

Best in Class Leadership Development: How Virtual Reality and Avatars are Changing the Learning Landscape

Large corporations faced with the challenge of developing leadership skills in a fast-growing, distributed workforce are looking for ways to scale leadership training. Over 50% of learning professionals say that developing strong leaders is the *number one objective* for their organization.¹ Coaching, communication, and collaboration top the list of skills for leaders, and large organizations report communication skills are more in demand than technical skills. Instructor-led classes continue to be the most common method of leadership development, but the investment associated with travel, lodging, and time away from work is generally reserved for high-level executives. At large organizations, new managers likely receive a one or two day in-person workshop with practice-based role plays during their first 90 days. However, traditional role-play rarely replicates the real-life stress that learners need to develop effective interpersonal skills, because “role players” typically break character or do not deliver an authentic performance. Further, in person role plays do not provide opportunities for on-going practice. To solve the issue of at-scale learning, corporations try to address scale with click-through eLearning or video modules. While online learning modules may present content at the lower levels of Bloom’s Taxonomy, they offer limited opportunities for applied practice and acquisition of skills, and are neither engaging, nor effective for leaders who are looking to quickly ramp up skills to be prepared for the most challenging workplace interactions. Organizations have turned to one-on-one coaching from mentors or consultants, but quality and approach varies widely, developing rapport requires time, and budgets are prioritized for higher level executives. At scale, how do large corporations with a distributed workforce develop the range of skills that leaders need?

Virtual Reality (VR) Simulations for Learning at Scale

Best in class organizations are using VR simulations to unlock employee leadership potential. Using VR in 2D (laptops) or 3D (headsets), aspiring leaders across the globe experience immersive, realistic learning events without ever leaving the worksite or home office. VR provides a supportive environment for applied practice, the gold standard for learning.^{2,3} VR simulations are a well-established feature of training programs in a wide range of professional fields, including aviation, military, medicine and health and safety, where mistakes can cost lives. Now corporations are leveraging VR simulations to provide safe practice spaces for leaders to learn from mistakes and hone their skills. VR simulations result in savings in many areas, including travel expenses, time lost off the job, and ultimately costly consequences of learning from mistakes while on the job. However, VR simulations provide more than just cost savings. They provide a superior format for applied learning at scale, immersing learners in realistic interactions that develop and reinforce neural pathways critical for turning new behaviors into habits.⁴

Research indicates that interaction partners represented by visuals are more engaged during communication, because visuals are thought to increase the sense of *copresence*, the experience of

¹ 2017 *Workplace Learning Report*. Report. (LinkedIn Learning: 2017), <https://learning.linkedin.com/content/dam/me/learning/en-us/pdfs/lil-workplace-learning-report.pdf>

² D. Kolb. *Experiential learning: Experience as the source of learning and development*. (1984). Englewood Cliffs, NJ: Prentice Hall.

³ B. Andreatta, “The Best Way to Change Habits Through Workforce Learning,” <https://learning.linkedin.com/blog/learning-thought-leadership/the-best-way-to-change-habits-through-workforce-learning>, (November 10, 2017).

⁴ B. Andreatta, *ibid*.

being with another person.^{5,6} Learners who are looking to safely practice their communication skills for leadership in VR can interact with two types of visual, digital representations of humans: *agents* (controlled by computer software) and *avatars* (controlled by humans in real-time).⁷ Both agents and avatars may evoke a sense of copresence, which is a key feature of authentic social interaction in a virtual environment.

Avatars operated by humans provide a level of realism needed for eliciting copresence and simulating social interactions, but they also have been shown to have a stronger impact in some situations than interacting directly with humans. In this next section we will examine how avatars outperform humans in certain settings. We will explore research that answers the question, “What is the benefit of using an avatar for communication?”

Advantages of Avatars

Avatars outperform agents for practicing social interactions. While, agents controlled by artificial intelligence respond well to voice commands for information, they quickly break down during human-to-agent conversations that require true empathy, emotion, or higher-level reasoning skills.⁸ Research confirms that avatars provide a more powerful model than agents for simulating authentic interpersonal exchanges.⁹ Practice environments supported by avatars create more authentic opportunities for practicing the complex communication skills leaders need to successfully navigate challenging workplace conversations.

