

**Industry Training: Experiential Learning Through Virtual Reality**

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**Abstract**

This paper analyzes the experiential learning theory approach through play-based learning, applied in the context of virtual reality. Industries that focus on training through virtual reality are focused on in this paper. In addition, industries mentioned in this paper have transitioned their training opportunities to incorporate experiential learning through virtual reality into their training scenarios. As a result, these companies have reported increased employee training retention, behavior, focus, completion time, and time to complete training have diminished significantly.

### **Industry Training: Experiential Learning Through Virtual Reality**

Learning through simulation is revolutionizing the world in many more ways than we can imagine. One of the avenues of simulated learning is through virtual reality. Virtual reality has been shown to be determinative for teaching complex skills. For example, a flight simulator can prepare pilots for the real world by simulating their training. These training tactics are essential when dealing with the reactions to and distribution of sensitive situations. However, experimental scenarios are often challenging to create and can also be hazardous. Therefore, to address the expanding demand for diverse types of training, it is vital to create opportunities for experimentation in which a superfluity of scenarios may be deployed without danger of failure. Learning and practicing complex scenarios can be achieved in a safe and controlled environment using virtual reality technologies, especially in dynamic learning environments. Furthermore, it allows students and novices to practice iterative procedures. Therefore, tools for each industry and environment would need to be developed to reflect the multitude of scenarios one might encounter.

Education and training with virtual reality are more versatile than training on-site, resulting in a smaller footprint and requiring fewer overhead costs since training is conducted from home or off-site. This also allows users to repeatedly conduct training and practice mastery of skills at their own pace and at a flexible time within the comfort of their own homes. This form of learning, through simulated technology, is widely used in many sectors today. Our lives, in reality, can be analogous to those in simulation games, which allow us to deal with virtual challenges. The second advantage of these programs is that they enable users to emulate both the learning and invention processes, known as experimental learning. According to anecdotal

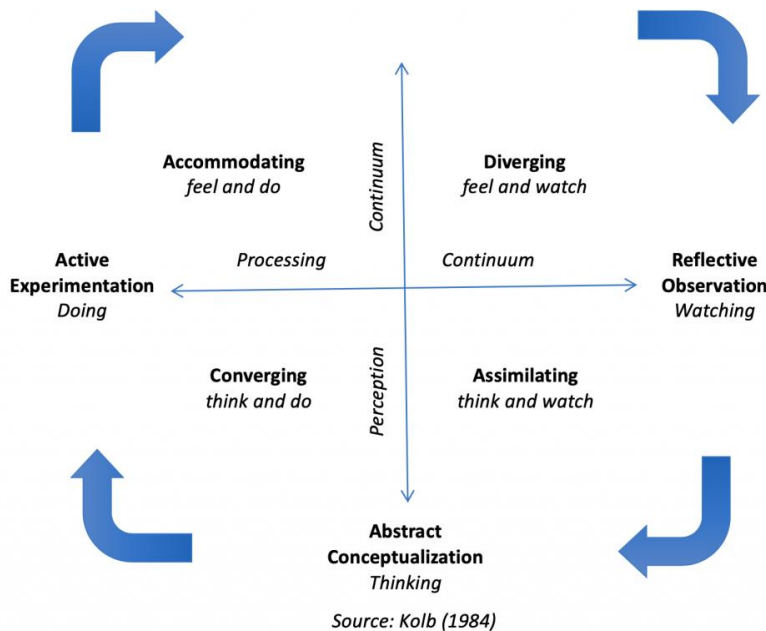
and empirical data, simulation technology can boost motivation, psychomotor abilities, and knowledge.

## Experiential Learning

Experiential learning postulates that experiences are created due to our continual interactions and involvement with the world around us and that learning is an unavoidable byproduct of experience. This theory considers the importance that all of our experiences, including emotions, cognition, and environmental circumstances, play in our learning. Dewey (1938) claimed that all meaningful education derives from experience. According to Kolb (1984), there are four steps in this process as shown in Figure 1.

**Figure 1**

*Kolb's 4 Steps of the Experiential Learning Cycle*



As a result of its organic nature, this type of learning is highly effective. Among the many advantages of this type of learning are learning from mistakes, reflecting and introspecting, making the connection to the real world, and improving attitudes toward learning.

