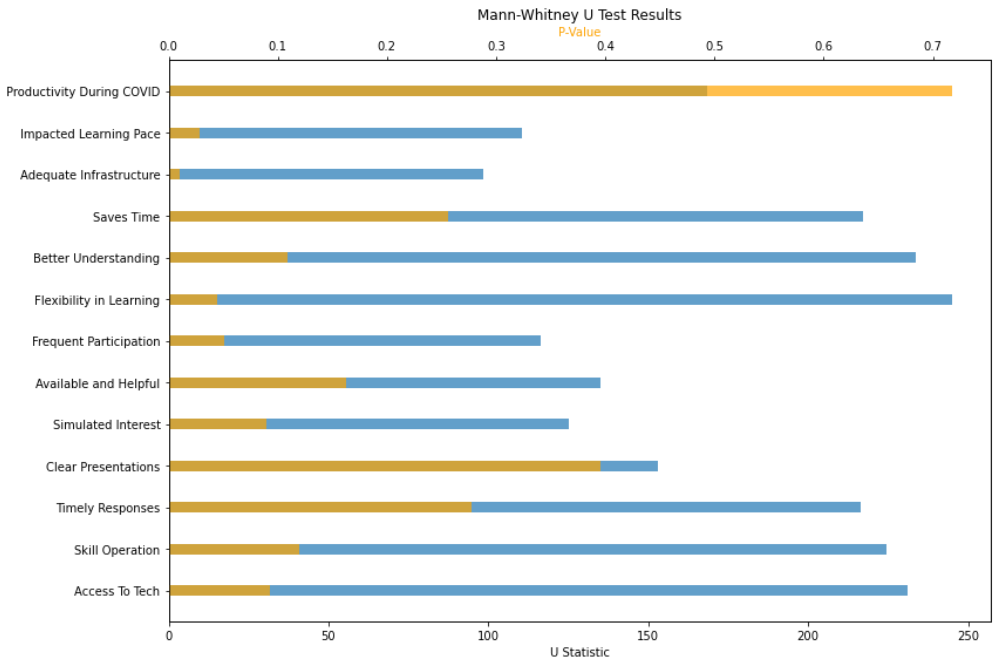


Fig 2: Student from KU VS Other Colleges Mann-Whitney Test Results

Test based on groups based on Residency inside and outside Kathmandu Valley

Question	**Mann-Whitney statistic**	**p value**
I had access to a mobile/laptop/computer with internet	178	0.436835
I had basic skills to operate a mobile/laptop/computer	175.5	0.464932
I could provide timely responses to teachers (assignments, discussions, etc.)	180	0.438811
Presentations were clear and organized	170	0.647442
Instructor simulated student Interest	166	0.752182
Instructor was available and helpful	170	0.651957
Frequent participation was possible in Online classes	117.5	0.209753
E-learning provides flexibility in the learning schedule	200.5	0.137805
E-learning provides students with better understanding than traditional methods	175	0.543129
E-Learning saves time	189	0.270276
Nepal had adequate infrastructure for E-learning	180.5	0.414424
COVID-19 had impacted your learning pace	167.5	0.709336
How productive were you during COVID-19, compared to traditional learning?	148	0.799644

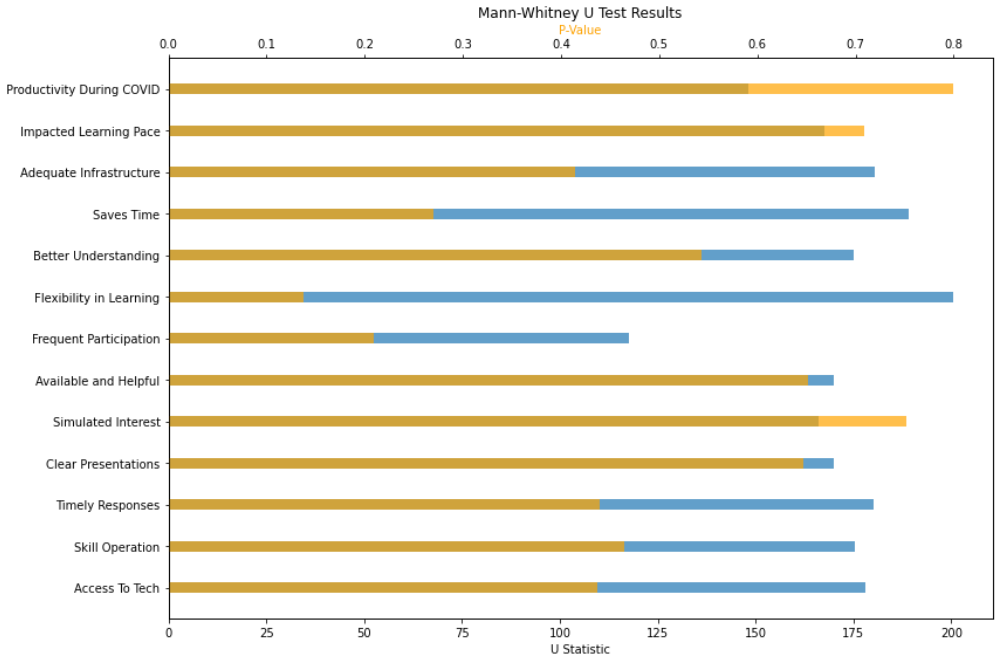


Fig 3: Residency Inside Vs Outside Kathmandu Valley Mann-Whitney Test Results

Groups with proper access to mobile tools and those without access to mobile tools

