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Improving The Accessibility Of Vocational Training In Mongolia Through An Online-Offline Hybrid Learning Web Application

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Abstract

This study aims to improve the accessibility of vocational training in Mongolia by developing an online-offline hybrid learning web application and create a minimum viable product for the web application with a course taker's interface and a short curriculum development guide in the interdisciplinary of information technology and education sectors. Consequently, the platform developed based on these research results will enable learners to access online and offline vocational training courses, benefiting users who want to take a course, local businesses who want to cooperate as practical session hosts, and course providers. The curriculum will be developed based on competencies, with lesson recordings kept relatively short (three-five minutes) and instructional videos for practice lessons to enhance the learning experience. By leveraging technology and adopting a hybrid approach, the platform aims to bridge the gap between learners and vocational training providers, improving the accessibility of vocational education in Mongolia significantly as well as promoting diversity and inclusion in education. This research will also benefit local businesses by providing opportunities to host practical sessions for learners, creating a win-win situation for both parties. Overall, the research seeks to help learners acquire new skills and knowledge without the need to relocate or incur significant expenses since advances in technology and digitalization in the education sector have opened many avenues for learning.

Keywords: *digitalization in education, cooperative learning style, communicative learning approaches, diversity and inclusion in education.*

Research work hypothesis and objectives

This study promotes diversity and inclusion in vocational education and enhances the accessibility of vocational training in Mongolia by developing an online-offline hybrid learning web application. Many people from remote areas in Mongolia must come to the capital city, Ulaanbaatar, to take vocational training courses, resulting in significant expenses and lifestyle disruptions. The research seeks to address this problem by creating a hybrid-learning platform enabling learners to access vocational training courses more easily.

Our approach is to develop a hybrid-learning platform whereby learners will be able to take theoretical lessons virtually and complete their practice lessons at nearby local businesses. The main stakeholders will be users who want to take vocational training courses, local businesses who want to cooperate as practice lesson hosts, and course providers. The curriculum will be developed based on competencies, with lesson recordings kept relatively short (3-5 minutes) and instructional videos provided for practice lessons to enhance the learning experience.

We expect that online learning platforms have the potential to improve the accessibility of vocational education in Mongolia significantly. By leveraging technology and adopting a hybrid approach, our platform can help bridge the gap between learners and vocational training providers. Research findings will also benefit local businesses by providing them with opportunities to host practical sessions for learners, creating a win-win situation for both parties.

Overall, this research seeks to improve the accessibility of vocational training in Mongolia by leveraging technology to create a hybrid-learning platform. With a focus on competencies and practical knowledge, our platform will help learners acquire new skills and knowledge without the need to relocate or incur significant expenses. Finally, the key findings and outcomes of the research will be promoting sustainable development by leveraging diversity and inclusion in the classrooms and enhancing continuing education and interdisciplinary collaboration.

LITERATURE REVIEW

One of the main issues in Mongolia is its high poverty rate, estimated to be 27.1% in 2022. The unemployed and economically inactive people are the poorest among the working-age population in Mongolia. Despite the robust economic growth in Mongolia, the benefits of growth fail to be translated into household-level welfare (World Bank, 2020). It is argued that economic growth is not sustainable because it depends on the heavy exploitation of natural resources (Asian Development Bank, n.d.; International Monetary Fund, 2013). After the mineral sector, agriculture was one of the fastest-growing sectors, contributing an average of 36% of GDP between 2012 and 2014. However, by 2017, its GDP share dropped significantly, and the services sector started gaining significance as the largest source of employment by attracting many workers (UNESCO, 2020).

Maria & Vital (2016) claim that vocational training is integral to reducing poverty as it facilitates the production of services and products that the population needs and demands. According to Morsy et al. (2019), skilled young people are more likely to transition to better-matched jobs than youth with inadequate education. Thus, with the increased demand for skilled workers, improving the accessibility of Vocational Training in Mongolia will foster further economic growth and reduce poverty.

Currently, the Technical and Vocational Education and Training (TVET) sector enjoys the largest support and financial funding, and most funding goes to TVET schools (UNESCO, 2020). However, the demand for skilled laborers in Mongolia is still rising due to a mismatch of skills and insufficient practical experience gained by TVET school graduates. In 2018, the number of job vacancies at the TVET level was 9.8 thousand, while the number of citizens who acquired jobs at this level was 2.1 thousand (Figure. 1). Another reason for the skill mismatch in the labor market is that the Mongolian economy is growing such that the needed skills evolve quickly, making the TVET school graduates' skills obsolete (Myangan, 2019). Thus, to meet the need for greater hands-on experience and quick adaptability, short-term vocational training programs, which are more practice-based and flexible, are needed.