## **Simulation Learning**

One of the most significant advantages of simulated learning is that simulations enable experiential learning in a safe and controlled environment. This form of learning makes it possible to model real-world behaviors and situations on the computer to gain a true-to-life experience. The advantages of simulation extend beyond the traditional training and teaching approaches. Users may experience scenarios repeatedly until satisfied with the outcome. Multifaceted scenarios are possible and may also be experienced from various approaches.

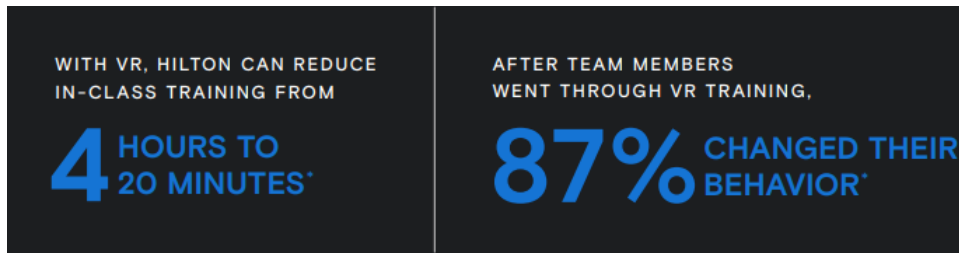
Virtual reality (VR) is a technology that generates an interface augmenting visual stimulation by immersing users in a three-dimensional (3D) world (Seth et al., 2011). Virtual reality provides an excellent, effective methodology for supporting learning by establishing a telepresence experience and has been widely employed for both training and educational applications. For example, virtual reality has been the means of training soldiers (Smith, 2009), engineering (Potier et al., 2017), and aviation (Macchiarella & Meigs, 2008) for decades. People learn best by doing and getting feedback when they make mistakes, which is why these high-stakes lines of work are natural applications of the technology. Another sector that utilizes this type of training is Lufthansa Airlines and Hilton Hotels. Hilton partnered with the creators of the Oculus virtual reality headset and transformed how they train employees. The YouTube video (<https://business.oculus.com/case-studies/hilton/>) shows what they are doing to transform the hospitality industry and bring training up to speed with available technology.

Oculus also consulted with Hilton Hotels to build empathy in the hospitality industry. Through virtual reality, they saw an avenue that would allow them to train employees in a revolutionary way, immersing trainees in real life-like situations. Hilton stated, “With VR, Hilton can reduce in-class training to 20 min from 4 hours,” furthermore stating “after team

members went through VR training 87% changed their behavior” (n.d. para. 3), as shown in Figure 2.

## Figure 2

### *Hilton Hotel Case Study of VR*



Bhojwani (2020, as cited in Kover, 2020) stated that “research indicates that the closer you can bring a learner to the actual work environment, the more they will learn and retain. Virtual reality does just that. It is absolutely the future of learning” (para. 3) Bhojwani is the Senior Director of Learning Innovation at Hilton. Therefore, keeping up to date with advancements in technology and what technology can do to enhance training is paramount for Bhojwani. Furthermore, with this innovative way of training, employees are now able to cross over into other areas within the industry and have a true sense of what they experience on a day-to-day basis. As a result, they are able to understand and, more importantly, empathize with the demands of all jobs across the industry, not only the one they were hired to do. Bhojwani (2020, as cited in Kover, 2020) goes on to further state:

“In the housekeeping experience, participants have to take care of nine items in each room,” Bhojwani says. “In reality, housekeepers have 62 checklist cleaning tasks to accomplish. Our learners are shocked when they really experience how much housekeepers need to accomplish.” (para 7)

PricewaterhouseCoopers (PwC) conducted a research study to answer the question of how virtual reality measures up as a training tool compared to those of traditional training

through distance learning measures including distance learning (e-learning) and in-class training (classroom). What did PwC find? PwC’s results indicated that those that trained through virtual reality did better in comparison as shown in Figure 3.

