

VR for Soft Skills Training

Gini Beqiri, Dom Barnard

VirtualSpeech

High quality virtual reality (VR) equipment has become more affordable during the past few years, leading to its wide scale application in a number of industries. One of the main areas in which VR is being used, is in training. With the help of VR, assembly-line operators to brain surgeons are developing new skills and an increasing number of people are using VR to enhance their soft skills.

The term “soft skills” is applied to skills which are needed for effective social interactions, including customer service, negotiating, sales pitching and business networking. These enterprise skills are essential for the effective functioning of businesses and are what managers are looking for from prospective employees. With automation increasing, being proficient in these skills is necessary. A study by Manyika et al. (2017) for McKinsey estimates that up to 30% of the hours worked globally could be automated by 2030 and it is the uniquely human skills, which will become ever more valuable in years to come.

VR provides an affordable, scalable and measurable way for companies to train employees in the transferable skills they need to operate a successful organization.

Limit to traditional training methods

Until now, soft skills have usually been learned on the job, through interactions with colleagues, clients and other stakeholders and it has been difficult to measure progression. Teaching soft skills is hard because people react and behave differently in similar situations, so traditional teaching methods, which typically follow a “one size fits all” approach, are not very effective.

There is reliance on passive teaching methods, such as lecturing, which can cause those learning to disengage (Capps and Crawford, 2013) as it is difficult to understand the relevance of information when it is isolated from its context (Gee, 2009). Traditional training does score highly when self-reported but it is unclear whether this learning is applicable to real life and therefore a true return on investment (ROI) for companies.

Practising soft skills in VR can provide the authentic experience needed to develop these skills, especially when traditional learning methods have been too difficult, or unsuitable (Pan et al., 2006). This is because VR creates a strong sense of presence and immersion (Bailenson, 2008) due to the fact that it provides realistic, multi-sensory and interesting experiences that traditional teaching methods cannot replicate (Hill and Smith, 2005). When those learning are able to continually practise real-world situations, in the safety of the virtual world, they can learn through experience and more easily apply their learning to the workplace.



How is VR training effective?

Learning through experience

VR enables employees to learn through practical experience, as users are immersed in a world that simulates real-life. For a long time, learning through experience has been argued as being the most effective way to learn and studies have shown that it increases the quality of learning and retention by 75-90% (Pérez-Sabater et al., 2011). Through this type of learning, the information is more meaningful and those learning can relate to it because they are applying the information in their own way, through their responses and behaviour.

The 70-20-10 model for learning and development is an experience learning model, created by McCall, Lombardo and Eichinger (1996). This model, based on their research, shows how people learn best in the workplace. They found that:

- 10% of learning comes from formal educational events, such as training courses.
- 20% of learning comes from interactions with other people through a range of activities, such as mentoring, coaching and group learning. The main benefit of this approach is the support and feedback from peers.
- 70% of learning comes from job-related experience. This type of learning allows people to make decisions, problem solve, discover what skills they have and what skills they need to develop. It is in this category that VR fits because it can simulate job-related experiences.

Illusory body ownership

One of the interesting psychological effects that can be exploited using VR is “illusory body ownership,” which is the illusion of owning a part of a body, or an entire body, other than one’s own. This can take a simple form without VR, as in the “rubber hand illusion,” where the participant sees a rubber hand placed in front of her, while her real hand is concealed from view. The person performing the experiment strokes both hands simultaneously and after a period of time, the participant perceives the fake hand as if it were her own (Botvinick & Cohen 1998).

Multisensory perception can influence how we perceive our bodies. If a person holds out a hand, it is generally thought that they know it is there because of information received from muscles and skin but the rubber hand illusion shows that this perception can be overridden by visual information.

Using a combination of VR and full body motion capture, Osimo et al. (2015) created a perception for participants where they experienced a conversation with the psychologist Dr Sigmund Freud but they were themselves controlling the actions and verbal responses of Dr Freud (virtual body ownership).

This type of virtual body ownership demonstrates how those learning can be truly immersed in VR scenarios and effectively take the form of a virtual avatar, when developing their soft skills.

