Project
Name: Career Mindset Development
Purpose: Employability Training in Further Education
Owner: Bodyswaps
Date: Q4 2020 – Q2 2021
Location: United Kingdom
Language: English
Medium: VR and Mobile
Background

Research and Assumptions

9 in 10 UK employers state that young people with soft skills progress faster in the workplace (CBI/ Pearson Education and Skills Survey “Helping the UK Thrive” 2017). However, around ⅔ of teachers and business leaders believe that students don’t currently have the soft skills needed to prepare them for the workplace, while a similar proportion feel that schools prioritise ‘hard skills’ at the expense of soft skills (Instructure Skills Study: preparing for the 2030 workplace report, 2019).

Our pre-project research and conversations with FE Colleges confirmed the assumptions that the current provision for soft skills in Further Education is scarce. Main barriers include cost, logistical complexity, lack of psychological safety and lack of measurable results.

Simultaneously to our initial assumptions being made, as of 24 March 2020, 1.37 billion students – roughly 80% of the world’s student population – had to stay away from schools and universities due to the COVID-19 pandemic (UNESCO, 24/03/2020). Although those were exceptional circumstances, they started prompting education institutions to devise remote learning strategies that would be sustainable in an uncertain future.

This project aims to improve students’ employability and career progression by enabling FE Colleges and Vocational Training providers across the United Kingdom to bridge the soft skills gap and complement the technical skills with the required soft skills, cost-effectively, remotely and asynchronously.

We imagined a solution ticking all the boxes, providing a cost-effective, practical and psychologically safe environment for students to practice and get personalised feedback both in real time (automated data-driven) and asynchronously (Performance Feedback App – see below).
Career Mindset Development (CMD): CMD is an innovative soft skills training simulation developed by Bodyswaps and leading employability expert Nadine Lewis. It is a 15-minute simulation that combines embodied Virtual Reality and conversational AI to create an interactive and realistic scenario in which the learner is immersed and has the opportunity to practice real-world skills using their own voice and body-language.

The simulation enables learners to save and share their simulated performance and is complemented by the Performance Feedback Application (PFA), a PC-based application enabling teachers and career advisors to review and feedback on these performances remotely and asynchronously.

Project Funding

The development of the software and its pilot in Further Education Colleges have been co-funded by a VocTech Seed Grant from Ufi VocTech Trust.

Objectives

Career Mindset Development is an innovation initiative designed to pilot the use of virtual reality as a training delivery alternative in Further Education. In precis, the objectives of the pilot were to:

1. Demonstrate the engagement of Learners and Trainers for immersive soft skills training simulations.

2. Demonstrate the learning performance of immersive simulations in the context of soft skills training.
3. Demonstrate appetite from the Further Education sector to deploy immersive soft skills training at scale.

4. Assess the different routes to market to determine the most effective one for us.

5. Explore various delivery modalities to inform a sustainable deployment model moving forward.

6. Gather quantitative and qualitative data and feedback to inform the content and user experience (UX) format of future simulations.

Audience

The primary audiences for Career Mindset Development and the Performance Training Application are respectively Students and Staff (Teachers and Career Advisors) of Further Education Colleges.

From a learning design perspective, the experience addresses the training needs of Further Education students about to enter the world of work.

5 UK-based FE Colleges took part in this pilot:
- Bridgend College (Glamorgan)
- Harlow College (Essex)
- Sandwell College (West Midlands)
- South Essex College (Essex)
- Writtle University College (Essex)

More details in the Key Numbers section of this report.
Software

Training Simulation - Career Mindset Development

Career Mindset Development is a 15-minute real-time interactive learning simulation developed to train Further Education students on how to handle professional interactions in the world of work. It can be experienced with a range of devices from smartphones to tablets to virtual reality headsets.

During the simulation, learners are consecutively tasked with observing and listening to a situation, identifying good and bad behaviours, asking questions to progress the discussion and finally pitching an idea to their new colleague, using their own voice, their own words and their own body language.

The software uses a virtual bodyswapping mechanic to allow learners to relive their pitch from their interlocutor’s perspective, which gives them the opportunity to self-reflect on what they said and how they said it.