**Figure 3**

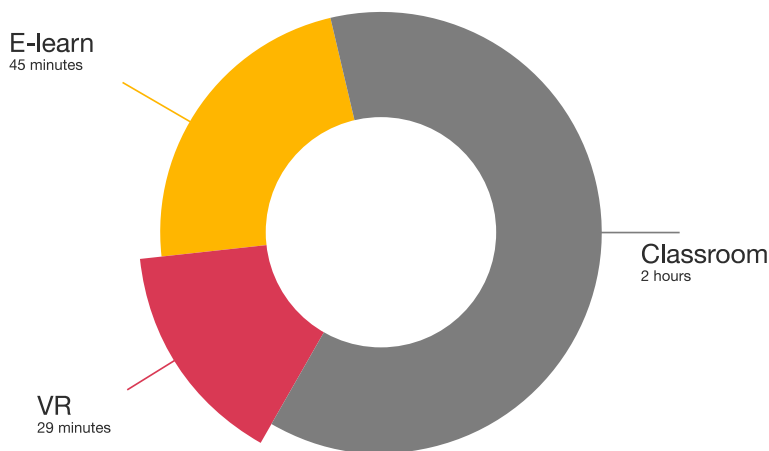
*Virtual Reality Learners*



PwC study further expanded on each of these four areas. They found that it took employees a significantly shorter time to go through training than through traditional methods. In Figure 4 we can see traditionally it takes employees two hours to go through training. Virtual reality carves that time down to thirty minutes.

**Figure 4**

*Completion Time for Training*

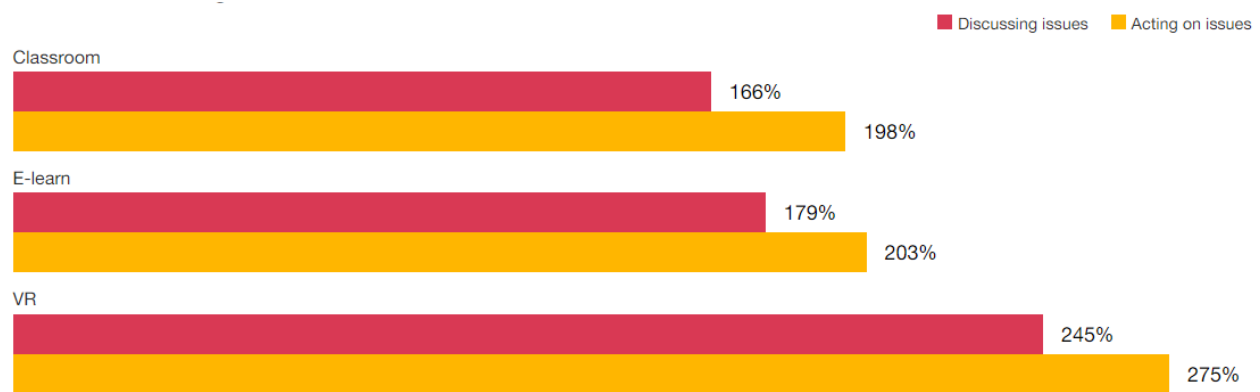


Source: PwC VR Soft Skills Training Efficacy Study, 2020

Next, PwC looked at confidence and building confidence in interactions with clients and customers through training. Figure 5 shows that the confidence level of employees went from 166% to 245% in the area of discussing issues; and 198% to 275% in the matter of acting on issues. Here we can see a significant gain in employee confidence. That is an enormous improvement of 40% when it comes to classroom training and a 35% increase when it comes to training through distance learning.

### Figure 5

#### *Confidence After Training*



Source: PwC VR Soft Skills training Efficacy Study, 2020

Next, PwC looked at how employees connected emotionally to what they learned. Was the experience meaningful? Were they able to make the connection to the situation at hand? Were they able to empathize with the situation presented to them? Figure 6 shows that PwC found that those who trained through virtual reality felt 3.75 more emotionally connected than those trained in the classroom, and 2.3 times more connected than those who trained through distance learning.

### Figure 6

#### *Emotional Connection to Content Learned*





Source: PwC VR Soft Skills training Efficacy Study, 2020

The next area of testing was that of trainee focus. The traditional classroom model and even distance learning leave opportunities for distractions. When watching videos at home or in the classroom, when completing assignments many factors come into play. Focus is key when it comes to training, and if the focus is missing then retention will not follow. PwC learned that those employees who trained through virtual reality were four times more focused than those who participated in distance learning training and 1.5 times more focused than those trained in the classroom, as shown in Figure 7. This is crucial to any industry as the weight of the training falls on focus and retention. The virtual reality environment allows for minimal distractions in the fully immersive environment and allows trainees to interact with their environments allowing for that real-world experience.