Facilitating change in social behaviour

VR has been used to understand the features that form social behaviour (Bailenseon, 2018). This research has highlighted which factors affect social behaviour and the factors unique to VR that have proven to lead to changes in social behaviour, including the ability to inhabit the body of others and their virtual self-body.

Additionally, VR can analyse behavioural data, to provide objective and unique insights into users' social interactions, which can assist in facilitating changes to social behaviour.



Why VR for soft skills training?

The safety of the virtual world is the ideal training ground for high-stake situations. Before VR, employees would have to imagine high-risk scenarios and visualise how they would deal with them. VR removes the need to imagine and instead replaces it with a realistic simulation. It provides an effective learning experience by training people in the most realistic way possible, without the situation actually happening in real life, so that those learning are safe to make mistakes and to learn from them.

The cost of making a mistake in the virtual world is nothing compared to the cost of human error in reality. This is especially useful for employees who avoid experience learning because of anxiety. They can develop their skills and increase their confidence in a safe space, before applying what they have learned to real-life situations.

The difference between VR and more traditional methods of teaching is that it is difficult to *practise* many scenarios that require soft skills using e-learning, or in-person training. Realistic learning environments, particularly at the point of need, were difficult to replicate before VR and are missing in traditional teaching methods (Hill and Smith, 2005). VR environments are highly customised, which enhances experience learning by making practise significantly more realistic, allowing the user to reflect on a more valid performance, as opposed to practising in front of a mirror, or to an audience, 6 months ago.

VR can simulate a range of random actions, to which the user needs to react. An example of this is a media ambush scenario in the VirtualSpeech app, where the user is ambushed coming out of an elevator by press reporters, with cameras flashing and difficult questions being asked - a scenario that is difficult to replicate in the real world.

Other traditional methods, such as hiring actors and in-person training sessions are usually expensive and standards can vary widely. In comparison, companies can be sure that employees are receiving a standardized high-quality level of training, when conducted in VR. The price of VR headsets has fallen substantially in the past few years, so the price of VR training, compared to traditional methods, has decreased.

Users also know how well they are performing because they can receive instant feedback on their performance, including information about their eye contact, tone, volume and speaking pace, as with VirtualSpeech. With rapid advances in AI, speech-to-text and text-to-speech technologies, users will eventually be able to have conversations with the avatars and the avatars will react to what is being said in real-time, as would a human colleague.

As previously mentioned, VR consists of experience learning, with active recall, which means that a user's memory is being stimulated whilst learning. This is beneficial for long-term retention and is more effective than passive recall, such as re-reading information, or watching videos.

At VirtualSpeech, we have found that employees repeat the VR training scenarios over several months, increasing knowledge retention and helping to overcome the Ebbinghaus Forgetting curve. This repeated learning helps users become comfortable with soft skill scenarios and better able to deal with them in the workplace.

Measuring ROI and tracking progress

VR provides a unique, objective and systematic method for behavioural data capture that gives both the participant and organisation a unique insight into soft skills performance – and crucially, ROI. Participants can easily recognize which areas need to be improved and determine the best learning path and courses to take to build these skills. With VR, those learning and managers can track progress and measure whether their skillset has actually improved.

With VR and unlike traditional training methods, soft skills can, for the first time, be quantifiably measured. Participants can receive feedback and be graded on their eye contact, pace of voice and clarity.



Types of VR for soft skills development

VR can be categorised into several broad categories, which can be applied depending on the training requirements, all of which can be used to train soft skills. These categories are as follows:

360 degree videos

A real room is filmed, with people present in it, using a 360 degree camera. This type of VR training is valuable for complex situations, where human emotions are essential from the virtual avatars. Face rigging and lip syncing technology cannot yet truly simulate emotions on avatars, so this is an effective option when realism is the main objective. VirtualSpeech's managing workplace stress training uses 360 degree filming, as accurate human physical and verbal emotions are necessary from the avatar. With a 360 degree video, the avatar is an actual human, filmed with a 360 degree camera, to ensure a realistic scenario.

