Thesis Project Portfolio

E-learning Platforms to Enhance Digital Education in Nepal

(Technical Report)

Role of E-learning Platforms to Enhance Digital Education in Nepal: Exploring Opportunities, Challenges, Proposed Solutions and Necessary Improvements

(STS Research Paper)

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Krishna Dulal

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Sociotechnical Synthesis

Introduction

My research and technical project aim to improve literacy rates in Nepal by merging traditional and digital literacy with analyzing how the country's geography, educational system, and socio-cultural factors influence literacy and workforce development. My STS research revealed the requirement for an online platform that addresses educational barriers and promotes a competitive, skilled workforce in the global market. This led to the inception of the 'Free School' platform as part of my technical project. The Free School app and website will be designed to reflect and adjust to Nepal's socio-cultural context, economic conditions, e-readiness, and digital adoption surge due to the COVID-19 pandemic. The mobile app version of 'Free School' is being promoted to Nepalese students, considering the high mobile penetration in Nepal, around 140%. This initiative encourages student developer participation, is backed by global volunteer developers, and is funded by donations to ensure broad participation and input in its development. The platform strategically aims to impact critical sectors such as finance, healthcare, e-government, and skill development by promoting digitalization as a catalyst for a more efficient and accessible infrastructure. This not only supports Nepal's immediate educational needs but also has the potential to transform the country's socio-economic landscape by establishing robust digital infrastructure. The Free School app is not just a technological innovation but a socio-technically integrated solution that caters to the diverse needs of Nepal's population by integrating technical solutions and STS research insights.

STS Project

Even though over three-fourths of Nepalis are literate and the world is in the 21st century, Nepal is still often viewed as a poor country, and people of the Middle East, especially Dubai, Qatar, and Saudi Arabia, think that Nepal is the place where low-wage labor is easily found. As a software engineer born and raised in Nepal and about to graduate from the University of Virginia, I always think about what prevented Nepal from advancing digitally and skilled workforce. To find answers to my questions, I researched both the causes of the problem and potential solutions to improve the digital literacy of my home country. My STS research delves into the impact of software technology on education, e-government, and healthcare sectors in Nepal and Nigeria. The study examines the challenges of limited infrastructure, electricity shortages, and skilled personnel deficits. It sheds light on the growing digital divide in education, exacerbated by inequalities in technology access, affordability, and the preparedness of educators and students. The Social Construction of Technology (SCOT) framework is used to explore how technological and societal factors interact, particularly in the education systems of both countries, to address digital inclusivity and promote educational equity. This approach is crucial for understanding and overcoming the barriers to technology implementation and effectiveness in these developing regions, especially in Nepal. After studying Nepal's geography, I noticed that distance learning had been recommended since the country's schooling culture began quite a long ago and could not provide world-class education. However, there was an oversight in creating digital platforms for this, as Nepal's diverse culture was not considered. Therefore, I concluded that a new e-learning platform is urgently needed to cater to Nepal's various linguistic needs,

function seamlessly on low-speed internet, and be easily accessible via mobile devices, which can easily be transferred to the healthcare and government sectors digitally.

Technical Report

I propose a solution through my technical project to address the main barriers to education in Nepal, which primarily include the economic status of students and their families. This involves offering free education supported by the community and integrating training content into a platform named "Free School." The multifunctional proposed app supports various file types and features different login options for students, teachers/instructors, and guests. All content, including learning materials and library resources, will be freely accessible. To ensure the availability of high-quality content, I plan to partner with existing free content providers like edx, Coursera, and Khan Academy. We will translate their English content into Nepali to make it accessible to everyone. To overcome the challenge of limited computer access in Nepali schools, I recommend partnering with hardware and software donors and incorporating a donation feature within the app. I propose the latest educational developments to allow global contributions that maintain the app's relevance for Nepali students. This project will primarily focus on rural areas to bridge the gap between urban and rural students. Suppose the project secures funding from government or non-profit organizations. In that case, the developer team will develop the necessary infrastructure, such as network connectivity, and revise the terms and conditions as needed. This could significantly contribute to Nepal's literacy, economy, and global reputation of Nepali workers. The platform's focus in the future will be on diversifying our content, improving technology for areas with limited internet connectivity, and expanding to other countries that experience similar educational challenges.

Conclusion

Working simultaneously on the STS and technical projects significantly enhanced my understanding of how intertwined technological and sociocultural barriers can impact educational outcomes. By integrating insights from STS research into the practical design of the 'Free School' platform, I ensured the solutions were technically sound and culturally and socially relevant. My STS research taught me about Nepal's limited internet access. So, I added low-bandwidth and offline features to my app, making digital education more accessible. The digital divide's challenges required a more nuanced approach to the project. As a result, I ensured the platform accommodated diverse educational needs across different societal segments. The idea of offering free platforms to students arose from the need to address economic disparities. The need to overcome language barriers and the current technical literacy level necessitates developing a translation function and providing digital platform training for students and teachers. Combining theoretical research with practical application gave me unique perspectives that would have been missed if the projects were pursued separately. This comprehensive approach enriched both projects, creating a more efficient and equitable educational platform. Implementing STS findings and technical advancements could revolutionize Nepal's educational landscape.