Mongolia's vocational education system faces challenges in aligning with labor market needs, lack of industry involvement, and limited financial support for vocational programs. In recent years, international organizations like the German Federal Ministry for Economic Cooperation and Development (BMZ) and the Korea International Cooperation Agency (KOICA) have supported reforms in the Mongolian VET sector, introducing dual training models and strengthening industry partnerships (GIZ, 2021).

The United Nations Development Program (UNDP) in Mongolia has initiated digital literacy programs aimed at vulnerable groups such as the elderly and people with disabilities. These programs used open-source materials and ensured inclusivity by adapting content into multiple formats. The project demonstrated that improving digital literacy could enhance the participation of marginalized groups in education and vocational training (UNDP, 2021).

TABLE 1.5. Job vacancies and citizens who mediated to jobs by education level, by percentage (LMBS, 2018)

№	Education level	Vacancies (thousand)	Numbers of citizens mediated to jobs (thousand)
1	Master, doctor	1.3	0.2
2	Diploma and bachelor	15.3	8.1
3	Technical and Vocational	9.8	2.1
4	Special vocational	8.2	1.9
5	Complete secondary	20.3	26.5
6	Secondary	6.1	2.8
7	Elementary	1.3	0.8
8	No education needed	2.1	0.8
Total		**64.5**	**43.1**

Figure 1. *Job vacancies and citizens who are qualified for jobs by education level, by percentage. Source: Study Report of Technical, Vocational Education and Training Sector by the Ministry of Education, Science, Culture and Sports and Asian Development Bank.*

Mongolia has made notable progress in ICT infrastructure, with nearly all rural districts (soums) having internet access. However, discrepancies in digital device availability and levels of digital literacy persist, particularly in rural regions. The UNESCO ICT in Education Policy Review emphasized the need for policies that address infrastructure gaps, capacity building, and the integration of ICT into education systems at all levels (UNESCO, 2020).

Blended learning, which combines both online and face-to-face components, has been widely implemented in Mongolia's higher education system. A study conducted at the University of the Humanities found that blended learning was positively received by students, offering increased flexibility and accessibility. However, challenges such as varying learning styles, technological access, and the design of courses were noted as barriers to successful implementation (Sergelen & Bat-Ulzii, 2020).

Mongolia has engaged in international vocational training collaborations, particularly with China and Germany. A triangular pilot project demonstrated the feasibility of online vocational training for Mongolian students. The initiative reported high satisfaction levels from participants and indicated the potential for further developing digital-based vocational education (SGCSD, 2021).

About half of the Mongolian population lives outside the capital city, but most of the vocational training centers are based in the capital city Ulaanbaatar. Therefore, many people from rural areas find it challenging to come to the city and take a vocational training course, which usually lasts about 1-2 months. Even though there are a substantial number of vocational training providers, none of them have integrated online learning into their operations yet, leaving people in rural areas no choice but to come to Ulaanbaatar for vocational training programs (Davaanyam Shagdar, 2022).

Thus, key challenges for improving vocational training through online-offline hybrid systems in Mongolia include:

- Technological Access: Although internet access is widespread, rural regions still suffer from inconsistent access to computers and other devices necessary for online learning (UNESCO, 2020).
- Digital Literacy: There are significant gaps in digital literacy across the population, which could hinder the successful implementation of hybrid learning (UNDP, 2021).
- Curriculum Alignment: Vocational curricula are often not aligned with the needs of industry or are not easily adaptable to hybrid learning environments (Sergelen & Bat-Ulzii, 2020).

Recommendations:

- Infrastructure Development: Investments in improving internet speed and access to digital devices in rural areas are essential (UNESCO, 2020).
- Capacity Building: Offering extensive training programs for both teachers and students to enhance their digital literacy will be crucial for the success of hybrid models (UNDP, 2021).
- Curriculum Reform: Developing curricula that are flexible, adaptive to hybrid learning environments, and closely aligned with labor market needs is critical for the relevance of vocational training (GIZ, 2021).