In some settings, avatar-based interactions also provide unique advantages over human interactions. Researchers have found that people are more likely to disclose information about themselves in interactions with avatars than with real humans.¹⁰ Interacting with other humans via avatars provides a level of anonymity which results in increased self-disclosure.^{11, 12} This phenomenon is evidenced in other modes of communication, such as email, chat, and message boards, where it is theorized that people are less inhibited using technology-mediated form of communication, because they are removed from face to face social interactions.¹³ Some researchers suggest that anonymity also generates a positive impression between communication partners, as can be found in online dating environments where relationships develop with limited face to face interactions.¹⁴

Lifelike avatars operated by humans provide a new channel for communication, combining the engaging features of face to face communication and the anonymity of online environments. In a groundbreaking study investigating how humans interacted based on varying technology-mediated communication channels, Bailenson et al. (2006) investigated three different conditions: a) audio only, b) audio and videoconference, and c) audio and avatar. The results demonstrated that people

⁵ Nowak, K. & Biocca, F. The effect of the agency and anthropomorphism on users' sense of telepresence, copresence, and social presence in virtual environments. *Presence: Teleoperators and Virtual Environments*, 12, 5 (2003).

⁶ Bailenson et al. (2006). The effect of behavioral realism and form realism of real-time avatar faces on verbal disclosure, nonverbal disclosure, emotion recognition, and copresence in dyadic interaction. *Journal of Presence: Teleoperators and Virtual Environments*, 15, 4, August 2006, 359 - 372

⁷ Bailenson et al. (2006), *Ibid.*

⁸ Loup Ventures “Annual Digital Assistant IQ Test,” <https://loupventures.com/annual-digital-assistant-iq-test/> (August 22, 2019)

⁹ J. Fox, S. Ahn, J. Janssen, L. Yeykelis, K. Segovia, and J. Bailenson, “Avatars Versus Agents: A Meta-Analysis Quantifying the Effect Of Agency On Social Influence,” *Human-Computer Interaction* 30, no. 5 (2015): 401-432.

¹⁰ Kang, S. & Gratch, J. (2010). The effect of avatar realism of virtual humans on self-disclosure in anonymous social interactions. 3781-3786. 10.1145/1753846.1754056.

¹¹ Bailenson et al. (2006), *Ibid.*

¹² Kang, S. & Gratch, J. (2010). *Ibid.*

¹³ Dubrovsky, V. (1985). Realtime computer conferencing versus electronic mail. Proceedings of the Human Factors Society, 29, 380-384.

¹⁴ Walther, J. B. Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research*, Vol. 23, 1-43 (1996).

disclosed more information to avatars than with the humans in the video conference, both verbally and nonverbally. Further, people in the videoconference were perceived as less revealing, honest, and friendly than avatars. Researchers indicated "...Avatars may be extremely useful for introverted students talking in front of a class in a distance learning scenario, patients interacting with a virtual therapist, and many other applications in which people interact with avatars in highly self-relevant and personal situations" (p. 370).

VR simulations with avatars provide a safe practice space where learners are comfortable revealing themselves in an anonymous environment. These unanticipated benefits of avatar-mediated communication can be used to provide safe, anonymous practice spaces for learners. When avatars are combined with VR simulation environments in 2D or 3D, learners can experience an immersive, realistic learning event without leaving their worksite or office, allowing corporations to address issues of at-scale learning.

