Vol. 5, Issue 1, 2025

Making Technical & Vocational Education Accessible to the Grassroots Students through Digital Learning

Zahirul Alam[1*], and Sadia Sultana[1]

[1]Integrated Development Foundation, Dhaka, Bangladesh

*zalamidf@gmail.com

Abstract

This paper explores the integration of digital learning platforms into technical and vocational education to enhance accessibility for grassroots students. Addressing the limitations of the traditional vocational system, this system struggles to meet the growing demand for skilled workers. To address these challenges, the proposed model leverages digital platforms, such as YouTube, to deliver theoretical knowledge in essential vocational areas, including welding, General Electrical, Electronics, Dressmaking, Civil Construction, and IT. This approach delivers free, accessible content enhanced with interactive 3D models and live sessions, increasing the flexibility of vocational education. Classes are designed in clear, easily understandable language and uploaded to YouTube to reach a broad audience. Upon completing the courses, students undertake an open-book examination. This online assessment will serve to measure their credibility and ensure they have grasped the material. The methodology combines online and offline learning to deliver comprehensive, industry-aligned education, incorporating partnerships with technical institutions for advanced training and certifications. Additionally, the paper highlights how the model itself operates as a social business, integrating financial sustainability with social impact. This model bridges the vocational education gap in remote areas, offering accessible learning opportunities to all students. By offering these courses, it aims to reduce unemployment and contribute to national economic growth.

Keywords: *Accessibility, digital learning, online education, vocational education, social business, and sustainability.*

Abstrak

Kertas ini membincangkan integrasi platform pembelajaran digital dalam pendidikan teknikal dan vokasional bagi meningkatkan penglibatan pelajar akar umbi. Sistem vokasional tradisional kini berdepan kekangan untuk memenuhi permintaan yang semakin meningkat terhadap tenaga kerja berkemahiran. Bagi menangani cabaran ini, model yang dicadangkan memanfaatkan platform digital seperti YouTube untuk menyampaikan pengetahuan teori dalam bidang vokasional utama termasuk kimpalan, elektrikal am, elektronik, jahitan, pembinaan awam dan

teknologi maklumat (IT).Pendekatan ini menyediakan kandungan percuma dan mudah diakses yang diperkaya dengan model 3D interaktif serta sesi langsung, sekali gus meningkatkan fleksibiliti pendidikan vokasional. Kelas disampaikan dalam bahasa yang jelas dan mudah difahami, kemudian dimuat naik ke YouTube untuk menjangkau khalayak yang lebih luas. Setelah menamatkan kursus, pelajar akan menjalani peperiksaan buku terbuka dalam talian sebagai penilaian terhadap kefahaman dan kebolehpercayaan mereka.

Kaedah ini menggabungkan pembelajaran dalam talian dan luar talian bagi menyediakan pendidikan menyeluruh yang selaras dengan keperluan industri, termasuk kerjasama dengan institusi teknikal untuk latihan lanjutan dan pensijilan. Selain itu, kertas ini turut menyoroti bagaimana model ini berfungsi sebagai sebuah perniagaan sosial yang menggabungkan kelestarian kewangan dengan impak sosial. Model ini merapatkan jurang pendidikan vokasional di kawasan terpencil, menawarkan peluang pembelajaran yang boleh dicapai oleh semua pelajar. Dengan menyediakan kursus ini, ia suatu inisiatif bertujuan mengurangkan kadar pengangguran dan menyumbang kepada pertumbuhan ekonomi negara.

Introduction

There's a lack of appreciation for practical abilities since vocational education is sometimes seen as a poorer alternative to academic education. In Bangladesh, an estimated 14 percent of students receive technical vocational education, which is very low compared to many developed and even some developing countries (Dr Kamal Uddin Ahmed/The Financial Express, 2020). Approximately, there are only 20 vocational institutes in Bangladesh. Moreover, 379,381 students are studying at the SSC (Vocational) level in Bangladesh

(The Business Post, 2022). However, this is a small quantity given the current, rising demands of the domestic and international

labour market. There have been notable changes in the tools and modalities of learning, evaluation, and certification, as well as in career advising, job matching, and labour market services, due to the growing usage of digital technologies, especially after the COVID-19 pandemic (ILO, 2021c). TVET and skills systems around the world need to change with the times to meet the external demand for new skills coming from our increasingly digital society and businesses. Forecasting the supply and demand for skilled labour, as well as revising TVET certification programs, curriculum design, and delivery are also necessary to satisfy these demands.

