

# WOULD YOU ADOPT SECOND LIFE AS A TRAINING AND DEVELOPMENT TOOL?

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A survey of perceptions of Second Life as a training and development tool indicates that its use is still in the early stages of the adoption curve. Moreover, professionals who are familiar with it do not typically express the same enthusiasm for it as media reports seem to indicate.

DUE TO ADVANCES IN computer and network technology, virtual reality (VR) is no longer just an area of scientific research. It has also become a popular consumer product, as demonstrated by the proliferation of massive multiplayer online role-playing games. Second Life (SL), in particular, has gained popularity among casual users since it became available to the public in 2003 ([www.secondlife.com](http://www.secondlife.com)). SL is a three-dimensional virtual world whose content is open-ended and created by its users based on their imagination (see Figure 1). Access to SL is free of charge to casual users, but premium accounts providing additional benefits and services are available at a price. As of January 2008, over 1 million users have logged into the system.

SL is visually “decorative” by Clark’s (2003) classification and allows a great deal of exploration. It has recently gotten a fair amount of attention in the media regarding its use for training, collaboration, and marketing for these reasons. Although SL was not designed or intended for use in corporate environments as a business tool, the open-ended aspect of the system allows a high degree of customizability on the part of SL users, which in theory would make it a potentially powerful training and development tool.

However, SL is a relatively new technology, and it is important to investigate its strengths and weaknesses in specific key areas before attempting to use it as a training and development tool. When used in instruction, SL can facilitate learning processes through providing a three-dimensional (3D), visually intensive, and information-rich learning environment for learners. The structure and function of the 3D graphic interface are quite salient to studies in the andragogical use of VR. Gronstedt (2007) highlights examples of how SL is being used in educa-

tional and training environments. He focuses a good deal of attention on IBM’s involvement in SL, which is not limited to its own use: IBM is test-marketing virtual storefronts in SL for Sears and Circuit City. Gronstedt, however, seems to underplay the fact that IBM’s involvement in SL is research oriented (Hayes, 2007) and that IBM is investigating SL as one of multiple VR options. There seems little indication yet as to the success of IBM’s research efforts regarding SL as a training and development tool (Welch, 2007). Even Tim Ringo (2007), global leader for IBM’s human capital management consulting practice, recognizes that “immersive 3D tools . . . are still in the early stages” (p. 7). Ringo also points out that IBM expects to continue using text-based collaboration for quite some time, thus calling into question the true efficacy of SL.

Despite SL’s potential for simulated training and education, SL has limited features necessary to be an effective medium for instruction and content management. A small survey of university instructors using or planning to use SL ( $N = 21$ ) indicated that they felt it was good for interaction but was weak on document storage and grade book functions (Kemp & Livingstone, 2006). In addition to its limited utility for instruction, poor security and lack of marketing utility prompted Wells Fargo and Starwood Hotels and Resorts to leave SL in order to pursue alternative venues (McConnon & Jana, 2007). In order to maintain security in SL, organizations also have to establish official guidelines for being “a good 3D netizen” as seen in the “Virtual World’s Guidelines for IBM Employees” (IBM, 2007). However, it is uncertain if and how workers who violate the guidelines would be disciplined, which calls into question the ability for corporate trainers and university instructors to control and maintain their learning environments.



FIGURE 1. A SCENE FROM THE SECOND LIFE HOME SITE

The graphics-intensive appearance of avatars is another important concern regarding the learning environment because it can create network lag of the learning environment itself. These highly decorative avatars also can be distinctive and might attract the attention of learners away from the instructor, potentially interfering with the learner's ability to recall specific lesson content (see Figure 2; Mania, Wooldridge, Coxon, & Robinson, 2006). Users might also encounter "griefers" that intentionally disrupt areas of SL in various ways ranging from vulgar language to more serious assault with an intention to create grief just because they can. It has also been noted that SL may have a steep learning curve for new users (Bedford et al., 2006), thus requiring technical preparation training for navigating SL in order to attend training or lecture sessions.

## THE ADOPTION OF SECOND LIFE

Second Life may be able to provide learners with a rich and dynamic learning environment, but as Ringo (2007) indicated, the use of 3D VR as a business tool in general is still in its infancy. Also, successful diffusion of innovative technologies into a society, regardless of scope, would largely rely on adoption by the members of the society. Thus, the question is whether training and development professionals will adopt SL as an effective tool.

