National centre for AI in tertiary education

Bodyswaps pilot report

October 2022

Contents

1. What is Bodyswaps?

Bodyswaps is a commercial training platform that uses virtual reality (VR) and artificial intelligence (AI) to help people develop their soft skills through empathy and self-reflection. Bodyswaps offers immersive simulations for communication, teamwork and job interview skills. It combines VR and AI to allow students to practise skills, such as interview techniques, in a safe environment, giving them the tools and confidence to develop.

In Bodyswaps, the learner has a virtual body and participates in a simulated interaction with a virtual human. Then, as the name suggests, they can 'swap bodies' in VR and watch themselves back to see how they come across in situations such as job interviews. AI is then used to provide feedback to the student.

Bodyswaps was developed by a team of learning designers, behavioural scientists and VR specialists and built on a growing body of academic research into virtual embodiment and behavioural change.

Combining learning design & VR design principles…

Learning Design Principles

SELF-REFLECTION
Reflection is the secret ingredient in learning from experience. It activates several key learning processes at once and bridges the ever-elusive gap between training and work.

AFFECT
Emotional resonance is one of the primary drivers of engagement and retention. Living through an experience makes learning personally meaningful - and truly enduring.

APPLICATION
Performance is more powerful than consuming content. Practice with well-timed feedback corrects misconceptions and helps embed new skills, all ready for recall at the point of need.

ADAPTIVE PRACTICE
True learning is necessarily effortful. Variations in practice, especially if they adapt to one's prior performance, increase cognitive effort and create a more complex, nuanced mastery of a skill.

Self Reflection

AFFECT
EMBODIMENT
APPLICATION
IMMERSION
ADAPTIVE PRACTICE
EXPLORATION
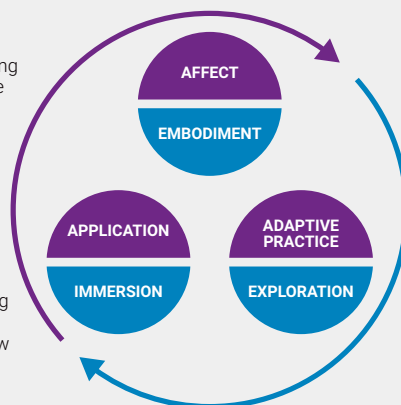
Behavioural Data

Learning Design Principles

BEHAVIOURAL DATA
Collection of VR and AI-enabled data points throughout the experience helps provide meaningful feedback and create unique learner paths.

EMBODIMENT
The illusion of presence takes learning personalisation to another level through visceral, lived-in experiences.

IMMERSION
High fidelity immersive environments enable learners to practice skills in situations that closely resemble the look and feel of real life.

EXPLORATION
Thoughtful, dynamic scenarios encourage us to explore realistic consequences of one's actions time and again.

Graphic provided by Bodyswaps

Bodyswaps allows more students to develop employability skills and prepare for interviews than might be feasible with a traditional mock interviews approach. Students can take a module, learn and reflect and then go back and try again, freeing up careers staff for more complex activities and student support. Bodyswaps can also be used without the VR element, through a laptop or phone.

Where does the AI come in?

Bodyswaps uses AI to analyse behavioural and semantic data and provide highly personalised feedback. Semantic analysis is when technology understands natural language in meaning and context. Behavioural analysis is a machine learning model that, in this case, provides feedback based on eye contact and body language.

Data is collected on an institutional dashboard, providing a real-time picture of students' competency in specific topics.

2. The pilot

We took a roadshow approach to piloting Bodyswaps, spending two days at five institutions over four weeks in May 2022. We took the roadshow to:

> University of Bath
> Newham College
> Leeds Trinity University
> Cornwall College
> Milton Keynes College

This enabled us to reach a mix of college and undergraduate students. We trialled Bodyswaps with 183 students over the ten days of the pilot, six students at a time. The students were appropriately spaced and provided with headphones for privacy and concentration. They were then briefed on what to expect during the trial. The modules in the pilot were:

> **Managing interview anxiety**: a self-counselling activity. In this module users explore the reasons they may experience anxiety and how they can overcome it

> **Landing the perfect job, on your terms**: identifying your strengths. In this module users think about their strengths and how they relate to discipline, aptitude and personality

> **Three steps to answering (almost) any question**: building your story bank. This module helps users turn their stories into compelling evidence that they are qualified candidates for the job

> **Job interview simulator**: users have the opportunity to answer questions from five different categories: classic questions, career goal questions, character questions, competency questions and curveball creative questions

Once the headset was on, students were introduced to a simulated corporate world and greeted by two virtual mentors who supported them through the module. After a basic systems tutorial, students chose an avatar, which appeared on a screen behind the mentors. Every move they made with their hands and head was mirrored through the avatar, taking away the awkwardness of watching themselves.

