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The Four Essentials for Achieving Real-Life Engagement in Online Instructor-Led Training

The importance of engagement; factors that create it
& how to create environments that support it

INTRODUCTION

Today's digitally enabled companies are more geographically dispersed than ever before, even as many of their wallets are tightening to fend off economic uncertainty. In an effort to cut costs by moving instructor-led training (ILT) online, the majority of us have at least partially adopted web and video conferencing tools. But in all but the most expensive and elaborate tele-presence facilities (which defeat the purpose of cutting costs), most of these technologies remain inferior to in-person ILT in many important ways.

Instructors know how difficult it is to get and maintain control over learners' attention with online ILT programs. Without the interpersonal cues and interactions we experience when communicating face-to-face, learners are prone to distraction from a constant stream of more 'real' stimuli at their fingertips and on their desktops. They are often preoccupied with figuring out the web conferencing interface, or become frustrated by failed attempts to be heard. If the learning experience feels unnatural or otherwise disengaging—which is so often the case with online ILT—the learner will feel powerless and mentally divided from the instructor and fellow learners. Each of these common symptoms extracts a heavy toll on successful knowledge transfer dramatically diminishing the levels of learner interest, participation, and overall effectiveness of the online ILT programs.

But what exactly is it about face-to-face ILT that seems so much more conducive to learning? Why are retention and compliance scores consistently higher with in-person ILT than with online ILT? And what's missing from the average online solution that has us consistently wondering whether or not we're "getting through," and if the time and money we're saving by moving online is really worth the loss of effectiveness? The answer to these questions boils down to a single word: **Engagement**.

In this paper, we will:

- examine the crucial nature of engagement to successful learning environments;
- explore the four required factors for creating engagement;
- rank the ability of various online modalities to foster engagement;
- examine how fully immersive 3D environments can help trainers simply and cost-effectively replicate the in-person training experience online.

ENGAGEMENT: WHAT DOES IT LOOK LIKE?

In any ILT session, whether face-to-face or online, very little can be accomplished until participants feel personally engaged in the learning process.

We know what engagement feels like. When we're instructing or participating in an engaging activity, we observe that everyone is attentive, thinking, participating, debating and contributing ideas. Learning becomes a collaborative activity. The atmosphere is charged with contagious energy, creativity and a common sense of ownership of the learning process. Simple facts transform into self-discovered truths, and we feel confident that knowledge has not only been grasped, but will be retained and put to use. Mission accomplished!

On the other hand, we also know what disengagement looks and feels like. The instructor might as well be the PowerPoint document from which he or she is lecturing. Discussion is limited to a monologue or is dominated by one or two people, making it difficult for learners to interject comments or questions. Learners, especially those who are less assertive, do not feel empowered to speak naturally or freely. They look tired, distracted or ambivalent. Instead of feeling a shared sense of presence, they feel more like passive bystanders.

The fundamental rule of engagement in group learning dynamics is that **people only tend to support ideas, goals, plans and initiatives that they feel they helped to create**. In other words, if they feel left out of the process, or as if their input has no bearing on the outcome, then they generally take no ownership of it. Engagement is the power that creates buy-in. Engagement is the magic that not only fosters better learning and decision making, but also bonds people together in a common cause and unites them behind an initiative.

HOW TO CREATE ENGAGEMENT: UNDERSTANDING THE FOUR REQUIREMENTS

So we know what engagement looks like and why it's important, but how do we create it? It can be difficult enough to build and maintain engagement in an in-person classroom setting, much less online.

To facilitate true engagement in any learning environment—face-to-face or virtual—four components are critically important:

Requirement One The Communication of Focus

Focus communication is the ability to convey to others where one's attention is directed. This characteristic is crucial to the efficient flow of knowledge, and it's the main reason that in-person training is typically so much more engaging than training conducted online.

In a live classroom setting, we visually communicate that we're focusing on someone who is speaking by looking in his or her direction. This is significant. It communicates respect and an eagerness to understand the speaker's contribution. In turn, being at the center of these visual cues triggers a rise in the speaker's energy and interest levels. Instructors and teachers have known about this phenomenon—termed the spotlight effect—for years. When they move to stand beside a distracted student while lecturing, or ask the opinion of a disengaged learner, they're doing so because they know how difficult it is to remain a passive bystander while in the spotlight. When all eyes are focused on the disengaged student, his or her energy level will rise, causing a dramatic increase in alertness and participation.