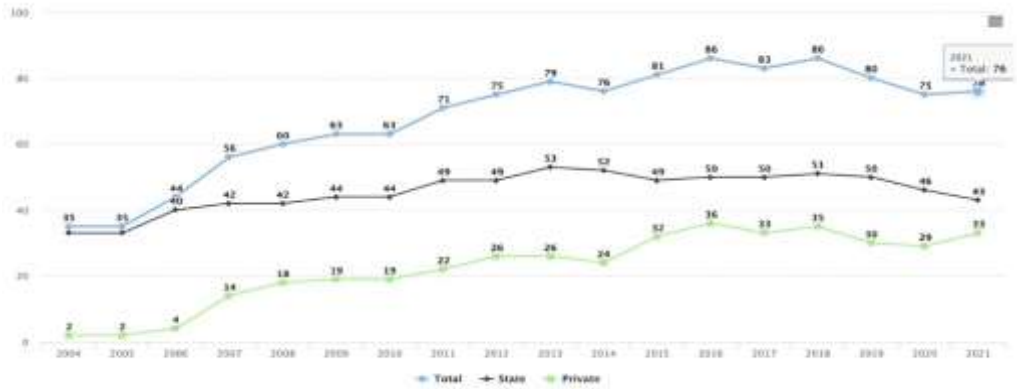
To sum up, there is a great demand to develop a web application that enables people to take a specialized training course online and do practice lessons at local businesses.

Market context

Vocational training education sector in Mongolia is growing as the country develops economically. There is a need for skilled labor in industries such as mining, construction, and tourism, which increases the demand for vocational training programs. The government has also been promoting vocational training to reduce youth unemployment and support economic development.

The private institutions entered the market around 2004, which means their market presence is relatively young. However, as shown in Figure. 2, the number of private institutions in the sector has very slightly fluctuated in recent years. It could mean that the competition in the sector makes new market entries challenging.

Figure 2. *The number of technical and vocational education institutions which are operating in Mongolia.*



Proficiency certificates are granted upon completing vocational training courses and passing the final written and practical examinations. With the proficiency certificate, individuals can acquire jobs in the market as it is widely accepted as validation for professionals. A finding suggests that youths who completed vocational schools in Mongolia had significantly higher employment rates and higher salaries than those who were not admitted (Erica et al.).[2] This finding can be extended to short-term vocational training programs to some extent to imply that vocational training education leads to higher employment rates and higher pay. However, there is no available research or statistics on short-term vocational training programs in Mongolia, so further research is needed. Vocational training centers are required to obtain/renew their license from the Ministry of Labor and Social Protection every two years. Under its license, a training center can have multiple vocational training programs. Therefore, it is common for a single vocational training center to conduct multiple vocational training programs, lowering the barriers for new entrants to the market. This would further be translated to increased competition in the field, which then would lead to higher competition over the quality of vocational training.

Currently, there is no such vocational training center or program that integrates online learning into its curriculum. However, there are two potential competitors. The first one is Chuhal Amjilt, a vocational training center in Ulaanbaatar. Its curriculum comprises 20% theoretical knowledge and 80% practical knowledge, all conducted in person. However, its marketing has become outdated, and it has been losing its reputation with the public due to inadequate training and an outdated curriculum. Its market segment has a wide age range, and its marketing emphasis is on its affordable training programs. As it currently has such a big user base, Chuhal Amjilt could become a potential competitor if it chose to reform its vocational training programs and integrate virtual learning. The second potential competitor is Tomyo EdTech, an online learning application focusing on language learning and college preparation. Its main medium is online learning. Even though it does not conduct vocational training programs, it could become a competitor if it decides to expand to vocational education as it already has the required technological capabilities.

Individuals who were accepted into a vocational school had a higher probability of securing paid employment, with a 4% increase in chances, and a 9% increase in chances of retaining a job for over a month. These benefits were more significant for women and continued to rise for up to three years after graduation. Women who were admitted to competitive vocational schools had a substantial increase in their earnings. After one year of completing a two-year vocational program, women who were accepted earned 13% more in their current job than those who were not admitted.

Learning design

This study proposes a web application that integrates online and offline learning for individuals to improve the accessibility of vocational training and reduce the current gap in the demand and supply of skilled workers in Mongolia.