Research Base for VR Simulations

VR simulations provide a safe place to practice interpersonal behaviors at an accelerated pace, receive rapid corrective feedback, and assess behavior.¹⁵ Studies show that simulations are more effective than other instructional methods, because they simultaneously engage trainees' emotional and cognitive processes.¹⁶ Research indicates that learners can change interpersonal skills behavior after engaging in as few as four 10-minute practice sessions of VR simulation.¹⁷

Research Studies Examining Effects of Mursion VR Simulations

A strong research base exists for avatar-mediated VR simulations that impact behavior. In a seminal research study funded by the Bill & Melinda Gates Foundation led by researchers at the University of Central Florida in partnership with approximately 15 institutions, researchers conducted two experiments using VR simulations for interpersonal skills across approximately 300 professionals.¹⁸ In both studies, researchers found that four 10-minute sessions in the VR simulator improved targeted interpersonal behaviors during the simulation, and those improvements transferred into the workplace. When compared to colleagues who received online training on the same content, professionals who experienced the simulations significantly outperformed their colleagues on all targeted measures. When surveyed about the authenticity of the VR simulations, over 90% of professionals agreed that the avatars accurately represented the kinds of people that existed in the real world. In addition, research conducted at Duke University using Mursion VR simulations compared interactions with avatars to those of professionally trained, live actors in a randomized controlled trial with 60 learners¹⁹. Researchers found no significant differences between groups on a biological measure of stress reaction, indicating that when compared with professional actors trained to deliver a standardized performance, avatars can evoke similar emotional responses. Results from these studies suggest that professional learning in VR simulations can successfully impact professional practice.

¹⁵ L. Dieker, C. Straub, C. Hughes, M. Hynes, and S. Hardin, "Learning from Virtual Students," *Educational Leadership* 71, no. 8 (2014): 54-58.

¹⁶ A.W. De Borst and B. De Gelder, "Is it the real deal? Perception of virtual characters versus humans: An affective cognitive neuroscience perspective," *Frontiers in Psychology* (2015); doi: 10.3389/fpsyg.2015.00576

¹⁷ L. Dieker, C. Hughes, M. Hynes, and C. Straub, "Using Simulated Virtual Environments to Improve Teacher Performance," *School-University Partnerships: Technology to Enhance PDS* 10, no. 3 (2017): 62-81.

¹⁸ L. Dieker, et al., "Using Simulated Virtual Environments to Improve Teacher Performance," *School-University Partnerships: Technology to Enhance PDS* 10, no. 3 (2017): 62-81.

¹⁹ S. Compton, A. Nagendran, et.al., "Delivering Bad News".

Best Western Case Study for VR Simulations at Scale

Although a growing body of research from controlled experimental studies validates the impact of VR simulations, in order to demonstrate true impact, results must be replicated in applied settings. In the case of Best Western Hotels and Resorts, Mursion VR simulations were delivered to over 12,000 front desk agents. The aim of the training program was to improve guest interactions through development of problem resolution skills, an area of customer service that challenged many Best Western sites according to customer feedback data. On average, participating hotels experienced an average of 2 to 5% gains in post-stay guest satisfaction survey ratings compared to flat rates for nonparticipating hotels. Gains were strongest for problem resolution (5.1%), the main focus of the simulation-based training. Vice President of Operations, Bruce Weinberg stated, “Results from the program are staggering. Hotels that received the [Mursion] training experienced the highest short-term gains in customer satisfaction that Best Western has ever measured.”²⁰ Ninety-seven percent of hotels reported being highly satisfied with the training. In the *2017 Business Travel News Survey*, Best Western earned the highest scores for helpful and courteous service, when compared with six other competitors in the upper-midscale hotel segment²¹. Best Western attributed their success to Mursion VR simulations of real-life customer interactions, which were based on real Best Western guest data, and enabled personnel to refine their communication skills and practice resolutions for common problems.

Educational Testing Service Case Study for Consistent, Reliable VR Simulations at Scale

In partnership with Educational Testing Service, Mursion designed and delivered a series of VR simulations to pilot a new assessment for teacher licensure. Scenarios focused on leading a classroom discussion and eliciting student thinking related to content, both challenging interpersonal interactions for teachers. The pilot was administered at 26 test centers across 9 states over a period of 13 weeks. Over 4,385 simulations were delivered to assessment candidates. In line with earlier research findings, 90% of participants agreed that the kinds of teaching skills or abilities required by the simulation tasks felt authentic. However, the main focus of the project was to establish if VR simulations with avatars could be delivered in a standardized format that would allow for valid and reliable interpretation of test results. Of particular interest to researchers was the extent to which the simulation delivery was affected by the specialist orchestrating the moves of the avatar. In the case of assessment, the goal is to have consistent avatar performance so that a test taker does not receive more or fewer opportunities to respond, invalidating test results. Researchers found that simulation specialist performance was not a significant contributor to variance in participant scores, suggesting that in potentially high stakes assessment, VR simulations can be delivered consistently at scale.