Another important benefit of focus communication involves the complex and fascinating speaking dynamic that occurs when learners interject comments. When several learners begin speaking at once in an in-person ILT environment, some will give way while others get louder as they compete for the floor. The speaker that ultimately gets the floor is determined by a subtle group voting process that happens many times throughout most collaborative training sessions. Learners communicate whom they want to hear speak by offering that person their focus. If the room directs its attention to a competing speaker while we are talking, we recognize the need to relinquish the floor until an appropriate opportunity arises for us to make our points. Focus communication enables group discussion to flow naturally and effectively fostering an engaging interactivity where everyone gets a chance to be heard.

When we cannot visually and audibly communicate our focus to our peers, as when using phone or web conferencing platforms, we tend to talk over one another. As conversation becomes more difficult and less dynamic learners are far more likely to lapse into passivity and distraction. The loudest and most assertive person dominates the discussion, often unintentionally frustrating other potential contributors. These would-be speakers often decide it's not worth the effort to jump in, and the group suffers from fewer, more homogenized collaborative contributions as a result.

From a purely tactical perspective, lack of focus communication makes it difficult to determine who is speaking and to whom comments are directed, putting us at risk of misinterpreting meaning and intent. This is why online learners frequently find themselves wondering whether an instruction was meant for a particular individual or team, or for the entire group. Focus communication also provides important interactive cues to instructors by enabling them to see when learners are looking at the content being

discussed, versus when their focus lies elsewhere. This provides important clues to online instructors such as when learners look up from an assignment communicating that they are finished and ready to move on.



An exciting and practical advancement in 3D learning is the ability to effortlessly and naturally communicate focus, enabling engagement levels approaching those provided by in-person ILT. Instructors and learners simply click and drag where they want to look, automatically communicating their focus to others. Even eye contact can now be communicated.

With the exception of highly expensive telepresence systems, all 2D online learning modalities fail to communicate focus. This includes the screen and voice sharing platforms that dominate the current market for web conferencing and online ILT. Even video conference platforms that enable us to see who is speaking provide no directional information such as to whom specifically a comment is being directed.

When focus communication fails to translate through an online learning platform, engagement levels are dramatically reduced. It's like removing the lubricant from a piece of complex machinery; the gears may still

move, but they will be far less efficient, generate more friction and endure significantly greater fatigue.

Here is a simple experiment to illustrate this point: Try blindfolding the participants of your next in-person ILT session. By removing focus communication from your session, you will discover that the group dynamics and participation levels are much more akin to a conference call.

Requirement Two Empowerment

Empowerment is the degree to which both learners and instructors feel that they have control within the learning environment. Human nature dictates that when we feel powerless we tend to disengage. Our energy levels dip dramatically, causing us to become bored, passive bystanders who seek stimulation elsewhere.

The ability to choose where we want to look (focus) is very empowering and when we are speaking, we enjoy the spotlight effect and feel engaged but how can we keep learners engaged when they do not have the floor? Wanting to communicate and not being able to do so is not only frustrating, it also creates a feeling of powerlessness that causes disengagement. But, we cannot all be speaking at the same time. The ability to communicate non-verbally helps keep learners engaged between their opportunities to speak.



Web conferencing environments based on voice and screen-sharing alone limit participant empowerment. Immersive 3D environments empower students to communicate in ways that keep them actively involved throughout online sessions.

Beyond the ability to speak and broadcast focus, empowerment also refers to our control over the non-verbal ways we communicate our thoughts and reactions. A simple facial expression or gesture can communicate volumes. During in-person ILT sessions, students and instructors have the power to convey a positive thought with a smile, a negative thought with a frown, and to give quizzical looks when they do not understand something. While listening, we often nod our heads to communicate agreement with a point being made.

These non-verbal measures of control are crucial to engagement because they prevent us from fading into passivity when someone else has the floor. In today's multi-tasking environment, students need constant outlets of expression in order to remain engaged and active participants. Learners will spend the majority of training time outside of the spotlight—listening, not speaking—which means they aren't usually under the engage-

ment-boosting affects of center-stage. Being empowered to communicate and express our reactions through non-verbal gestures keeps us actively engaged in learning, even when extended periods of listening are required.

Dr. Tony O’Driscoll’s landmark paper, “Escape from Flatland,” compares two online sessions: one conducted in WebEx®; the other in an immersive 3D modality. The instructor and content were identical, but the learners exhibit vastly different levels of engagement.

