



# **DigiEduHack Solution**

## **St. Catharines - Niagara Innovation Hackathon**

### **Challenge: Digitizing Education**

## **VR Experiential Training**

### **Virtual Reality Experiential Training**

Unrecognition of international credentials resulted in underemployment of immigrating professionals with billions of dollars loss in potential earnings. The lack of experiential training for international graduates makes them unable to get their licensure in destination countries

### **Team: VR ExpTra Team**

#### **Team members**

1. Maryam Nafea 2. Ilya Ilya 3. Malak Matus 4. Mona F. El-Azab

#### **Members roles and background**

1. Maryam Nafea: High school student; target group and benefits
2. Ilya Ilya: High school student; technical part of solution development
3. Malak Matus: High school student; financial data
4. Mona F. El-Azab: University Professor and pharmacist; solution idea and statistical data

#### **Contact details**

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## **Solution Details**

### **Solution description**

A smart virtual training simulation to be developed (VR ExpTra). This simulation can be used to experientially train workers/students as well as grade them. An algorithm would be used to decide whether a trainee's performance is satisfactory or not.

Steps in brief:

- Have a professional in the field to create a description for what is required for a specific

- profession (ex. Have a heart surgeon describe what a heart surgery looks alike in detail).
- Have a 3D designer model this
  - Have a programmer code the simulation
  - Bug test the program
  - Release it internationally
  - Gather statistics about students/trainees based on their performance in the simulation
  - Use the statistics to judge whether a student/trainee is qualified for work

## **Solution context**

### **What is the problem you are facing?**

There is a lack of efficient experiential training for national graduates, in addition to the under-recognition of international credentials.

### **What is the challenge that you are solving?**

Unemployment or underemployment of international professionals due to unrecognized credentials in immigration attracting countries like Canada. This in turn leads to a deficiency in professionals and/or specialists with extremely long waiting time for necessary services. This could be due to, at least in part, difficulty in providing obligatory experiential training required for licensure both for national and international graduates.

## **Solution target group**

### **Who is the target group for your solution?**

The solution targets higher education students as well as international professionals.

### **Who will this solution affect and how?**

The solution will affect graduating students who must gain hands on experience and necessary technical skills before going into the job market. It will also enable international graduates to get their licensure in their new home countries in a shorter time and at a much lower cost. Universities will attract more international students and professionals who are looking for getting licensure. Community will have more qualified professionals to provide necessary services.

### **How will they benefit?**

Graduates will benefit by having the opportunity to practice their future profession before graduation, become more skillful with minimal cost and error, and in a safer environment. International professionals will be able to get their licensure in other countries in much shorter duration and at a lower expense and less stressful environment. Universities will benefit from the fees paid by international trainees. Community will benefit by receiving better services at a much shorter waiting time. An overall improvement in employment rate shall be achieved.

## **Solution impact**

### **What is the impact of your solution?**

We envision our solution will tackle a worldwide problem represented in the under-recognition of

international degrees of skilled workers (e.g. physicians, dentists, pharmacists, nurses, engineers, etc.), who remain unemployed for years due to the lack of licensure in their new home countries. On the other hand, for national graduates, the time required for experiential training and/or residence shall decrease dramatically. Additionally, the need for professionals and/or specialists to train new graduates will be decreased to the minimum, therefore allowing professionals to save more time for their careers and community services.

### **How do you measure it?**

VR ExpTra is expected to help in the following:

1. A significant reduction in the unemployment rate among new immigrants.
2. Faster recruitment of professional national graduates into the job market.
3. More availability of professionals/specialists for community service and consequently a reduction in waiting time for the required services provided by those professionals and specialists.

### **Solution tweet text**

#Customize your career VR ExpTra is an interactive simulation designed by professionals in each targeted field to provide the graduates of higher education institutes with the obligatory experiential training that is necessary to gain skills to qualify for professional licensure.

### **Solution innovativeness**

The main advantage in our solution is that it will utilize the most recent technology of AI to make the VR experiential training personally adaptive to the trainee based on his/her own level and progression. Therefore, this interactive simulation will initially evaluate the trainee, pinpoint the points of weakness that need extra training to focus on, while allowing the trainee to pass other modules that prove his/her points of strength.

To the best of our knowledge and research, a smart experiential training solution like what we are proposing here in DigiEduHack has never been produced for educational purposes so far. Few applications came into market very recently that adopt the idea of virtual training for medical students, however these applications are limited and not smart enough to evaluate the student's progression nor suggest the points of weakness in an interactive manner.

### **Solution transferability**

#### **Can your solution be used in other contexts?**

Yes, our solution can be used in many other contexts starting from elementary education going through high education, up to postgraduate studies and research. It also provides a tool for continued education (CE) for professionals to maintain their licensure in certain fields of occupation.

#### **What parts of it can be applied to other context?**

By creating more and more modules based on the market and stakeholders need assessment, our idea to produce the VR ExpTra program could be utilized in different fields of occupations, and not

limited only to the medical or engineering sectors.

## **Solution sustainability**

Virtual Reality Experiential Training (VR ExpTra) is a sustainable solution because it is expected that the investors will make profits by the development of endless modules and in different languages for commercialization worldwide.

### **Our plan for the implementation of the solution:**

We suggest starting the production of the prototype of this program (VR ExpTra) and testing it at a small scale in certain educational institutions that deliver diverse degrees and have the necessary infrastructure for VR lab (e.g. McMaster or Brock University in Niagara Region, Canada). Feedback and statistics will be collected to evaluate and update the prototype.

### **Mid-term vision:**

Upon the success of the prototype, investors from Europe, (like HTC VIV for VR hardware development and SimforHealth for digital solutions platforms), or from North America will be eager to develop different modules that will provide this kind of smart VR experiential training in almost all fields of education and in different languages to serve international trainees.

### **Long-term vision:**

Investors can sell this product to schools looking to improve their training process. The schools will benefit, as they will attract those who believe that they should have valid certification. As the development continues, the demand for such a technology would rise, and thus investors will be able to turn a bigger profit.

## **Solution team work**

As a team, we worked together in a very collaborative manner. Although we didn't know each other previously, we were able to get along with each other after coming out with a common point of interest that tackles a problem that we have previously faced in a way or another. We were able to develop the idea and divide tasks between ourselves based on individual experience and points of strength to reach the final proposed solution.

We are hoping to continue to work as a team on this challenge to bring it into reality.