On the contrary, Traditional educational systems have frequently had limitations on their accessibility and capacity to offer. quality education to all people. The Bangladeshi government has placed a strong focus on technical education as a way to promote economic development and progress, provide low-wage workers with jobs that pay market wages, reduce poverty, and contribute to the prosperity of the nation. Furthermore, not everyone has easy access to vocational education because of regional limitations or a dearth of training. facilities. Therefore, it is imperative to move technical vocational education to digital platforms in order to make it accessible to everyone. Individuals can take short breaks from learning because of the much greater flexibility of digital learning.

This paper proposes a model for making technical and vocational education accessible to grassroots students through digital learning. It explores the potential of digital platforms to deliver comprehensive vocational training in various fields. The model aims to enhance educational accessibility, provide practical learning experiences, and align with industry standards, ultimately addressing the existing skills gap and contributing to economic development.

Objectives

This paper discusses a model that provides access to technical and vocational education through digital platforms to the grassroots students, improving their skills and economic opportunities.

Literature Review

A study shows that, in Bangladesh, technical and vocational education is provided across four levels: secondary (SSC), higher secondary (HSC), diploma, and short-term training courses. Approximately 87% of these institutions are in the private sector. The courses are offered by vocational training institutes, polytechnics, commercial institutes, technical training centres, and specialized institutes. The Directorate of Technical

Education (DTE) and the Bangladesh Technical Education Board (BTEB) oversee the formal vocational and technical education at the SSC, HSC, and diploma levels, as well as some of the training courses.

Over the past two decades, there has been a notable increase in both the number of institutions and student enrolment. According to the Bangladesh Education Statistics (2019), several key trends have emerged from 2000 to 2019:

- The number of technical and vocational institutions has significantly increased. · Private sector institutions dominate the field, accounting for 87.3% of the total, while government institutions make up 12.7%.
- The number of students enrolled in TVET programs has risen, surpassing one million in 2019.
- Despite these advances, the proportion of female students remains low, with females constituting slightly over 25% of the total student body in 2019, indicating a persistent gender disparity in technical and vocational education.

Education is a continuous process that evolves over time. For students facing quarantine, e learning presents a viable alternative to postponing their education. However, many so-called distance learning platforms merely distribute lectures, documents, and videos, falling short of achieving educational goals.

Another study found that in Bangladesh, the current state of learning is concerning. Implementing e-learning technologies effectively poses a significant challenge for a country with limited resources. Several factors contribute to the limited success of e-learning at the secondary, higher secondary, and tertiary levels in Bangladesh. E-learning necessitates the use of computers or smartphones, which are supported by reliable internet access. Unfortunately, a large portion of students in Bangladesh lack the financial means to purchase these devices or access the internet, leading to educational dropout.

Digital learning platforms have emerged as a transformative solution for expanding access to education. Studies by UNESCO (2020) demonstrate that digital platforms can enhance educational accessibility, flexibility, and engagement. The use of online resources, such as YouTube tutorials and MOOCs, has been shown to provide students with valuable theoretical knowledge and practical skills. Digital learning also enables remote and underserved communities to access high-

quality educational content, bridging the gap created by geographic and infrastructural constraints.

The integration of digital learning into vocational education offers several benefits, including the ability to deliver up-to-date content, accommodate diverse learning styles, and provide flexible learning schedules. According to a study, digital platforms can support the delivery of vocational training by offering interactive and engaging content, such as videos, simulations, and live sessions. Additionally, digital learning allows for real-time updates and alignment with industry standards, ensuring that educational content remains relevant and practical.

The impact of digital learning on accessibility and employability is profound. By making vocational education available online, students in remote or underserved areas can gain access to the skills and knowledge needed to improve their job prospects. It is found that online vocational training enhances job readiness and provides learners with the skills necessary to succeed in the workforce. Additionally, the flexibility of digital learning allows students to balance their education with other responsibilities, making it a viable option for a broader demographic. A study highlights that online education can lead to improved employability, as students can acquire certifications and skills that are directly relevant to current job market demands.