Finally, the system provides automatic feedback on the behaviour, word choice and body language of learners and makes personalised recommendations to help them improve their soft skills over time.

The key learning outcomes are:
- Building self-awareness
- Taking the initiative when talking to people you don’t know
- Making a positive impact at work
- Communicating ideas clearly and with confidence
Here is a break-down of the experience:

1. **Orientation**

   After choosing their avatar, the learner is greeted in reception by virtual mentor Sophie, who congratulates them on being accepted as an intern and suggests that they head over to the hangout area to see if anyone needs a hand.

2. **Reflection**

   The learner is invited to self-assess how confident they feel about different aspects of entering the workforce, such as “Talking to people I don’t know” and “Communicating my ideas clearly and with confidence.”

3. **Setting the scene**

   In the hangout area, the learner meets Leo and Flo, who are discussing how busy they are with their upcoming client pitch. Flo mentions that it would be good to have someone to watch them practise their pitch for a new computer game...
4. Introductions

It’s time for the learner to introduce themselves and offer their help. But first, they’re given some guidance on planning what they’re going to say. When they’re ready, the learner speaks aloud, using their own words and body-language.

5. Observation

Leo and Flo ask the learner to watch their pitch and give them feedback about the best and the worst aspects of their performance. While watching, learners are tasked with clicking to register instances of good or bad behaviour.

6. Conversation

Now learners tell Flo and Leo what they thought of their pitch using a structured simulated conversation. Their choices provide insights into career mindsets such as engaging with purpose, speaking with clarity and being respectful.
7. Intervention

The final activity is to develop and deliver a concept of their own. Sophie shows the learner a simple technique for generating ideas using the sticky notes on the wall. When they’re ready, they use their own words to pitch their idea to Sophie.

8. Bodyswap

The presentation is recorded. Now, the learner swaps bodies with Sophie to see their avatar perform their pitch, using their voice and body language, from her perspective.

9. Performance Review

During the pitch, AI records, analyses and repackages data about aspects of the learner’s verbal and non-verbal communication to give the learner personalised tips on improving their performance.
10. Submission

Students have the ability to submit their intervention for human review.

11. Self-assessment

Activities complete, reflection is encouraged by inviting the learner to self-assess their confidence levels one more time, in light of their recent experience.

12. Self-reporting Survey

Finally, the learner fills out a short survey on Engagement and Performance (more details in the Methodology section of this report).
Performance Feedback Application

The Performance Feedback Application (PFA) is a PC-based application containing a library of “performances” (ie. students’ pitches) shared by students and enabling trainers to review and feedback on these performances. This asynchronous human feedback complements the real-time personalised feedback offered by the simulation.

Here is how it works:

1. **Create a Class**

   Staff (Teachers or Career Advisors) have the ability to create a class and choose the training modules this class will be required to use.

2. **Invite Learners**

   Staff then add students (name and email address) and send them an invitation to do the simulation and submit their performance for review.
Students will receive an email with the following invitation that they will use to access their simulation:

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Alice,

You’ve been invited by Barry Shine to participate in a Bodyswaps training session.

To take part:

- Download the Career Mindset Development app for your mobile or VR device from this link.
- Run the application.
- When asked for an activation code please enter 123456. This identifies your college. You will only be asked to enter this once.
- When asked for your invitation code please enter 789012. This identifies your submission and is required each time you run the app.
- At the end of the session your pitch will be submitted for review by your coach. Once reviewed you will receive your results via email.
- Afterwards please complete this User Feedback Form.

Good luck and thank-you!

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3. Watch Learners’ Performances

Once students have submitted their performance (Step 10 in the Training Simulation section), staff can review these performances in the form of a 2D video.
4. Provide a Performance Review

Staff can then provide feedback on the review via the PFA, including qualitative feedback.

Learners will receive an email with the following assessment:
Technology

Career Mindset Development is an immersive simulation which can be experienced using a VR headset, a table or a mobile phone.

**Oculus Quest**

- £299
- High immersion

**iPads/iPhones or Android Mobile Devices**

- £500+ (or £0 if students use their own device)
- Low immersion
Methodology

Dates

The development phase took place between October 2020 and February 2021, while the pilot with FE Colleges took place between 1 March and 30 April 2021.