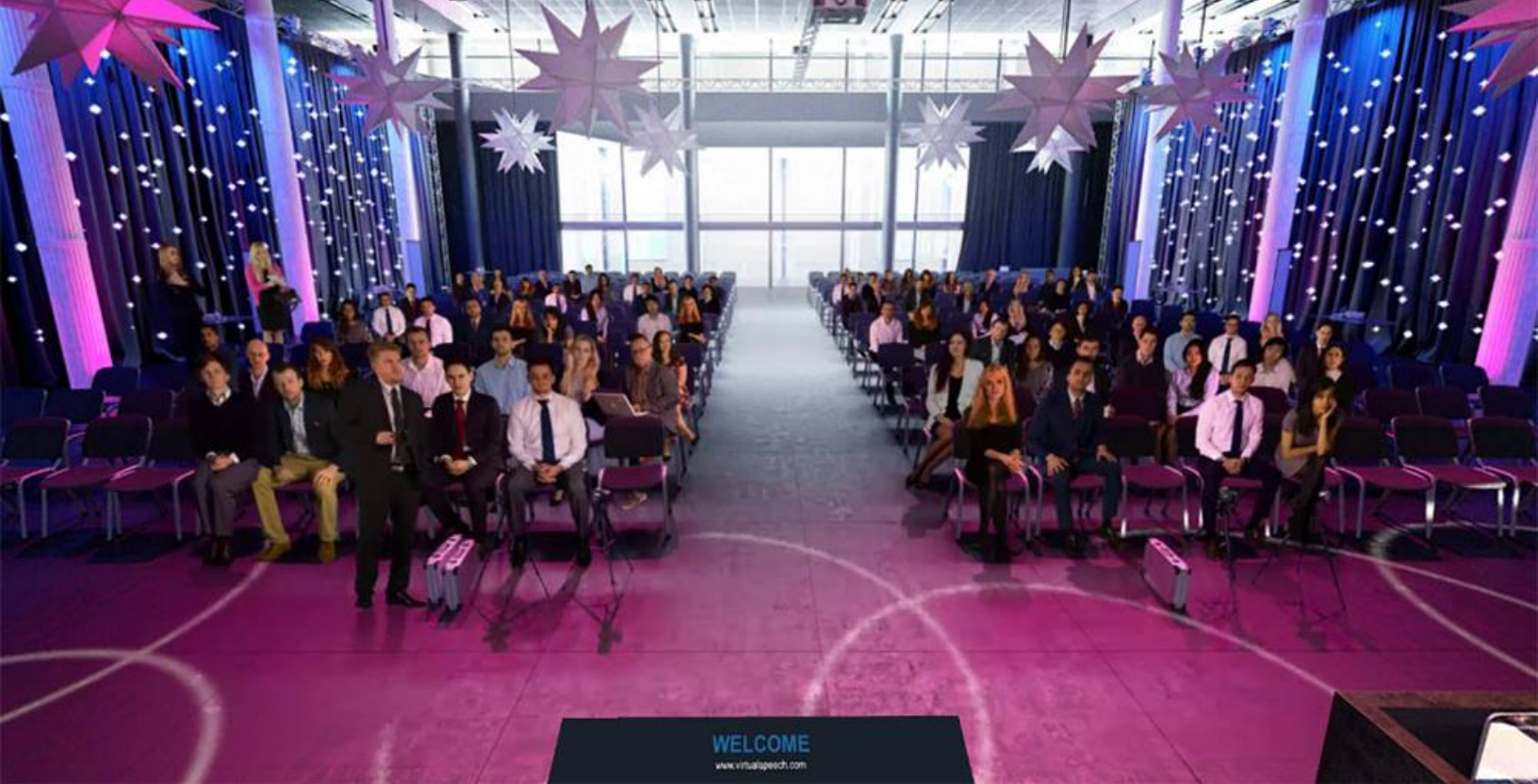
Passive VR

Passive VR is suitable when the user does not require interaction with other people in the scene. The environment will look realistic, as the audience can be green-screened and the environment highly rendered. This type of VR training could be used for delivering a presentation at a large conference.

Interactive VR

When the user needs a higher level of interaction with other people in the scene but specific emotions and animations of the avatar are not critical. The VR scenario needs to have mechanisms with which the person learning can interact with it, such as enabling buttons, or being able to select objects.

