Title: E-Learning Platform to Enhance Digital Education in Nepal

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ABSTRACT

In Nepal, schools face significant challenges in accessing high-quality digital educational resources. To address this need, I propose an e-learning platform featuring free educational materials from trusted providers such as the Internet Archive, and collaborations with NGOs and INGOs like Compudopt and Labdoo, which provide free computer and electronics donations. In addition, global volunteer teachers and institutions like the University of the People offer self-paced courses, which can be supplemented with educational content from YouTube and other providers like EDx, Coursera, and Khan Academy. Our platform requires skills in web development, content curation, needs analysis, and partnership management, which can be met through donations and volunteer work. Our core objectives are accessibility and free educational content to improve outcomes, engagement, and ethical standards. Our future work will expand content and language diversity, address technological barriers, and conduct extensive testing and evaluation based on feedback from students and educators.

1. INTRODUCTION

As a software engineer born in Nepal, I did not have the opportunity to experience many online platforms during my childhood. In fact, I only had exposure to computers in my second year of university. Even after completing 11th grade, I found limited content on platforms like YouTube. Interestingly, distance education had already been introduced in Nepal before I was even born. "College of Education introduced adult education through radio in 1958. It is the first initiative towards distance education in Nepal" (Sharma & Bhatta, 2018, p.3). Furthermore, there were students who were using online platforms over time. "As of April first week 2016, country report of ALISON, one of MOOCs providers states that 29,841 learners have been educated from Nepal participating in one or more courses. There are 296,031 sessions in Nepal and 750 courses are studied from Nepal. Thus, Nepal is ranked 31 out of 250 countries participating in courses offered by ALISON (Sharma & Bhatta, 2018, p.3). Despite the early start, there is no standout e-learning platform for Nepalese students. "There is no such remarkable e-learning platform in Bhutan, Maldives and Nepal" (Das, et.al, 2019, p.2).

Following the COVID-19 outbreak, Nepal experienced a significant shift towards online education. While I was at Northern Virginia Community College, I stumbled upon several Nepali news articles that discussed issues related to online education platforms, such as difficulties with Microsoft Teams and Zoom meetings and a shortage of skilled educators. Interestingly, I never faced such problems while using Zoom, Canvas, and other online platforms for my education. Additionally, there were issues related to software and hardware availability and problems with electricity and

internet penetration. In the fall of 2023, I researched this topic and discovered that internet penetration had improved, there was better access to electricity, and new online platforms such as MeroSecond School had been introduced. This was a remarkable advancement that I had not seen before.

2. RELATED WORKS

I visited MySecondTeacher, Nepal's largest online platform for schools, and logged into the app. The app was only available in English language and courses were only available for students in grades 10, 11, and 12. However, the major issue faced by students was the language barrier and course content. "The most of information available are in English languages that cause language barrier as people from rural areas of Nepal cannot understand these languages and cannot access computer too. Internet services provider of Nepal are still failing to provide services fully to rural areas of Nepal" (Shakya, et al., 2017, p.17). It would be helpful to add Nepali and English language to the e-learning platform to make it easier for both students and educators.

Nepali students need to interact with technology more appropriately. "Firstly, students find it challenging to adapt to technology for their online education and often struggle to post assignments and log in to their classes. Secondly, some students consider online classes to be less interactive. Third, poor Internet connectivity in many areas of Nepal has made it difficult for students to attend classes and post assignments. Fourth, the unavailability of computers poses a challenge in learning. Three of these points concern accessibility to online courses" (Adhikari, et al., 2020, pp. 65-66). I am currently researching the existing weaknesses of different platforms and reviewing scholarly research on the topic. My aim is to address these issues with the help of my free School app.

3. PROPOSAL DESIGN

The Free School app is designed to provide Nepalese people with free access to educational content. It includes courses of all levels, is available in multiple languages, and is supported by worldwide donations. The app uses less data and has numerous functions. The project plan is open source and categorized, making it easier for students and other developers to develop. It is a complex project that requires more than one semester time and a group of engineers to complete, so I have only proposed the following design for now:

My proposed platform will offer multilingual and culturally inclusive content. The app will use machine learning and Google Translation to translate courses and their content into Nepali and local languages. I'll rely on community contributions for culturally relevant translations and include a language button for easy access to my users. The app curriculum will meet Nepal's educational standards and laws, and I prioritize the safety and security of our users while adhering to all national and international laws.

The platform will use adaptive video streaming and offline learning modules to ensure the accessibility of all instructional and other videos. Django-collect-offline can help with internet access issues in low-internet penetration areas. I will Customize the platform to match Nepal's internet speed and devices. Accessibility is crucial for effective instruction.