ILT in 3D virtual environment

ILT using 2D web conferencing

Discussion was active and seemed to flow naturally.	Discussion was rather limited and more serial in nature. Fewer learners participated.
Learners interacted with content, using laser pointers as aides.	Learners had to verbally describe the section of content to which they were referring.
Learners broke out into small collaborative teams on different sides of the virtual room.	Breakouts and teams were not used.
Learners rarely opened other desktop applications, and when they did, they returned quickly to the training application.	Almost all participants minimized the WebEx window so they could use other desktop applications throughout the session.
Instructors opened several content windows on large virtual viewers side by side.	Only one content window could be opened at a time.
Learners tended to look at the person talking and communicated using gesture and expression.	There was virtually no feedback from learners, regardless of who was speaking.

Without the ability to control how we present ourselves to others and to perceive how others choose to present themselves to us, energy and retention levels drop, instructors become less effective, students tune out, and knowledge transfer is less efficient. This sounds familiar to most of us who have participated in online training via traditional web conferencing.

Requirement Three A Natural Sense of Presence

A **sense of presence** is what helps learners feel that they are sharing a physical space together and that they are fully immersed in the learning environment. With in-person

ILT, we enjoy a full sense of presence thanks to multiple auditory and visual factors. We are spatially aware of our positional relationships to the room and all people and objects in it. We can see and be seen by those around us in a way that feels natural, real and automatic. We hear someone speaking to our right, turn our heads toward the sound, and immediately recognize Bob as the source of speech. Bob is looking at Amy while he talks, so we know his comments are directed specifically to her.

A learner's sense of presence is tied proportionately to his or her level of engagement. Engagement is fostered by anything that helps free a learner's mental resources so that the brain can focus as quickly and fully as possible on the training message.

The reason for this is physiological as well as psychological. When the ears detect speech, our natural cognitive process identifies the speaker before processing the meaning of what is being said. The brain is tuned to first calculate the physical direction from which sound is coming. This calculation tells us where to look, so we can visually



Many instructors are turning to sophisticated immersive 3D environments to create a more natural sense of presence than traditional web and video conferencing can provide. Online learning is no longer limited to shared content. It can now become an immersive shared experience.

confirm the source of speech. Only then does the brain focus on the meaning of what is being said. A full sense of presence, like we experience with in-person ILT, makes it easy for our minds to automatically register and process the direction and source of speech so that we can focus undividedly on content.

Unfortunately, most of this rich data doesn't translate via traditional web and video conferencing. Without spatial and visual information to help us automatically identify the source of speech, we struggle to leapfrog over the missing pieces in order to process the meaning of the words. In essence, because these platforms feel

unnatural, they require more of our brain space to navigate and thus detract from our ability to engage in the learning itself. Resistance to this input-scrambled learning process is referred to as audio fatigue.

This seemingly complex concept can be simply demonstrated by imagining for a

moment your ILT session from our prior experiment on focus. Now imagine that, in addition to being blindfolded, everyone in attendance can only be heard through a single speaker box in the middle of the room. When both facial images and directional sounds are unavailable, it becomes apparent how much more difficult it is to immediately process, and thus engage in, content. The resulting audio fatigue explains why we feel greater mental strain and tiredness following a long conference call than we do after an equally long face-to-face meeting. It also explains why online ILT programs typically achieve poorer transfer of knowledge than in-personal ILT programs.

Because voice and web conferencing platforms provide a weak sense of presence, learners feel that they are simply “listening in” to most online ILT programs rather than engaging in them (which, in most cases, is entirely accurate). Without a shared sense of reality, it feels more acceptable to tune out, perhaps by muting the phone or opening a different web application, to an extent that we would immediately recognize as unacceptable in face-to-face environments.

State-of-the-art 3D learning platforms use a variety of techniques to create a sense of presence that is far more naturally engaging and immersive than typical 2D platforms. The most sophisticated of these 3D environments are equipped with features that provide a sense of presence similar to in-person experiences. For example:

- High-fidelity graphics make the online experience feel real and natural, i.e. participants feel that they are sharing a physical space and objects together.
- Positional sound creates a multi-channel VoIP experience, so users audibly detect speech naturally and realistically from the direction of its source. For example, a learner hears the person sitting to their right through their right speaker, and can then turn to “look” at them.
- State-of-the-art 3D avatars automatically mimic the natural gestures, postures and various expressions that people semi-consciously adopt during in-person encounters. These non-verbal communicators vary to match voice intensity when speaking just like in real life, and seamlessly blend voluntary and involuntary movement to create very natural and realistic experiences.