Deployment & Logistics

The overall process was as follows:

1. Staff log in to the Performance Feedback App, create a class and send invitations to Students
2. Students receive an invitation email containing
   a. Link to download the app
   b. Activation Code - College specific code
   c. Invitation Code - User specific code
3. Students download the app, enter the 2 codes above, do a first simulation and submit their intervention (performance)
4. Trainers review and feedback on students' performances
5. Students receive feedback, do a second simulation and submit their second intervention
6. Trainers review and feedback on these second performances
7. Both students and trainers completed a User Feedback Form online

Different colleges had different methodologies to run the pilot.

Methodology 1 - Student’s own mobile devices - 3 Colleges

As the pilot started when the schools were closed throughout the UK due to Covid-19 restrictions, 3 Colleges asked students participating in the pilot to do the simulation from home, using their own mobile devices.
Students received an invitation email containing a link to download the app (TestFlight for iOS and Play Store for Android) and the codes to access it.

Students were sent the link to the User Feedback Form via email after completion of their simulation.

**Methodology 2 - College-provided mobile devices - 1 College**
Similarly to Methodology 1, one College asked participating students to do the simulation from home. In this case, students were using iPads provided to each of them by the College.

The only difference with the first methodology was that the app was deployed through Apple School Manager. As a result, the invitation email that students received was tweaked to direct them to the Apple School Manager.

Students were sent the link to the User Feedback Form via email after completion of their simulation.

**Methodology 3 - Facilitated sessions in Virtual Reality - 1 College**
Being already equipped with Virtual Reality hardware, more specifically Oculus Quest 2, one College chose to start the pilot a little later in order to have the ability to bring students on site and do the simulation in Virtual Reality.

The College’s Fab Lab team set up a self-service booking portal for students to arrange appointments at a convenient time to come and do their first simulation. Students were booking their second appointment on an iPad straight after their first simulation.

An email was then sent out to those students, breaking down the process for them and providing them with a unique code that they had to bring to the appointment.
The sessions were run as follows:
- 2 staff
- 3 students at a time (3 headsets), with social distancing
- 30 minutes per session

Extra procedures were required in order to sanitise headsets after use.

Data Collection

The data was captured through:
1. In-app automatic behavioral and semantic analytics (students)
2. In-app Likert-based questionnaire (students)
3. Online user feedback form (students and staff)
4. Video call interviews (staff)

It is important to point out that any personal data collected have exclusively been used for the purpose of carrying out this pilot and have been deleted at the end of it.

1. In-app automatic behavioral and semantic analytics

During the simulation, the following is analysed:
- Body Language (when in VR)
- Following Instructions
- Articulation (speech analysis)
- Eye Contact (when in VR)

This data was not used to produce this report.
2. **In-app Likert-based questionnaire**
At the end of each simulation, students are being asked to answer 7 questions using a Likert scale, from 1 for *Strongly Disagree* to 5 for *Strongly Agree*.

- **Engagement** The learning experience was engaging (engagement metric)
- **Understanding** The simulation improved my understanding of professional communication skills (engagement metric)
- **Self Awareness** I was able to identify areas for improvement for my own professional communication skills (engagement metric)
- **Confidence** I now feel more confident in my professional communication skills (performance metric)
- **Effectiveness** The skills I have learned will help me perform better in future professional experiences (performance metric)
- **Immersive Learning** I would like to learn more skills using this kind of simulation in the future (performance metric)
- **Recommendation** I would recommend this learning experience to other students (performance metric)

3. **Online User Feedback Form**
Here is a link to the form. It contains

- 3 sections specific to students
  - About me (demographics and general data such as field of study)
  - My experience (engagement and performance)
  - App feedback (UX/Usability and potential improvements)
- 6 sections specific to staff
  - About me
  - PFA Usability
  - PFA Reliability
  - PFA Features and potential improvements
  - Students’ engagement and performance
  - Future use (implementation at the College, business model etc.)
4. **Video call interviews**

We had qualitative post-pilot conversations with at least one person involved in the pilot as well as with a decision-maker at each of the Colleges.