A series of tasks allowed students to find out more about themselves and prepared them for answering interview-based questions. Students answered an interview question then swapped bodies with the interviewer and watched their performance through the avatar. AI-driven personalised feedback included useful pointers such as speed of speech and eye contact, along with individual tips for improvement.

Immediately after their Bodyswaps experience students completed an online survey of ten questions. We also collected feedback from the accompanying teachers, many of whom tried the experience for themselves.
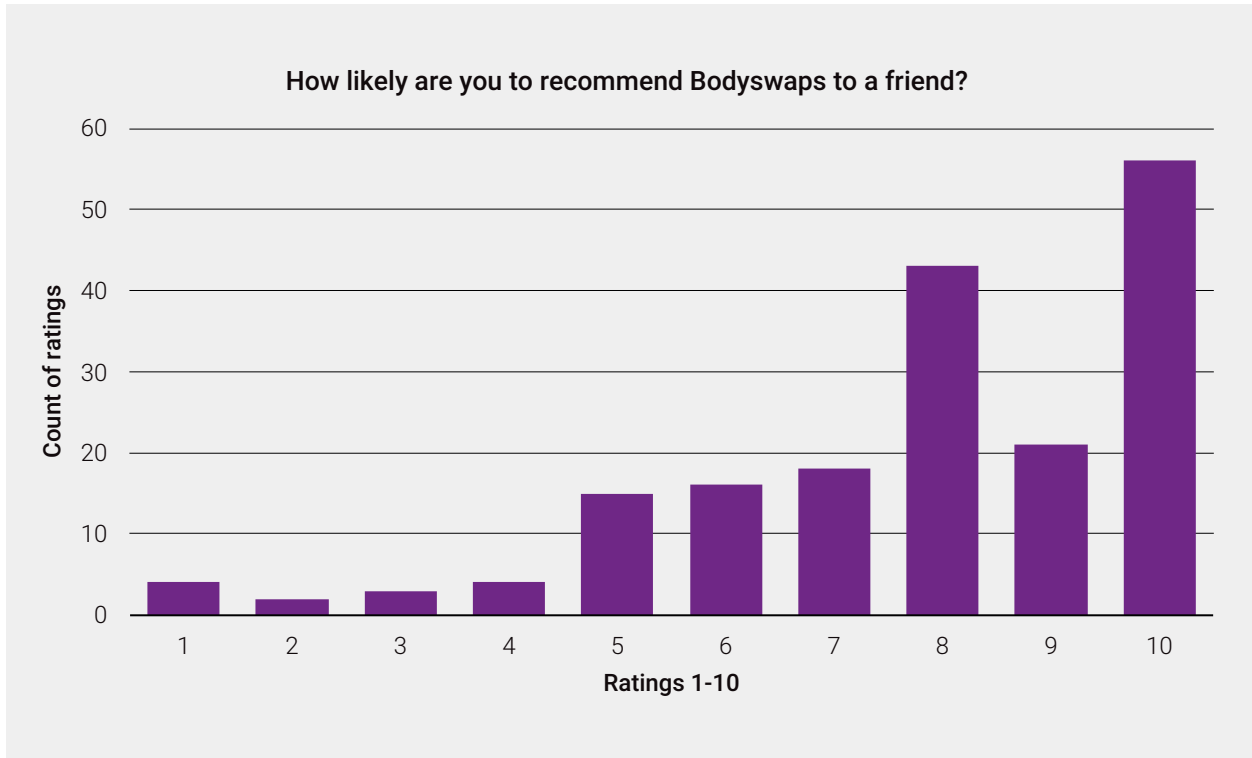
3. Evaluation results

In our pilot we explored three areas.

1. The students' view of Bodyswaps as a whole and their perception of the effectiveness and value of the AI elements of Bodyswaps.