Requirement Four Personal Intimacy

Intimacy is the ability to communicate the human element, creating a more personal learning experience.

Folk wisdom states that if you have something difficult to communicate, you should say it in-person. We are much more congenial face-to-face than we are at a distance. When we cannot see another person's face, we have a tendency to dehumanize him or her. We are less likely to remember that the object of our frustration, like ourselves, sometimes is in need of the benefit of the doubt and the occasional do-over. Instead, we become more likely to jump to negative conclusions about intent or motive. This same phenomenon that causes road rage during our morning commute puts online ILT programs at risk of fostering impersonal, learning-adverse environments.

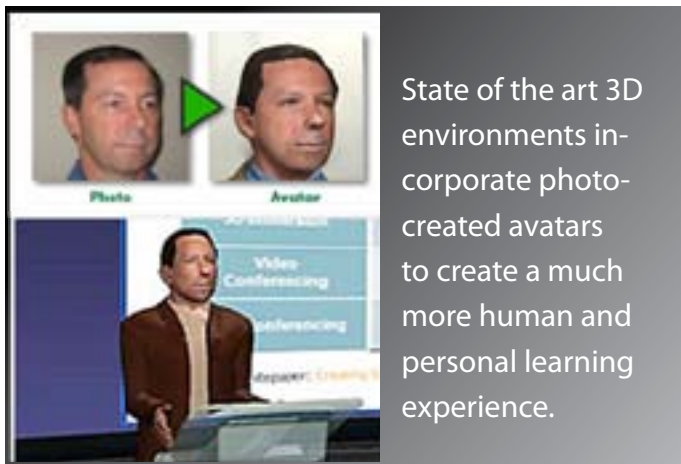
That which is more personal is also more universally engaging. In-person training programs are viewed as more personal and enjoyable than online ILT programs, often

incorporating team building experiences in which learners can get to know one another. During these sessions, everyone's humanity is apparent, and cooperation and similarities take a front seat to differences and individual posturing.

2D web conferencing platforms, however, divorce our voices from our persons, cultivating an environment that minimizes the human element. Without this element, online ILT often creates less congenial learning environments, thus hampering participation, engagement, and ultimately, learning. It's for this

reason that WebEx® and similar 2D training platforms would not be called upon to perform double duty as team building tools.

Unlike these 2D web conferencing solutions, video conferencing and 3D platforms (that provide photo-created avatars) foster an intimacy level that more closely mirrors physical presence. 3D immersion also affords a unique perspective; with the capability to see ourselves in the third person, we can take a step back and see ourselves the way others see us. Seeing oneself engaged in conversation tends to make us acutely aware of our demeanors.



HOW AFFECTIVE IS EACH ONLINE ILT MODALITY AT GENERATING ENGAGEMENT?

As training programs continue to move online, researchers have defined and studied a multitude of success metrics to compare learning modalities. Studies consistently show that certain immersive ILT environments can create better learning outcomes than their 2D counterparts in the areas of participation, ideation, and retention. However, none of these studies have addressed the reasons for these improvements. With our understanding now of the four requirements for creating engagement in online ILT it is now possible to explain these improved outcomes and to rank each modality in its ability to foster engagement. (Table 1)

Table 1. A comparison of how well each online modality meets the four requirements for engagement. 1= (Not Very Effective); 5 = (Extremely Effective).

Modality	Focus Communication	Empowerment	Natural Sense of Presence	Personal Intimacy	TOTAL ENGAGEMENT
In-person ILT	5	5	5	5	20
Tele-presence	4	4	4	5	17
3D Immersion	4	4	5	4	17
Video Conferencing	0	3	0	4	7
Web Conferencing	0	1	0	1	2

Focus Communication

In Person ILT (5) allows for the best communication of focus, but Tele-presence (4) and 3D Immersion (4) platforms are a close second as they do effectively communicate where online participants are looking. Video (0) and Web Conferencing (0) platforms make no attempt to communicate focus.

Empowerment

Tele-presence (4) and 3D Immersion (4) provide a level of empowerment close to that of In Person ILT (5). Attendees are empowered to express themselves non-verbally, etc. Although difficult to view content and other attendees at the same time, Video Conferencing (3) does allow for the communication of expression. Web Conferencing (1) is almost completely host-controlled, allowing very limited degrees of empowerment for attendees beyond the ability to communicate a “raised hand.”