This type of training is suitable for practising chairing a meeting, or giving a sales pitch - scenarios where the avatars need to react and respond to what is being said.



Barriers to adoption of VR training

Despite the benefits of using VR for corporate training, there are barriers to its adoption. The short term cost of implementing VR training can be higher than traditional methods because of the price of purchasing headsets. Furthermore, employees must have access to them.

It is not just the purchasing of hardware that needs to be considered when balancing the budget. Integrating VR training with your existing Learning Management System (LMS) and customising the training for your particular brand can both add to the cost of uptake. With such a new evolving technology, it is essential that ROI is higher than for traditional training methods.

The main reason for introducing VR training is to benefit employees but there is a risk of employee backlash, especially from older employees who tend to be more reluctant to adopt new technologies. However, feedback from employees we have trained using our VR courses has shown there is no significant difference in uptake amongst different age groups - both younger and older employees are as likely to embrace the technology and to find it beneficial.

As more companies introduce VR to their training catalogue and report positive results, cautious managers will be more inclined to adopt VR and it is likely that VR training will become standard. As millennials form an increasing proportion of the workforce, companies will have to adapt to their behaviour, working styles and preferred methods of learning - which are likely to be technology-focused and geographically dispersed.

Feedback for soft skills

Participants receiving feedback on their performance and acting on this feedback is a vital part of skill improvement. At VirtualSpeech, our training provides users with immediate feedback on their performance in the virtual world, from built-in speech analysis tools powered by AI. This allows users to receive feedback on areas including:

- Pace of speech and the use of hesitation words
- Volume of the user's voice
- Eye contact performance
- Speech and personality insights

Progress is measured and tracked within the app, making it easy to quantify improvement over time. From these insights, goals are formed and monitored. This all results in a more effective training experience.

The future of VR in corporate training

Companies are already implementing VR as a tool for corporate training. Managers are realising the long-term reduction in cost and increased ROI in respect of engagement, safety and retention of training, compared to traditional methods of training soft skills, which don't scale well.

As the VR industry develops and more becomes possible in a virtual setting, it is likely that more training will be done in VR and it will soon become a staple of employee training. Companies which are early to adopt the technology will have a huge advantage over their competitors.

References

Bailenson, J. N. (2018). *Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do*. New York: W.W. Norton.

Botvinick, M., & Cohen, J. (1998). Rubber hands 'feel' touch that eyes see. *Nature*, *391*, 756.

Capps, D.K., & Crawford, B. A. (2013). Inquiry-based instruction and teaching about nature of science: are they happening? *Journal of Science Teacher Education*, *24*, 497-526.

Gee, J.P. (2009). Deep learning properties of good digital games: how far can they go?. In: U. Rittenfeld., M. Cody., and P. Vorderer., eds., *Serious Games: Mechanisms and Effects*. New York: Routledge, pp. 67–82.

Hill, A. M., & Smith, H. A. (2005). Research in purpose and value for the study of technology in secondary schools: a theory of authentic learning. *International Journal of Technology and Design Education*, *15*, 19-32.

Lombardo, M. M., & E, Robert, W. (1996). *The Career Architect Development Planner*. 1st ed. Minneapolis: Lominger.

Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., Ko, R., & Sanghvi, S. (2017). *Jobs lost, jobs gained: Workforce transitions in a time of automation*. New York: McKinsey Global Institute.

Osimo, S. A., Pizarro, R., Spanlang, B., & Slater, M. (2015). Conversations between self and self as Sigmund Freud—A virtual body ownership paradigm for self counselling. *Scientific Reports*, *5*, 13899. doi: 10.1038/srep13899.

Pan, Z., Cheok, A. D., Yang, H., Zhu, J., & Shi, J. (2006). Virtual reality and mixed reality for virtual learning environments. *Computers & Graphics*, *30*, 20-22.

Pérez-Sabater, C., Montero-Fleta, B., Pérez-Sabater, M., & Rising, B. (2011). Active learning to improve long-term knowledge retention. *Proceedings of the XII Simposio Internacional de Comunicación Social*, Santiago de Cuba, 75-79.