The free school app will have multiple login options - Instructor, Student, Guest, or Continue without Login - to cater to all users, regardless of their technical abilities. The app will also include instruction videos, FAQs, reviews, and other helpful information to help users navigate the app. Users can log in using Facebook or Google, and AI technology will suggest personalized learning paths and resources based on their performance. Adaptive quizzes will adjust the quiz's difficulty based on the student's proficiency level to support effective learning.

The app will support teachers with resources and training to excel in digital teaching. My goal is to provide teachers with the tools they need to enhance their teaching techniques and support their student's growth and success. I provide additional resources for community engagement such as forums and social media features that allow for group study and collaboration. Teachers will find it easier to create classes and groups.

The application aims to collaborate with free educational content providers such as Khan Academy, Coursera, and local NGOs to offer courses free of charge for learners. It also partners with tech companies to donate devices and offer affordable internet to educators. I promote an open-source model, so the platform stays up-to-date with the latest technology without having financial trouble.

I will implement continuous feedback mechanisms to gather inputs from various stakeholders, which will help me improve my platform over time. I'll also regularly assess the impact of my platform using surveys, analytics, and academic performance tracking to make informed decisions about updates and expansions.

I plan to include a "Donate " button on my website and app. This will serve as an encouragement for users and other potential donors to contribute. I intend to promote this feature through periodic newsletters and express gratitude to donors. A straightforward form will be provided to donors for making predefined or custom donations. In addition to monetary contributions, donors can also donate educational materials, such as laptops, computers, or e-books. With the platform, I will explain how their donation will support new course development, technology upgrades, or scholarships for needy students. Donations will be made quickly through widely used payment gateways that support international and local payment methods. After a donation, donors will receive an acknowledgment email with details on how

their donation will be used. I will provide the donors with information on how their contributions are making a difference in the world. Additionally, I will ensure to adhere to the privacy policies in place when handling the donor's information.

It is essential to guarantee that the platform's structure can manage expansion while preserving efficiency. Furthermore, I intend to incorporate VR technology to provide a more engaging educational experience in science and history.

4. ANTICIPATED RESULTS

The free school app will be available to hundreds of schools in rural Nepal to use alongside traditional teaching methods. The app has multilingual capabilities and high-quality translations due to its open-source nature. The app's development will also help hundreds of developers gain new skills through collaboration worldwide and simultaneously contribute to changing the world of people. Many people with big hard can contribute to the world of Nepali needy people by donating money, computers, electronic devices, and other study materials to Nepali students through the Free School app. The software developer and controller properly care for everything, but sometimes unexpected things can happen. For this reason, the app has a support team of volunteers and paid staff funded by donations, who can help if needed. In addition, Nepali media is helping to promote the app by providing free advertising and other marketing efforts.

The Nepali government and locals are expected to support the free school app, designed to gather feedback from students, teachers, and others to aid in its continued development. Free and open-source software, such as Linux and the Django framework, will allow the app to expand, as Wikipedia has revolutionized information sharing. For new technology, the best advertisement is "word of mouth." Therefore, a free app could become

something that all media, students, teachers, and other users talk about during morning tea breaks in Nepal, schools, colleges, and other gatherings. The app may be advertised in Nepal through channels such as local media, public figures, and community events if required. As the app's anniversary approaches, exponential growth in user base, donors, developers, and feedback providers is expected, as hard work pays off.

5. CONCLUSION

This project has proposed the need to develop and execute a revolutionary e-learning platform in Nepal that enhances digital education. This platform will address significant challenges such as language barriers, digital literacy, infrastructure issues, and access to high-quality educational resources. It integrates free educational materials from trusted providers and collaborates with NGOs and INGOs to provide necessary hardware and software. The platform is designed to be multilingual and culturally inclusive, making education more accessible, particularly in rural and underserved or rural areas.

Its potential to increase accessibility, engagement, and ethical standards in education highlights its value to Nepalese students and educators to Nepal's citizens. Introducing this type of advanced technology for free in Nepal's education sector could help bridge the educational gaps between economically disadvantaged students in rural areas and their urban peers. This could create opportunities for Nepalese students to pursue their academic goals abroad instead of relying on low-paying and high-risk foreign jobs.

6. FUTURE WORK

The future of this e-learning platform is focused on taking critical steps to improve its effectiveness and reach. The immediate priorities include completing the first version of the application with the help of a volunteer developer from UVA or elsewhere and expanding our content and language diversity to reach a broader user base. This involves integrating additional educational materials in local languages and developing tailored courses that align with Nepal's national curriculum. We will prioritize technological enhancements such as adaptive learning algorithms and offline access capabilities to accommodate low bandwidth environments. Crucially, extensive testing and feedback loops with actual users will help us iterate and refine the platform functionalities. Our long-term goals include exploring integrating virtual reality (VR) technologies to provide immersive learning experiences and expanding the platform's reach to other countries facing similar educational challenges.

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