Implementation Modalities

Initially, our methodology integrates practical learning on a digital platform, offering free theoretical knowledge through YouTube tutorials and the facility to enroll in comprehensive free courses. Live sessions featuring 3D models are recorded for perpetual access, leading to certifications upon successful completion. We facilitate student referrals to various technical institutions for advanced education, and affordable hands-on training is available at affiliated institutes.

The platform seamlessly combines online and offline learning for a complete educational experience. In the context of implementing vocational and technical education, this includes conducting a needs assessment, aligning the curriculum with industry standards, and delivering engaging content across various digital platforms such as Facebook, Instagram, etc.

To ensure effective utilization of the platform, instructors undergo training. The courses encompass a blend of pre-recorded videos, live sessions, forums, and assignments. Progress is measured through regular assessments and certifications, with a commitment to continuous improvement based on feedback and industry

collaboration. Our goal is to enhance education and skills by providing relevant, accessible, and industry-aligned learning experiences.

The vocational education initiative offers comprehensive courses on YouTube across key areas: Welding, General Electrical, General Electronics, Dressmaking, Civil Construction, and Computer & IT. Each curriculum module covers essential topics, from theoretical foundations to practical skills. The project includes recruiting instructors, developing content, creating a website, establishing a YouTube channel, and implementing continuous assessments. This approach aims to deliver accessible, high-quality vocational training, addressing skills gaps and boosting employability.

Sustainability

Our vocational education project, guided by the principles of Nobel Laureate Prof. Dr. Yunus, implements a social business model aimed at achieving both impactful social change and long-term sustainability. The model incorporates a modest fee for certification, which contributes to covering the costs of the program while maintaining affordability for students. This approach ensures that the program remains financially viable and accessible, addressing fundamental social challenges and providing valuable vocational training to those who need it.

In addition to certification fees, the project will diversify its revenue streams through partnerships, sponsorships, and grant funding. These varied sources of income will provide a stable financial foundation and reduce reliance on any single revenue channel. By leveraging these diverse streams, the project can ensure continuous operation and support its expansion efforts without compromising its mission or accessibility.

The financial model also emphasizes strategic profit allocation to support growth and development. Profits generated will be used to repay investors their initial contributions, encouraging ongoing investment and support. Furthermore, a portion of the profits will be reinvested into the project to enhance its activities and broaden its reach. Competitive salaries will be offered to employees, fostering a motivated workforce and a positive work environment, while also instilling a strong sense of social impact in their roles. This comprehensive approach ensures the project's sustainability and its ability to effect meaningful change in the community.

Conclusion

The implementation of vocational education through a social business model,

inspired by the principles of Nobel Laureate Prof. Dr. Yunus, represents a transformative approach to addressing both educational and social challenges. By offering basic vocational training to students while adhering to the principles of social entrepreneurship, this project aims to provide accessible education that combats poverty and fosters economic development. The use of modest certification fees, alongside diverse revenue streams such as sponsorships, partnerships, and grants ensures the project's financial sustainability. This strategic approach not only maintains the affordability of education but also secures the long-term viability of the program. Additionally, the reinvestment of profits into expanding and improving project activities, combined with competitive salaries for staff, ensures a motivated workforce dedicated to delivering high-quality education with a significant social impact.

The integration of vocational education within a social business framework offers a promising pathway to overcoming the systemic challenges in traditional educational models. By blending the principles of social responsibility with effective business strategies, this model can address the disparities in access to education and contribute to a more equitable system. The project's commitment to inclusivity, combined with its sustainable financial practices, positions it as a vital tool for empowering underserved communities and promoting economic growth. Ultimately, this approach not only provides valuable skills and opportunities for students but also establishes a resilient and socially responsible educational enterprise, paving the way for a more inclusive and sustainable future.

References

UNESCO. (2021). *The State of the Global Education Crisis: A Path to Recovery*. https://unesdoc.unesco.org/ark:/48223/pf0000385988

Digital learning in technical and vocational education and training (TVET): The sustainability challenge (2019). Type set.io. link

Motia Mannan, (2023, October 4). The challenges of e-learning in the context of Bangladesh. Owlcation. https://owlcation.com/academia/The-Challenges-Of-E_learning-In-The-Context-Of-Bangladesh

UCEP Bangladesh. (2024). Annual report 2023.https://www.ucepbd.org/wp content/uploads/2024/06/UCEP-ANNUAL-REPORT-2023-FINAL-VERSION 02_05_24.pdf