# Game On?

## The effectiveness of game use in the workplace depends on context and design.

By Traci Sitzmann

**Organizations increasingly turn to game play in an attempt to motivate trainees to learn and improve their work-related knowledge and skills, but many companies are also asking the question, "Are games really effective?"**

The answer appears to be yes. But it depends on the instructional context and how you design the game.

At the University of Colorado, Denver, we conducted a meta-analysis of 65 studies and data from 6,476 trainees that examined the effectiveness of games for training adults. Games refer to instruction delivered via personal computer that immerses trainees in a decision-making exercise in an artificial environment with the goal of learning the consequences of their decisions.

On average, trainees in the game group had 11 percent higher factual knowledge levels, 14 percent higher skill-based knowledge levels, and 9 percent higher retention levels than trainees in the comparison group. Trainees in the comparison group either received alternative instructional methods (conducting a lab experiment or completing an assignment) as a substitute for the game, or conversely, the game was used as a supplement to the instruction that both groups received, and the comparison group did not receive any supplemental instruction.

The results also demonstrated that both the characteristics of the game and the instructional context played an instrumental role in determining how much trainees learned.

First, games that teach via active instruction maximize learning from game play. For example, Cold Stone Creamery developed a game in which trainees practice scooping the correct portions of ice cream and serving the customers that visit Stone City. However, about 16 percent of the games included in the review conveyed the majority of the instructional content in a passive manner. These games are no more effective than teaching methods such as lecture, discussion, and assignments.

Second, the full learning potential of games is only realized if trainees can access the game as many times as desired. When trainees participate in traditional learning activities, they rarely display the level of effort and motivation that is typical of games, thereby limiting the learning potential. One of the advantages of games is that they are intrinsically motivating, resulting in employees choosing to repeatedly engage in game play and mastering the skills that are taught.

Third, games must be embedded in a program of instruction rather than serving as the sole instructional method used in training. Games are beneficial for practicing work-related skills, but trainees must first learn work-related knowledge to apply it during game play. Furthermore, a debriefing session after game play is beneficial for ensuring that trainees realize how their experience in the game is applicable to the work environment.

Many games incorporate entertaining features similar to video games, including playing the role of a character in a fantasy world or shooting foreign objects. Furthermore, most game models and review articles propose that the entertainment value of the instruction is a key feature that influences instructional effectiveness. However, findings suggest that this feature does not affect learning.

The results support the continued investment in game-based training, but careful consideration is required to determine training needs and which instructional features should be included in the game.

Sitzmann, T. (in press). "A meta-analytic examination of the instructional effectiveness of computer-based simulation games." *Personnel Psychology*

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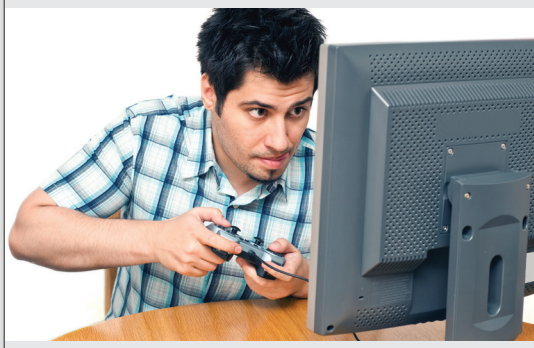
### The BIG Number

**9%**

Trainees who participated in game play retained 9 percent more information than trainees who did not.

**>>Percentage Increase in Scores Between Game and Comparison Groups**



| | |
|---|---|
| Factual knowledge | 11% |
| Skill-based knowledge | 14% |
| Retention | 9% |

Source: T. Sitzmann



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