### **Figure 7**

#### *Trainee Focus*

|  | Classroom | E-Learn | VR   |
|--|-----------|---------|------|
| How many times were you multitasking or distracted during this experience? | 0.78      | 1.93    | 0.48 |
| How many minutes do you estimate it took to get back on task?              | 1.00      | 2.63    | 0.48 |

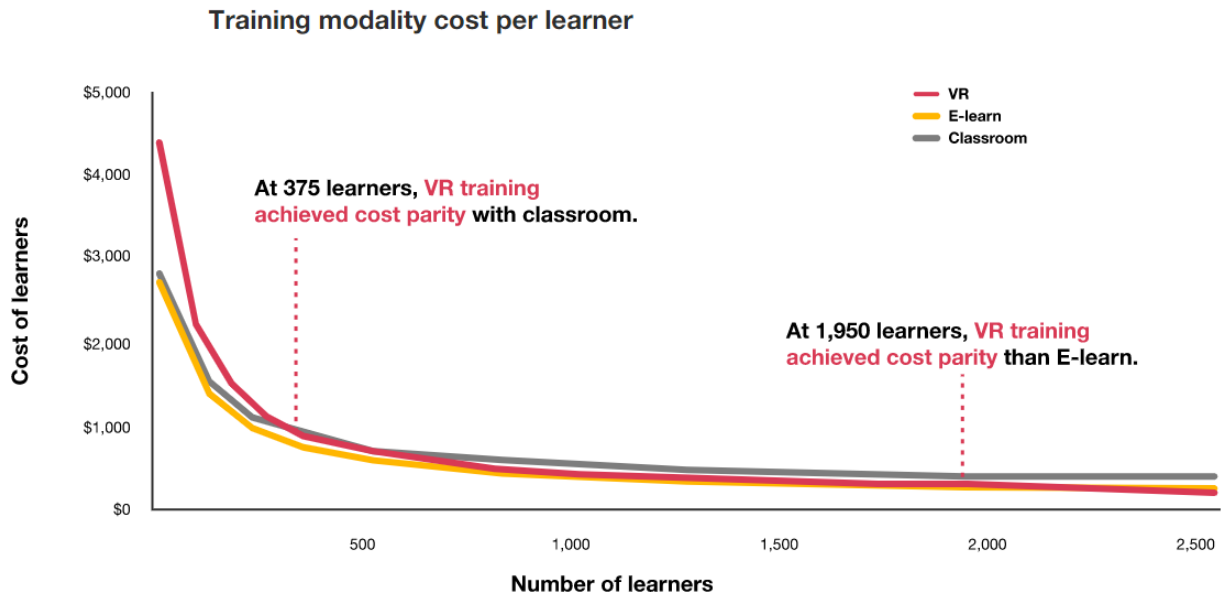
Source: PwC VR Soft Skills Training Efficacy Study, 2020

Lastly, PwC looked at cost-effectiveness of training through virtual reality. As virtual reality has become more streamlined, the cost of integrating virtual reality has also become more streamlined. Virtual reality is not a technology that is astronomically expensive and therefore impossible to purchase and integrate. Figure 8 shows the results. Likens and Eckert (2020) found that training employees through virtual reality:

Because VR content initially requires up to a 48% greater investment than similar classroom or e-learn courses, it’s essential to have enough learners to help make this approach cost-effective. At 375 learners, VR training achieved cost parity with classroom learning. At 3,000 learners, VR training became 52% more cost-effective than classroom. At 1,950 learners, VR training achieved cost parity with e-learn. The more people you train, the higher your return will likely be in terms of employee time saved during training, as well as course facilitation and other out-of-pocket cost savings. (para. 14)

**Figure 8**

*Cost-Effectiveness of Training Through Virtual Reality*



## Conclusion

What Hilton has done for its employees is one example of many Fortune 500 companies galvanizing training into virtual reality. In addition, companies like Walmart, Verizon, T-Mobile, and even food chains like Sprouts Farmers Market have seen the value in training through virtual reality. Virtual reality is the future of training, and we are able to see that with a plethora of companies making the transition from traditional training methods to training through virtual reality.

It is difficult to see education and training being anything other than experiential in our day of instantaneous knowledge and technological growth. New technology, such as virtual reality, aims to expand this idea even further. This educational revolution will be felt first and foremost in the training of tomorrow's professionals. These learners will be better equipped, more skilled, and able to handle their profession head-on as a result of simulation and hands-on experience.

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