The app will enable learners to take theoretical classes online and complete the practice sessions at nearby local businesses. This provides more accessibility and convenience for the learners. The main stakeholders will be the online course providers, local businesses, and individual learners. Course providers will upload the course's video contents and text materials and provide their partner practice session hosts – local

businesses – around the country/region. The learner will be able to watch and access the course materials, choose a practice site nearby, and register for an upcoming practice session on the platform.

In Mongolia, there may be several potential obstacles to implementing online and hybrid learning, such as limited access to technology, internet connectivity issues, and lack of familiarity with online learning platforms. Additionally, cultural and social barriers could make people hesitant to embrace new approaches to education. For example, some people may view online learning as less effective than traditional classroom learning or be skeptical about the benefits of hybrid learning for practice-based specializations.

Regarding these potential obstacles, providing appropriate information to potential users and stakeholders about the benefits of online and hybrid learning will be important. This could include highlighting the convenience and cost-effectiveness of online learning and the potential for increased access to education for people in rural areas or those unable to travel to the capital city for vocational training courses. Additionally, it may be helpful to demonstrate the effectiveness of hybrid learning for practice-based specializations by providing examples and case studies from other countries or industries.

To overcome the potential skepticism and doubts about online and hybrid learning, engaging with stakeholders, including educators, administrators, learners, and employers, and involving them in developing and implementing these new educational approaches will be essential. This could involve conducting workshops and training sessions, providing support and resources for educators and learners, and establishing partnerships with local businesses and organizations to facilitate hands-on learning experiences for learners. Ultimately, the success of online and hybrid learning in Mongolia will depend on the ability of educators and stakeholders to work together to address the challenges and opportunities presented by these new approaches to education.

The final delivery of this research is web application implementation. As developing the whole platform that sustains a collaboration between multiple stakeholders should have various interfaces, we deliver the learner's interface populated with dummy data for this research's scope.

RESULTS AND IMPLEMENTATION

Curriculum design

The web application is a means to conduct online-offline hybrid vocational training programs. Thus, curriculum design plays a vital role in developing the application. Vocational training programs are designed to provide learners with practical skills that they can apply directly in their profession. Therefore, the curriculum needs to focus more on hands-on experience than theoretical knowledge. While theoretical knowledge is essential to understand the concepts and principles behind a skill, the emphasis should be on the practical application of that knowledge.

Short-term vocational training programs usually do not have assignments, as their primary focus is to equip learners with the necessary skills and knowledge to perform the required tasks. Instead, the training programs usually have a performance-based evaluation where learners are evaluated based on their ability to apply the learned skills in real-world scenarios. The content of vocational training programs is highly technical by nature and often taught through one-directional information sharing and practical experiences. Thus, the curriculum must be designed to cater to the specific technical skills and knowledge required in the field. According to "Guide for Practitioners of Vocational Training" by Maria & Vital (2016), a high-quality vocational training system should be designed to adapt to the changing needs and demands of the market and enterprises. This means that the system should be flexible and responsive enough to cater to the industry's dynamic nature.

Moreover, a successful vocational training system should not only focus on providing theoretical knowledge but should also emphasize the development of competencies. Competencies refer to a combination of knowledge, skills, attitudes, and behavior that enables an individual to perform effectively in a specific job or occupation. To develop a flexible and responsive training system that addresses the needs of learners and the market, the curriculum should prioritize competencies rather than just providing knowledge.

With these considerations in mind, the management team of Khan Chadvar NGO has defined a curriculum design that includes short-term vocational training courses with lessons and topics related to

specific competencies. Additionally, the curriculum design will incorporate practice lessons that focus on hands-on experiences for learners.

The overall curriculum layout for the vocational training programs is illustrated in Figure. 3, with individual programs consisting of lessons and topics related to specific competencies and practice lessons to enhance learners' hands-on experience. With these curriculum design guidelines, the web application will be able to provide effective and flexible vocational training programs that meet the needs of learners and employers in Mongolia. Figure.4 shows an example of the overall curriculum layout described.

Khan Chadvar Team suggested that if resources are allowed, each practice site should be responsible for running practice sessions for only one competency. This will allow practice sites and on-site instructors to specialize in that competency and enable learners to explore various businesses around the area, expanding their professional network. Illustration (2) explains an example scenario.