The topics discussed were

- Students Engagement
- Staff Engagement
- Solution’s Performance
- Deployment Challenges
- Business Model Sustainability

**Key Numbers**

**Colleges**

5 FE Colleges took part in the pilot

- Bridgend College (Glamorgan)
- Harlow College (Essex)
- Sandwell College (West Midlands)
- South Essex College (Essex)
- Writtle University College (Essex)

**Staff**

28 Teachers, Career Advisors, Digital Leaders and Training Facilitators were actively involved in the pilot, 18 of which using the Performance Feedback Application to review and feed back on the students’ performances.

**Students**

Over 150 students took part in the pilot, completing 210 simulations. Participating students study fields as diverse as IT, Equine Management, Health and Social Care or Law.
Devices used for the 210 simulations:

![Pie chart showing device usage]

**Respondents**

As of 1 June 2021,
- 89 students completed the Likert-based questionnaire within the app
- 58 students and 8 staff completed the User Feedback Form online

**Data Collected**

**Quantitative Data**

The data used below comes from the 89 students who completed the in-app Likert-based questionnaire.
- 52 out of 89 respondents did the simulation on mobile (34.44% of all mobile users)
- 37 out of 89 respondents did the simulation in VR (62.71% of all VR users)

**Engagement**

Students who found the simulation engaging (engagement metric)
**Recommendation**

Students who would recommend this learning experience to other students (engagement metric)
**Immersive Learning**

Students who would like to learn more skills using this kind of simulation in the future (engagement metric)
Understanding
Students who reported a better understanding of professional communication practices (performance metric)

Understanding - Total

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<tbody>
<tr>
<td>Positive</td>
<td>53 (59.6%)</td>
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<td>Neutral</td>
<td>23 (25.8%)</td>
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<td>Negative</td>
<td>14.6%</td>
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Understanding - Mobile

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<tr>
<td>Positive</td>
<td>28 (53.8%)</td>
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<tr>
<td>Neutral</td>
<td>13 (25.0%)</td>
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<tr>
<td>Negative</td>
<td>11 (21.2%)</td>
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Understanding - VR

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<tr>
<td>Positive</td>
<td>25 (67.6%)</td>
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<tr>
<td>Neutral</td>
<td>10 (27.0%)</td>
<td></td>
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<tr>
<td>Negative</td>
<td>3.4%</td>
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**Self-Awareness**

Students who were able to identify areas for improvement for their own professional communication skills (performance metric)
Confidence

Students who reported feeling more confident in their professional communication skills (performance metric)
Effectiveness

Students who reported that the skills they have learned will help them perform better in future professional experiences (performance metric)
Qualitative Data

The data used below comes from the 58 students and 8 staff who completed the User Feedback Form as well as from the 5 post-pilot qualitative interviews carried out with the Colleges.

Some data on the 58 students completing the User Feedback Form.

1. **Students Age**
   - 16 or less: 62.1%
   - 17-18: 24.1%
   - 19-20: 5.2%
   - 21 or more: 8.6%

2. **Students Gender**
   - Male: 29.3%
   - Female: 65.5%
   - Not specified: 5.2%

3. **Device Used**
   - iOS Device: 84.5%
   - Android Device: 10.3%
   - VR: 5.2%
Students’ engagement with the training simulation

Here are the most recurrent answers to some of the questions:

“What did you enjoy the MOST about the experience?”
- Ability to review their performance and identify areas of improvements
- Immersion and interactivity in a realistic workplace environment
- Lack of pressure, ability to start over

“What did you enjoy the LEAST about the experience?”
- Long, unskippable scenes
- Felt strange or uncomfortable talking to a phone/tablet
- Complexity of the task, can be confusing

What other skill(s) would you like to learn or practice using Bodyswaps?
- Job interviews skills
- Managing conflict
- Customer service

And some additional qualitative feedback:

“Is there anything you would like to add?”
- “It was brilliant”
- “I found it a lot easier the second time around as I knew what I was preparing for”
- “Thank you - I believe this is revolutionary”
- “It was a very cool & new initiative. I still remain confident however, that face-to-face experiences are the ones which last & are more effective.”
- “Overall I think it’s a good programme to make and I can see it helping many people in the future.”
Staff engagement with the whole solution
Here are the most recurrent answers to some of the questions:

Could you describe any improvement you have observed in students' communication skills?