Natural Sense of Presence

Tele-presence (4) and 3D Immersion (5) can create a sense of presence that is very similar to that of In Person ILT (5). But, unlike the fixed, static physical room required for Tele-presence, 3D Immersion offers various venues for different audience sizes and styles. Video (0) and Web (0) Conferencing offer no shared sense of presence. With these modalities, sound is not heard directionally and there is no pretense of occupying a shared space.

Personal Intimacy

Tele-presence (5) is nearly on par with In Person ILT (5) in communicating intimacy. Faces are instantly recognizable. The photo-created avatars of next-generation 3D Immersion (4) platforms approach a level of realism and fidelity associated with real-time video. Video Conferencing (4) also scores high in intimacy, but lacks the ability to communicate directional eye contact. Some Web Conferencing (1) tools now allow attendees to project a static 2D picture, but this creates only a marginal level of intimacy.

Engagement Analysis

When factors that create engagement are compared, it becomes clear that tele-presence and 3D immersive environments create levels of engagement far closer to that of In-Personal ILT than video and web conferencing.

ENGAGEMENT IS THE KEY BUT WHAT ABOUT OTHER IMPORTANT FACTORS?

If engagement were the only criteria we had to consider, then we would conduct all our training in-person. But our time and budgets are limited. As with most business decisions, we make trade-offs in search of the best value inflection points. It is generally best to select the online ILT modality that provides the highest level of engagement while meeting your other criteria and limitations. Following is a comparison of how well each modality meets the most common selection criteria (Table 2).

Table 2. A comparison of the important criteria for selecting an efficient ILT modality. 1= (Not Very Effective); 5 = (Extremely Effective).

Modality	Cost Effectiveness	Reach	Scalability	Immediacy	TOTAL PRACTICAL EFFICIENCY
In-person ILT	5	5	2	1	5
Tele-presence	3	2	1	2	8
3D Immersion	5	5	5	5	20
Video Conferencing	4	3	1	4	12
Web Conferencing	5	5	5	5	20

Cost Effectiveness

With the average overnight business trip now costing over \$1500, In Person ILT (5) is by far the least cost effective modality. Tele-presence (3) still requires a rather large upfront investment in equipment, bandwidth and space. 3D Immersion (5) and Web Conferencing (5) are the most cost effective modalities because they require no upfront investment or hardware other than a basic computer browser and internet access. Video Conferencing (4) is slightly less cost effective, requiring greater bandwidth and the purchase of camera equipment.

Reach

In Person ILT (1) is the least accessible often creating time, cost and logistical barriers for learners. Tele-presence (2) can be better but still requires learners to travel to an equipped facility. 3D Immersion (5) and Web Conferencing (5) offer the highest reach; a computer and Internet access are the only requirements for attendance. Video Conferencing (3) offers slightly lower reach, since less than a quarter of computer users use web cameras.

Scalability

In Person ILT (2) does not scale very well. Costs increase proportionately to attendance, which is often capped by space limitations. Tele-presence (1) is the least scalable solution; new facilities must be built to accommodate different geographies, and the technology is designed for small meetings only. Advanced 3D Immersion platforms (5) and Web Conferencing tools (5) are by far the most scalable, maintaining functionality whether accommodating five or five thousand attendees. Video conferencing (1) does not scale well due to large bandwidth requirements and limited screen space.

Immediacy

In Personal ILT (1) provides no immediacy as events must be planned and learners must often travel to a graphical location. Tele-presence (2) offers immediacy only if all attendees have instant access to a tele-presence facility, which is uncommon. 3D Immersion platforms (5) and Web Conferencing Tools (5) rank highest in immediacy due to the ability to host meetings on-the-fly. Video conferencing (4) scores slightly lower; meetings can be scheduled on-the-fly, but only for attendees who have web cameras installed.

Practical Efficiency Analysis

Modality	ENGAGEMENT	TOTAL PRACTICAL EFFICIENCY
In-person ILT	20	5
Tele-presence	17	8
3D Immersion	17	20
Video Conferencing	7	12
Web Conferencing	2	20

Physical gatherings (In Person ILT) create the most engagement, but they are also the least efficient. 3D Immersion platforms and Web Conferencing Tools are by far the most efficient, providing the most scalability, reach, accessibility and immediacy at the lowest cost. However, Web Conferencing tools score very low in engagement, while 3D Immersion Platforms score high.