Figure 3. *The layout of the courses and corresponding lessons.*

key suggestions from "Small Teaching Online" by Darby F. & Lang J. M. (2019). These suggestions can be utilized as the curriculum design guidelines:

Provide module overview. By including an overview of the module's content and learning objectives, learners can better understand the material they will be covering and are more likely to stay focused and engaged throughout the learning process. This can help learners improve their time management skills, as they will clearly understand the scope and sequence of the module's activities and assessments. Additionally, a clear and concise module introduction can help learners track their progress and assess their understanding of the material, leading to more effective learning outcomes.

Create a community. To enhance the learning experience of learners, it is recommended to establish a community that encourages interaction among learners. This can be achieved by integrating a question-and-answer discussion forum or any similar platform where learners can ask questions related to course content or activities. Such a community can also foster a sense of belonging among learners, creating a supportive environment where learners can interact, collaborate, and learn from one another. Building a community of learners can boost learners' motivation and engagement, leading to a more effective and enjoyable learning experience.

Figure 4. *An illustration of a layout of a vehicle electrician training course.*

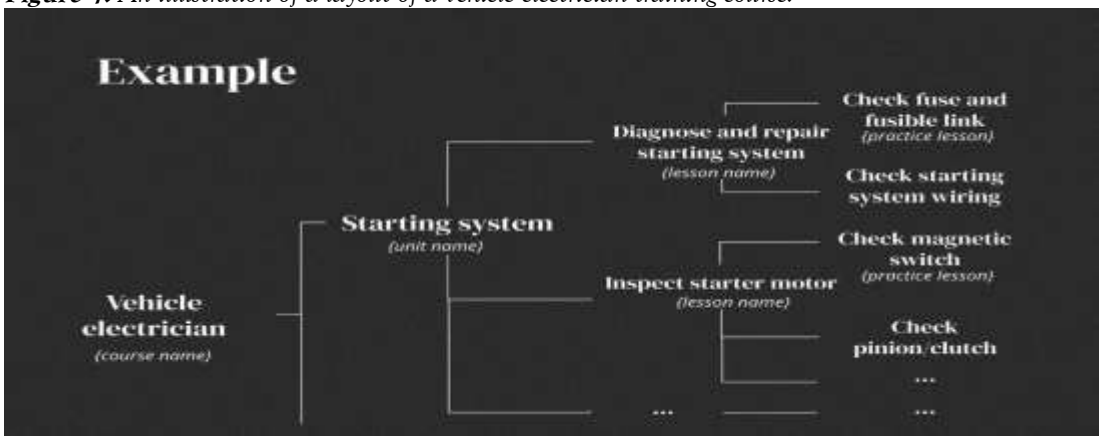


Illustration (2):

→ The vehicle electrician training program has ten lessons/competencies.
→ Starting system diagnosis and maintenance is a competency, and only three auto repair shops in the neighborhood hold practice sessions for this competency.

Guide learning through engagement. To guide learning effectively, engaging learners through multiple means is essential. One way is to provide a partial outline or slides that learners can print and use to fill in the missing information during class or while watching a video lecture. Additionally, giving guiding questions for learners to answer while viewing a mini-lecture or having a post-mini-lecture quiz ensures active listening. It allows learners to reinforce their understanding of the content. This approach can be highly beneficial in promoting student engagement, as it encourages active participation and fostersa deeper understanding of the material being covered. By incorporating multiple engagement techniques into the learning process, educators can help learners stay motivated and focused, resulting in improved academic performance and overall learning outcomes.

Provide incremental feedback. Providing incremental feedback is a critical aspect of facilitating effective learning outcomes. The feedback that is provided in a timely and regular manner enables learners to understand their areas of strength and weakness and helps to clarify where improvements are needed. By giving specific and actionable feedback, educators can help learners identify areas that require improvement and take appropriate steps to address these gaps in knowledge or skills. In addition to providing feedback, it is essential to ensure that learners are motivated and feel supported throughout the learning process. Educators can create a positive learning environment that fosters enthusiasm and a desire to excel by offering encouragement and motivation. This can be achieved by recognizing learners' accomplishments, highlighting areas of progress, and providing opportunities to showcase their skills and knowledge.

Keep the lesson videos short. In online learning, class video duration can be crucial in promoting student engagement and effective learning outcomes. Research suggests that videos between 3-5 minutes in length are most effective in capturing learners' attention and maintaining their focus throughout the lesson. This is because shorter videos allow for greater information retention and comprehension, as learners are less likely to become overwhelmed or distracted by lengthy lectures.