Applications for Leadership Development

Over 50% of learning professionals say that developing their leaders is the number one objective for their organizations.²² Coaching, communication, and collaboration, top the list of leadership skills that organizations are looking to develop. Large organizations with over 1,000 employees report career development and soft skills are even more important than technical skills. However, if instructor-led classes are still the most common way that learning professionals train employees,

²⁰ Mursion, “Case Study: A Flight Simulator for the Front Desk – How Best Western Leveraged Virtual Reality to Transform Customer Service,” https://drive.google.com/a/mursion.com/file/d/13YDKBJ33fwz_xKzEFA9Gus7rXXR5XKvT/view?usp=sharing (2019).

²¹ Business Travel News, “2017 Hotel Brand Survey: Midscale, Best Western Brands Sweep Mid-Scale”, <http://www.businesstravelnews.com/Research/Hotel-Survey-Report/2017/Best-Western-Brands-Sweep-Midscale>, (September 4, 2017).

²² 2017 Workplace Learning Report.

how do large corporations develop leaders at scale? For nuanced interactions that leaders engage in, such as performance coaching, career development, and goal setting, VR simulations with avatars can provide a safe and private practice environment. Based on research findings in simulation, four 10-minute sessions in simulation can change a targeted behavior, allowing leaders to step away from their responsibilities for brief amounts of time to focus on skills which can be readily applied in the workplace, providing a more efficient path to mastery. Furthermore, VR simulations have unique technology-enabled advantages such as 2D or 3D immersive environment displays, basic scoring, and integrated recording, so sessions can be easily recorded and viewed at a later time for personal reflection or performance coaching. This approach outperforms more traditional methods of training.

VR Simulations at Scale

For large organizations faced with the challenge of providing consistent, yet rigorous learning experiences for a distributed workforce, VR simulations enable a standardized approach to leadership development with consistent scenarios that can be practiced all over the globe. Environments and avatars can be configured to provide a highly dynamic training environment that is branded with organizational colors, logos, and other appropriate contextual workplace features. Mursion's proprietary scenario design process enables us to quickly design and deploy custom scenarios to thousands of learners in a matter of one to two months, and content can be modified to fit each organization's current priorities without allocating resources to additional software programming.

Currently, Mursion customers use Mursion VR simulations to develop skills in a variety of scenarios that are customized to the specific business context. Cutting-edge organizations leverage Mursion's platform to place leaders in virtual environments that simulate the most challenging interpersonal situations they face on the job:

- Facilitating difficult conversations
- Conducting performance interventions and coaching
- Managing interoffice conflict
- Communicating sensitive messages
- Delivering effective presentations
- Adapting interpersonal styles to optimize team performance

Employers or learning professionals can schedule in Mursion's automated scheduling system by selecting from available slots that coincide with peak times. Learners select scenarios based on performance objectives and are automatically connected to simulations populated with avatars. As with all simulations, avatars are orchestrated by qualified simulation specialists who deliver a standardized learning experience. Mursion's current delivery model functions as a distributed call center in which learners are routed to only qualified simulations. In small client engagements learners schedule their sessions in advance; however, in large scale engagements, learners may schedule on-demand with only brief hold times, during which learners typically prepare for their simulations.

Conclusion

Mursion's modern learning experiences harness today's technology to create real behavior change. A new era is emerging in which learners can rehearse, practice and perfect the manner in which they interact with others on the job. We believe that immersive practice with avatars in VR simulations unlocks human potential. Our simulations provide a supportive environment for immersive practice of the most difficult interactions we face each day, because in the safety of VR learners make mistakes, learn from failure, and hone skills to improve their interactions in daily life.