Question	**Mann-Whitney statistic**	**p value**
I had access to a mobile/laptop/computer with internet	345.0	0.000
I had basic skills to operate a mobile/laptop/computer	310.5	0.000
I could provide timely responses to teachers (assignments, discussions, etc.)	230.5	0.071
Presentations were clear and organized	206.5	0.280
Instructor simulated student Interest	191.5	0.558
Instructor was available and helpful	181.5	0.787

Frequent participation was possible in Online classes	148.5	0.460
E-learning provides flexibility in the learning schedule	268.5	0.002
E-learning provides students with better understanding than traditional methods	224.0	0.110
E-Learning saves time	251.0	0.011
Nepal had adequate infrastructure for E-learning	160.0	0.697
COVID-19 had impacted your learning pace	139.5	0.294
How productive were you during COVID-19, compared to traditional learning?	161.5	0.735

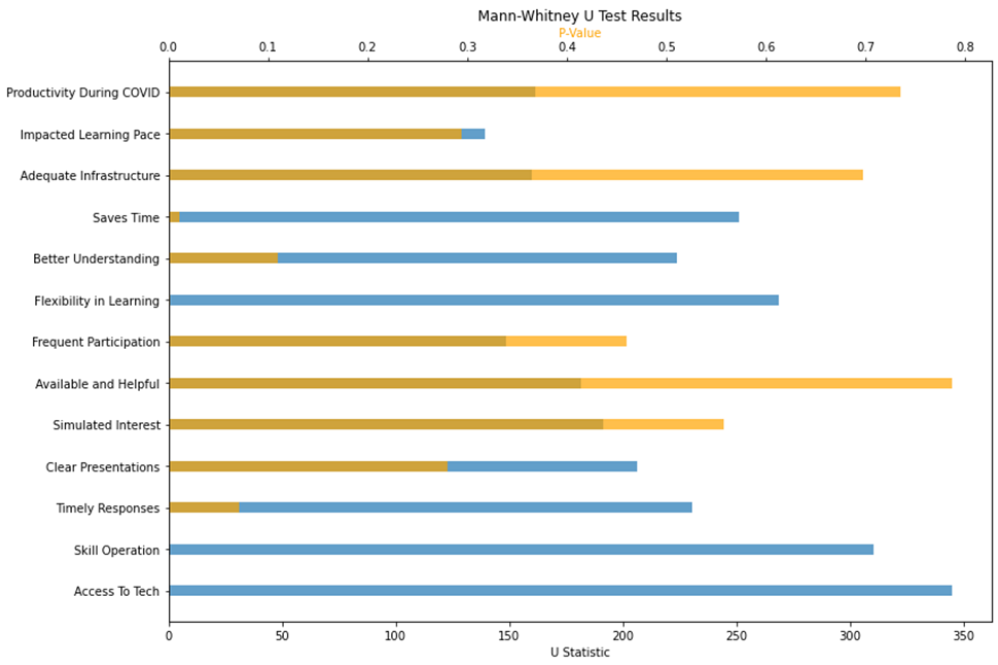


Fig 4: Access to Mobile Tools Vs Without Mobile Tools Mann-Whitney Test Results

KU vs Non-KU Groups

Flexibility in Learning Process

- **Result:** U = 245.0, p = 0.044778
- **Interpretation:** Kathmandu University students perceived E-learning as more flexible.

Adequate Infrastructure for E-Learning

- **Result:** U = 98.5, p = 0.009980
- **Interpretation:** The groups differed in their views on the availability of infrastructure for E-learning. This shows KU students had adequate E-learning infrastructure Participants within each stratum was randomly selected to participate in the study.

Impact on Learning Pace Due to COVID-19

- **Result:** U = 110.5, p = 0.028565
- **Interpretation:** The groups differed in how they perceived the impact on their learning pace.

Students in Kathmandu Valley vs from other parts of the country

No significant findings were found, as the p-value was greater than 0.05 for all cases which means all data correspond to our null hypothesis which shows us that students inside Kathmandu valley were more productive, found e-learning to be flexible, and had overall better access to tech.

Students with adequate technological tools vs non adequate tools

Timely Responses to Teachers

- **Result:** U = 230.5, p = 0.071

- **Interpretation:** There is a significant difference in the perception of providing timely responses to teachers between students with and without the best technological tools. The p-value is less than 0.05, indicating a rejection of the null hypothesis.

E-Learning Provides Flexibility in the Learning Process

- **Result:** U = 268.5, p = 0.002
- **Interpretation:** There is a significant difference in the perception of flexibility in the learning process between students with and without the best technological tools. The p-value is less than 0.05, leading to the rejection of the null hypothesis.

E-Learning Saves Time

- **Result:** U = 251.0, p = 0.011
- **Interpretation:** There is a significant difference in the perception of E-learning saving time between students with and without the best technological tools. The p-value is less than 0.05, indicating a rejection of the null hypothesis.

Conclusion

In conclusion, this research offers a comprehensive examination of the challenges and experiences faced by Nepali students during the transition to E-learning amid the COVID-19 pandemic. The findings contribute valuable insights into the effectiveness of online education, presenting nuanced perspectives that can inform educational policies and practices in Nepal. As the global landscape of education undergoes significant transformations, understanding the unique challenges within Nepal's socio-economic context becomes imperative.

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