2. Any barriers to using Bodyswaps with a range of students at a range of institutions.

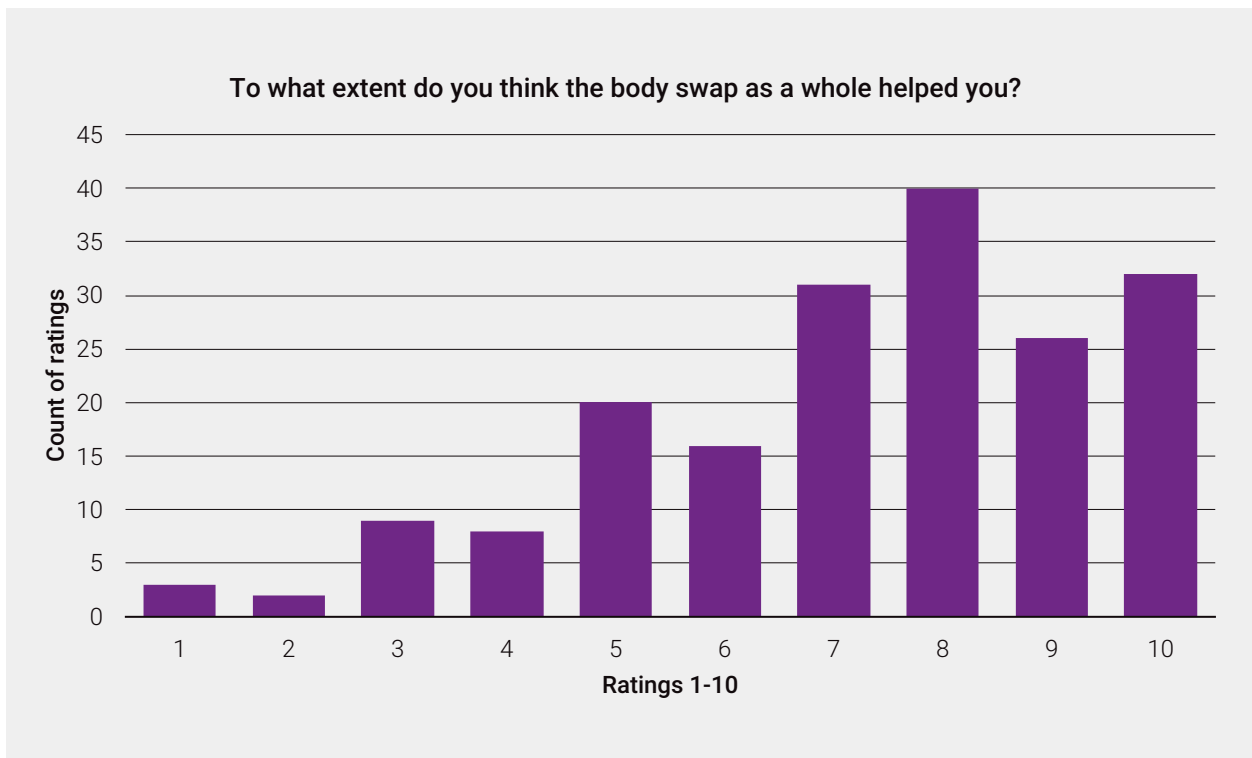3. Any specific legal or ethical considerations.

Students' view of Bodyswaps

The students' view was evaluated by a short survey taken immediately after they had used Bodyswaps, where they were asked to rate a number of aspects on a scale of 1 to 10 and provide free text comments. This was completed by 188 students. We also had access to data produced by the Bodyswaps platform. This includes overall usage statistics such as the number of modules taken, along with a satisfaction rating given by students at the end of each module.

Overall, the student feedback was very positive, with 76% of students rating their likelihood of recommending it to a friend as 7 or higher out of 10.

How likely are you to recommend Bodyswaps to a friend?

Count of ratings (y-axis 0 to 60)
Ratings 1-10 (x-axis)