So, although each modality may offer specific benefits to limited use cases, we can conclude that, overall, 3D Immersion platforms are by far the most practical and efficient way to create the highest level of engagement, creating the most value with fewer limitations than other online ILT modalities.

CONCLUSIONS

- Engagement is the single most important factor contributing to improved outcomes in online ILT training.
- Engagement is fostered by modalities that enable focus communication, empowerment, a sense of presence and personal intimacy.
- Different online ILT modalities create varying degrees of engagement.
- Physical meetings, Tele-presence and 3D Immersion are best at creating engagement.
- 3D Immersion is the single most practical and efficient online ILT modality for creating engagement, covering multiple use cases with the fewest barriers to use and lowest cost.

Appendix A: Glossary of Online ILT Modalities

These five categories represent the modalities generally used today to conduct ILT. It is important to note that Web Conferencing and Video Conferencing are beginning to share a common feature set and are merging into a single category. They are treated here as two separate categories because scalability and immediacy are dramatically affected when video capabilities are included. Likewise, immersive 3D tools are also beginning to incorporate screen sharing and real-time video. For simplicity, our comparison focuses on the core modality in each category. 3D-appearance tools like InExpo® and Unisfair® are considered part of the web conferencing category here because they do not, in fact, provide a 3D engine or immersive environment. They are 2D tools using 3D still shots as backdrops which places them squarely in the 2D conferencing arena when it comes to matters of engagement.



In-Person ILT

An in-person ILT class that requires travel for some or all of the learners



Tele-Presence

A virtual class conducted between specially designed conference rooms that use multiple cameras, screens and speakers to simulate presence with attendees virtually sitting across a table from each other. Examples: Cisco's Tandberg® and Polycom®



3D Immersion

Browser-based software that enables learners to create and control an avatar within a 3D meeting environment. Examples: VenueGen™ and TelePlace™



Video Conferencing

Software that enables small groups of learners to meet virtually via webcams on each remote attendee's computer. Examples: Skype® and Intercall®



Web Conferencing

Software that enables screen sharing of content and VoIP or dial-in capabilities. Example: WebEx® and GoToMeeting®

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ABOUT THE AUTHOR



David Gardner is a serial entrepreneur, technology investor and futurist with a proven track record for early identification of paradigm-shifting technologies. He is a trusted advisor concerning new technology trends who believes the 3D web is on the verge of dramatically transforming many web-based business models as we know them today.

Experienced in taking IT products and Internet-service model companies to market, Mr. Gardner has served on several boards and is a popular conference speaker. He has successfully founded seven technology companies without a single failure or loss of an investor funds. He has published over twenty forward-thinking papers and articles on technical, business and managerial topics, and is the founder of PeopleClick, the first hosted software-as-a-service enterprise application.

Mr. Gardner has also worked as a Vice President for multi-billion-dollar-corporation Compuware, after it acquired ProviderLink, a healthcare communications technology exchange which Mr. Gardner founded. In addition to several years of computer science and business-related post graduate studies at North Carolina State University, Mr. Gardner also holds degrees in Music, Philosophy and Divinity.

In 2007, Mr. Gardner founded VenueGen, a company dedicated to creating next-generation on-demand 3D platforms for online meetings and learning. He currently serves as CEO.

ABOUT VENUEGEN

VenueGen is a browser-based 3D online meeting platform where people can instantly meet, collaborate, learn and share content through immersive, life-like experiences that are second only to in-person gatherings. Compared to traditional web conferencing platforms, VenueGen facilitates more engaging, productive and efficient meetings and training programs, empowering users to experience the essence of face-to-face gatherings without the time and cost of travel.

To instantly create a private and secure virtual event, users simply select a virtual board room, training room, conference hall or other realistic venue; invite attendees; and drag meeting materials into the application from their desktops. Boasting a one-minute installation and thirty-second usability learning curve, VenueGen brings the full immersion and functionality of tele-presence to an efficient, affordable online solution.

VenueGen has been included in Gartner's Five Coolest and Most Promising New Technologies, and the company has received accolades in USA Today and Business Week, as well as on CNBC. VenueGen is based in Research Triangle Park, NC. To learn more or to experience VenueGen through a free trial account, please visit the company's website at www.venuegen.com

Please visit www.VenueGen.com to learn more about immersive 3D online training and to sign up for your free account.

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