Keep the tone casual. Using informal videos instead of highly produced videos has been shown to enhance student engagement and promote a more interactive learning experience. Informal videos can be more relatable and authentic, which can help learners feel more connected to the material being presented. This can be especially important in online learning environments, where learners may feel isolated or disconnected from their peers and instructors. By incorporating informal videos into their online classes, educators can create a more dynamic and engaging learning experience, ultimately leading to improved student learning outcomes.

1.1 Web application

1.1.1 Technical stack

The technical stack we have chosen to implement our research comprises widely-known web development frameworks and tools. These tools will give us flexibility, scalability, and efficiency to deliver a high-quality hybrid vocational training platform.

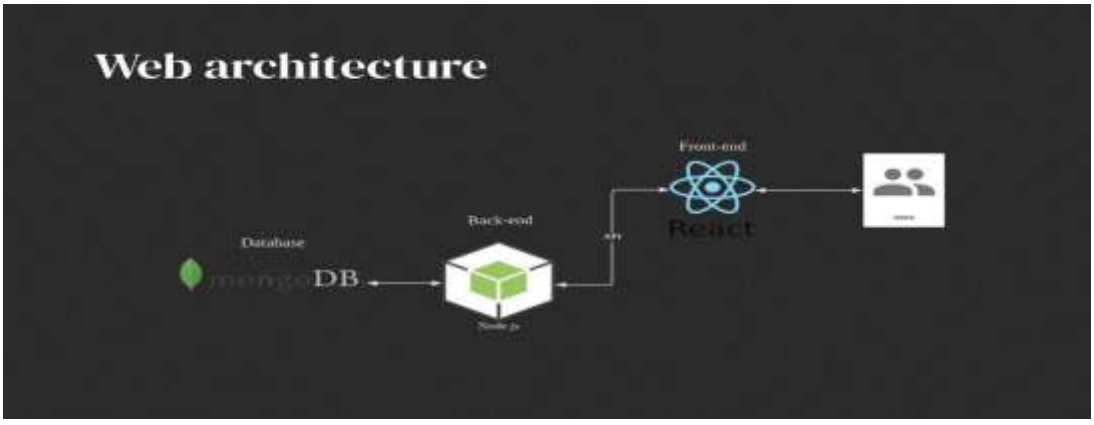


Figure 5. *Web application development stack.*

For the user interface, we have used React.js, a popular and highly versatile JavaScript library for building user interfaces. React.js is component-based, which makes it easy to develop and reuse components throughout the application. Moreover, it has an extensive collection of web development packages, and we have some prior experience with the language.

For the backend/API, we have chosen Express/Node.js, a highly compatible and efficient server-side JavaScript framework. It is well-suited for intense data retrieval and storage applications and has a massive community of developers that can provide support if needed. To test our API, we used Postman, a popular tool for API testing and documentation.

For the development phase of our research, we opted for MongoDB, a NoSQL database that offers more flexibility over data types and schemas compared to traditional relational databases. It is also compatible with deploying many cloud providers. By leveraging MongoDB, we can ensure that our platform is robust, scalable, and efficient in handling large volumes of data.

Overall, our choice of technical stack will enable us to deliver a high-performing hybrid vocational training platform that meets the needs of our target users in Mongolia and beyond.

1.1.2 Web design

To facilitate the delivery of the vocational training program, the web application will be designed to have a specific layout that aligns with the curriculum design. The theoretical lessons will be presented through pre-recorded virtual lectures, where instructors will explain the theoretical aspects of each competency, such as the components of a windshield system. Virtual practice lessons will also be pre-recorded in the form of tutorials, where instructors will demonstrate how to perform specific tasks, such as conducting an electric diagnosis of the starting system. These recorded lessons offer learners the advantage of being able to revisit the materials as often as needed, supporting interleaved practice. In-person practice sessions will also be held, which will take place in local businesses, such as car repair shops, to give learners practical experience.

The web application will have various features, including access to the pre-recorded lectures and practice lessons, registration for courses, browsing of course details, progress tracking, reservation of practice sessions, and course surveys.

1.1.3 Database and API Design

The database is a crucial component of any dynamic web application as it stores and manages data. In our vocational training platform, we have identified several data models that will be used to store different types of information.

The first data model is for Users, including their unique ID, first and last names, date of birth, address, phone number, and national ID. This information will be used to identify users and enable them to access the platform's functionalities.