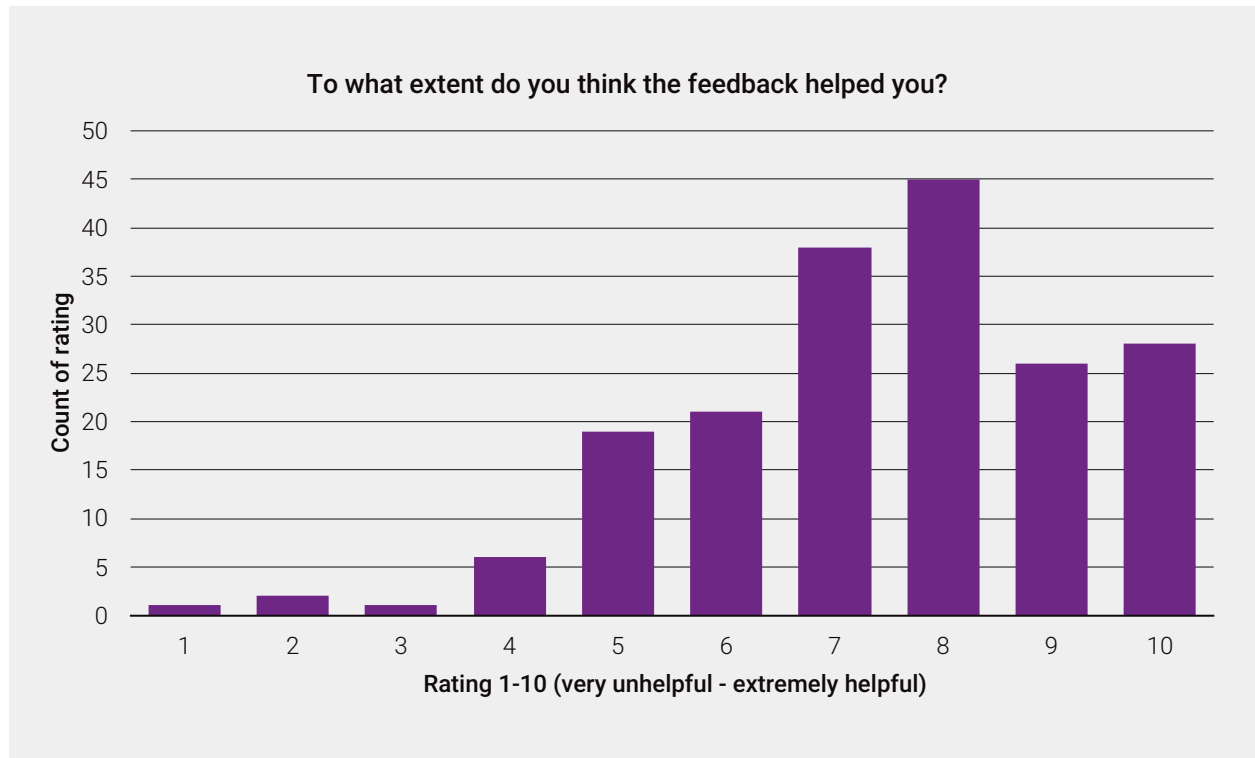| Rating	Count
1	4
2	2
3	3
4	4
5	15
6	16
7	18
8	43
9	21
10	56

We looked in more detail at two aspects of Bodyswaps. The first was around the AI-driven feedback, the second covered the experience of users swapping bodies with the virtual interviewer so they could see how they come across to others. Again, feedback from the students was positive on these aspects, with 73% of students rating the feedback helpfulness as 7 or more out of 10.

To what extent do you think the body swap as a whole helped you?

Count of ratings (y-axis 0 to 45)
Ratings 1-10 (x-axis)

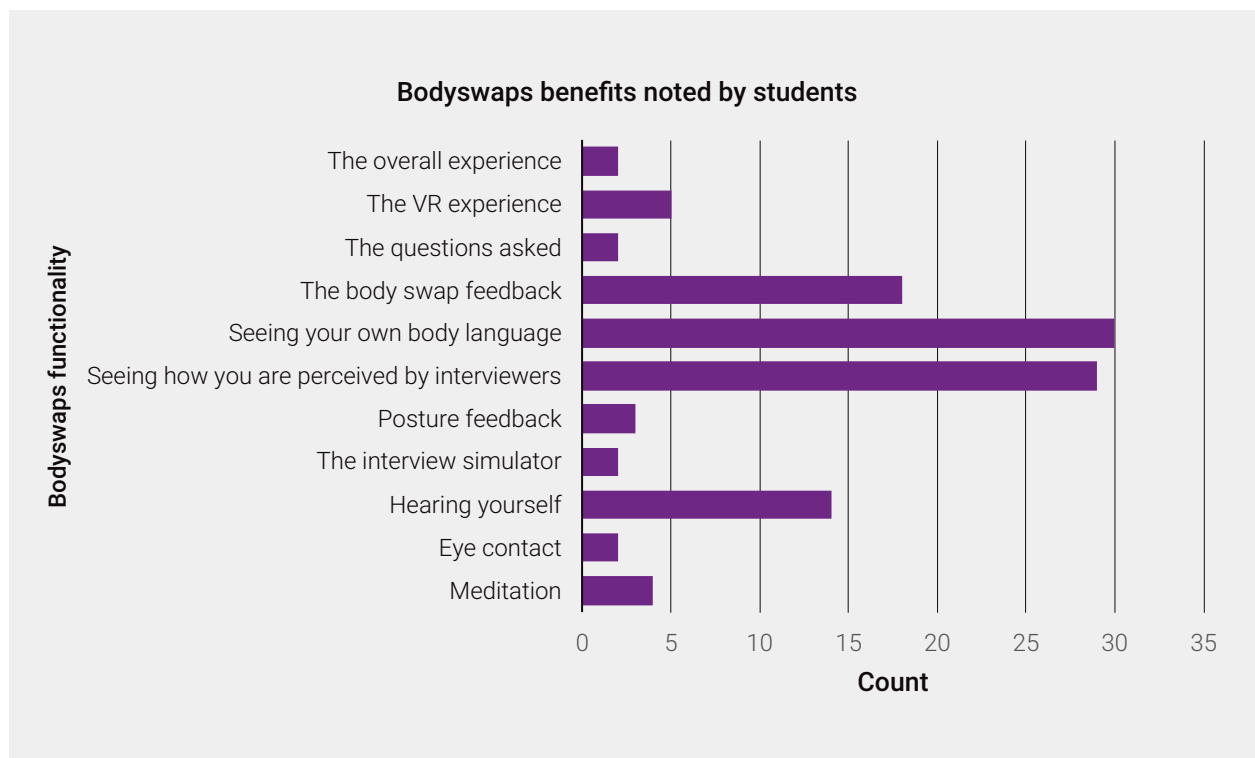| Rating	Count
1	3
2	2
3	9
4	8
5	20
6	16
7	31
8	40
9	26
10	32