- “None noted as project scenario was quite alien to their day to day activities and therefore was not a true reflection. The app would have to be incorporated into a specific learning scheme (and relate to that in terms on industry specific) and to be carried out more than twice to provide any really noticeable change in my opinion”.
- “Students were noticeably more confident after using the app. Our students are generally quite shy - and the psychological safety of VR helped them to develop them confidence and practice answering questions for themselves. Students who repeated the experience for a second time, took the experience much more seriously than the first time round and really tried to give good answers - so it was obvious to see the impact”.

What skills would you like students to learn or practice using Bodyswaps?

- “Interview skills, anything employability related is big for FE at the moment. Any form of training simulator for specific workplace environment could be very helpful”.

What barriers do you foresee to implementing this technology in your College?

- Funding

Other interesting feedback

- 3 staff out of 8 see the value in the PFA as they “strongly disagree” that “The PFA adds little value, the Training Simulation could be deployed independently without the need for the PFA”. The other 5 are neutral.
- 2 out of 8 “strongly agree” that “It would be easy to incorporate the solution into the existing curriculum”. The other 6 are neutral.
Conclusions

Strengths

- The data shows that learners felt engaged by the experience with a large majority of learners likely to recommend the experience to their peers (Overall Net Promoter Score of 49.4)
- The data shows that the simulation greatly help learners not only understand the principles of communication (59.6% reporting improved understanding) but also build confidence to apply them in real life (44.9% reporting improved confidence)
- The data shows that a majority of learners were able to identify areas of improvement for their own professional skills (62.9% reported having identified areas of improvement)

Challenges

- At this stage of the technology adoption, it is essential that the first contact with the simulation is done as part of a facilitated session. This means CMD will require logistical adjustments from the Colleges to be efficiently embedded into a curriculum. This includes, for example, providing a safe and quiet space for students to go through the experience but also some time for them to debrief their experience as a group.
- Deployment of the solution is currently complex and requires significant support resulting in additional costs. As budgets are limited, simplifying deployment and getting closer to a self-service solution, including access to information in a Knowledge Center, is necessary to enable deployment at scale.
- Usage depends on adoption of the hardware. Investment must be made by or for Colleges to get equipped with suitable hardware. This includes Virtual Reality headsets as well as headset cleaning technology such as Cleanbox.
- Given enough time and resources, we would look to conduct a longitudinal study, on a bigger scale, with partner organisations to
demonstrate that the training has been sedimented into communication practices for the long-term.

**Opportunities**

- **Virtual Reality has demonstrated significantly better results** than Mobile, on all fronts. Feedback shows that, while Mobile may not be a suitable solution unless it is embedded in learning programmes (otherwise students just won’t do it), it is much easier to engage with VR, and VR seems to be a much more effective solution when it comes to learning.
  - **Net Promoter Score of 78.4** (vs 28.8 on mobile)
  - **70.3% found the simulation engaging** (vs 44.2% on mobile)
  - **78.4% would like to learn more skills using that kind of simulation** (vs 32.7% on mobile)
  - **67.6% reporting improved understanding** (vs 53.8% on mobile)
  - **51.4% reporting improved confidence** (vs 40.4% on mobile)
  - **73% reporting having identified areas of improvement** (vs 55.8% on mobile)
  - **62.2% reported that the skills they have learned will help them perform better in future professional experiences** (vs 40.4% on mobile)

- The data shows that **repeat usage could help improvement of skills**
  - 59.6% of students identified areas of improvement but only 44.9% report an improvement in confidence after a single session (for most). This can be interpreted as a need to offer repeat practice.

- Qualitative feedback shows the **potential for more content**. It repeatedly identified multiple other use cases or skills for the learning format which points towards the possibility of creating additional training modules aimed at Further Education. Providing access to a large library of modules would greatly improve the cost-efficiency of investing into immersive learning programmes for FE organisations.
Overall, data and feedback have shown that the need and the appetite for such a solution are there. With a programme, repeated practice, embedding into curriculum, this could bring tremendous value, increasing students’ employability and ultimately Colleges’ employability rates.

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