The second data model is for Courses, which includes the course's unique ID, title, description, instructor(s), duration, fee, and a list of lessons that the course comprises. This information will be used to provide users with details about available courses and enable them to enroll in them.

The third data model is for Lessons, which includes the lesson's unique ID, title, description, text, video files, a list of practice questions, and a list of practice lessons associated with the lesson. This information will be used to deliver the virtual theoretical and practice lessons.

The fourth data model is for Practice Lessons, which includes the unique practice lesson. ID, title, description, video files, and a list of practice sites associated with the lesson. This information will be used to provide users with virtual pre-recorded practice lessons.

The fifth data model is for Practice Questions, which includes the practice question's unique ID, content, multiple choices, and the correct answer. This information will be used to assess users' understanding of the theoretical concepts and practical skills taught in the lessons.

The sixth and final data model is for Practice Sites, which includes the practice site's unique ID, location, on-site instructor(s), and available time slots. This information will be used to schedule in-person practice sessions at local businesses.

In addition to developing these data models, we have also created an API that allows the user interface to communicate with the database. For example, when a user signs up, their details will be stored in the database, and when they log in, the database will be used to verify their credentials. The current database design is shown in *Figure.6.*

Figure 6. *Database design used for the MVP with models and their relationship*

1.1.4 Deployment

For deployment, we have opted to use Heroku as the hosting platform for the backend and Netlify for the front end of our hybrid vocational training web application. Heroku is a cloud platform that gives a scalable environment for running web applications. At the same time, Netlify is a cloud hosting platform that offers continuous deployment and automatic builds for web applications.

By using these platforms, we can ensure easy access to the web application for feedback from our Capstone Research advisor, second reader, and potential test users. The deployment process was straightforward, and we could quickly deploy the minimum viable product to the live environment.

To access the minimum viable product, users can visit the web application through the link provided: https://capstone-draft.netlify.app/. This link will allow them to interact with the web application, explore its functionalities, and provide us with valuable feedback for future iterations.

Conclusion

User testing Now that the minimum viable product of our hybrid vocational training platform is complete, it is crucial to conduct user testing to identify areas for improvement. We aim to gather feedback from potential users in Mongolia and use this feedback to make necessary iterations to the platform.

To conduct user testing, we plan to reach out to potential users in Khan Chadvar, our partner in Mongolia. We will select a random sample of learners and ask them to interact with the web application and provide feedback on confusing or unnecessary areas. We will not collect identifiable information about the participants to ensure we comply with human subjects' research guidelines.

The user testing process will be critical to improving the functionality and user experience of our hybrid vocational training platform. By gathering feedback from our target users, we can make data-driven decisions that will enhance the effectiveness and appeal of our platform. Through this process, we aim to create a platform that meets the needs of vocational learners in Mongolia and beyond.

The accessibility of vocational training in Mongolia can be significantly enhanced through the development of an online-offline hybrid learning platform. By addressing key challenges related to digital access, literacy, and curriculum design, Mongolia can improve its vocational education sector and provide better opportunities for its workforce. International collaborations and ongoing reforms provide a strong foundation for the success of such initiatives.

1.2 DISCUSSIONS AND RECOMMENDATIONS

Our goal is to create a comprehensive resource for vocational training program providers that includes curriculum design guidelines and several innovative features for our vocational training web application. These guidelines will serve as a valuable tool for program providers, offering a clear and concise framework for designing effective vocational training programs. They will cover essential areas such as program structure, curriculum content, and methods for assessing learner progress.

In addition to the curriculum design guidelines, our web application will include a range of features

designed to enhance the user experience and support effective learning outcomes. One key feature will be a practice site finder and appointment scheduler, allowing learners to find and schedule appointments at nearby training sites. Another feature will be course progress tracking, enabling learners to monitor their progress and stay on track with their studies.

The application will also include a profile completion, editing, and deletion feature, allowing learners to manage their personal information easily. A secure payment system will be integrated into the application, providing a safe and convenient way for learners to pay for their courses. Finally, we will prioritize data security, ensuring that all user data is protected and that our system meets the highest standards for privacy and security.

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Data availability: The data that support the findings of this study are available from the corresponding author and web application through the link provided: https://capstone-draft.netlify.app/. This link will allow users to interact with the web application, explore its functionalities, and provide us with valuable feedback for future iterations.

Conflict of Interest : "The authors declare that there is no conflict of interest".

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