Feedback on swapping bodies with the virtual interviewer was also positive, with around 70% of students rating this as 7 or higher out of 10.

To what extent do you think the feedback helped you?

Count of rating (y-axis: 0 to 50)
Rating 1-10 (very unhelpful - extremely helpful)

- 1: 1
- 2: 2
- 3: 1
- 4: 6
- 5: 19
- 6: 21
- 7: 38
- 8: 45
- 9: 26
- 10: 28

We asked students about which elements of the body swap they found useful. In free text replies, the ability to see your own body language and how you would be perceived by interviewers were the most mentioned benefits.

Bodyswaps benefits noted by students

Bodyswaps functionality (y-axis) / Count (x-axis: 0 to 35)

- The overall experience: 2
- The VR experience: 5
- The questions asked: 2
- The body swap feedback: 18
- Seeing your own body language: 30
- Seeing how you are perceived by interviewers: 29
- Posture feedback: 3
- The interview simulator: 2
- Hearing yourself: 14
- Eye contact: 2
- Meditation: 4

Feedback from students and staff included:

"Good for all types of students and systems. Good to encourage reflectivity."

"Assessed my performance from four aspects and identified lack of hand gestures and eye contact – when I took the interviewer's position, I found it was true and something I need to improve."

"Really useful that the AI picks up on specific phrases and how they should be used."

Using Bodyswaps with a range of students at a range of institutions

By carrying out the pilot in a range of institutions and with different students we were able to assess whether other institutions are likely to find barriers in adopting Bodyswaps. We found no significant barriers, although, as with any VR application, consideration needs to be given to each individual learner's specific needs.

The software and Oculus headset worked well in each institution, including functioning with eduroam.

The ability to use the software on both traditional (phone/tablet/laptop) platforms and the VR headset was important and meant a range of needs were met. In particular, some learners with specific educational needs preferred a laptop over VR.

A key aspect of Bodyswaps is its AI-based speech recognition tools, and we found that providing sufficient physical space for this was important, so that students were comfortable speaking out loud to the system.

Legal or ethical considerations

The use of AI in Bodyswaps did not raise any specific ethical issues.

As with any VR application, accessibility for students with special needs should be considered.

One specific issue we considered was what happens to the students' voice recordings after they are processed by the AI services in Bodyswaps. Recordings are processed in the EU or UK and are not kept by Bodyswaps. Institutions will be able to opt out of Bodyswaps keeping anonymous scripts for training the AI, and institutions should make their own assessment of this.

4. Recommendations

Bodyswaps had a very positive response from students. Staff members who engaged with the system were also impressed and felt that the system was worthwhile.

Overall, we found many positives to using Bodyswaps as opposed to the traditional mock interview or recording and watching yourself back. As the platform is virtual and all the feedback is AI generated, students know that their 'interviewers' are not passing judgment or making personal or emotional assessments of them. This provides a safe place to experiment without the anxiety of saying the wrong thing. The VR aspect can also help overcome low engagement with careers services as students are keen to try the technology. The AI aspect was positively received and worked well.

Based on our pilot, we recommend Bodyswaps as an effective and engaging way to offer employability skills development and interview preparation to students in colleges and universities. Bodyswaps is an ideal early step into AI products.

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