The potential growth and adoption of SL as a technology for training and development can be better understood with Rogers's diffusion of innovations theory (2003). First, the process of diffusion of SL can be characterized by four elements that Rogers identifies as key to the diffusion processes: (1) the innovation itself, (2) communication channels, (3) the members of the social system, and (4) time. In the case of SL, using it as a training and development tool is an innovative idea, which has been discussed in the academic and industry literature and shared among industry training and development practitioners as well as educators. However, the speed of the innovation-decision process varies depending on the speed with which it goes through the following five main steps: (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation (Rogers, 2003). Practitioners would first be exposed to the idea of using SL as a training and development tool (knowledge) and then develop an attitude toward the idea (persuasion), formulate a decision to adopt or reject the idea (decision), use SL in their practice (implementation), and evaluate their decision (confirmation).

Second, excitement over SL found in the literature can be explained with Rogers's innovation adoption curve,

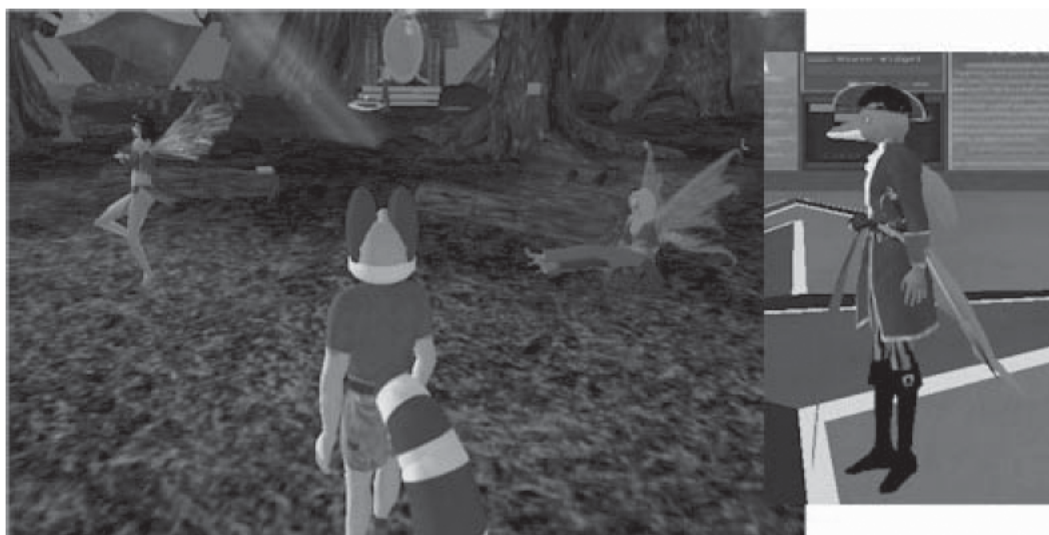


FIGURE 2. HIGHLY DECORATIVE AVATARS IN SECOND LIFE

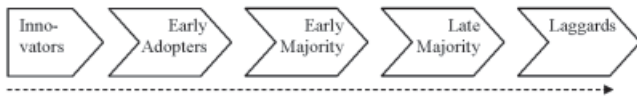


FIGURE 3. THE ADOPTION PROCESS CONTINUUM

which has five categories: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards (see Figure 3). Innovators and early adopters are considered drivers of an innovation, especially the early adopters because they help decrease uncertainty about a new idea or product by implementing it in practice and spreading “their stamp of approval” to others (Rogers, 2003, p. 283). The early majority group follows with deliberate willingness, the late majority with skepticism, and the laggards with reluctance or even resistance to adopting the innovation. The speed of adoption is determined by the speed at which the adoption takes off and at which its growth is maintained. The lack of evidence supporting an innovation’s effectiveness in its early adoption stage, however, does not necessarily deter early adopters. This happens for various reasons, both social and psychological, but it is a mistake to latch onto a new technology for no better reason than “because it’s cool!” Consider the example of the Apple iPhone. According to the *Los Angeles Times* (“Unauthorized Apple iPhones Available in China,” 2007, p. C7), early adopters overseas were willing to pay as much as \$1,200 for an iPhone even though the phone itself could not receive incoming calls, text messages, or voice mail.

The example of the iPhone begs the following questions: Are SL innovators and early adopters stirring up interest fueled by their own enthusiasm? Is the early majority group following them closely enough? If the answer to the second question is no, a chasm between the early adopters and the early majority group would develop, which is common in high-tech marketing (Moore, 2007). Another question is whether training and development professionals would adopt SL for their practice.

## THE SURVEY ON ADOPTING SECOND LIFE FOR TRAINING AND DEVELOPMENT

In order to have a better understanding about the current status of adopting SL as a training and development tool, we conducted a survey of professionals working in training and development in winter 2007. The main purpose of the survey was to find out how much experience and interest in using SL they have and how much they value SL as a training and development tool. We had these specific research questions:

*The lack of evidence supporting an innovation’s effectiveness in its early adoption stage, however, does not necessarily deter early adopters.*

- To what degree are training and development professionals aware of SL, and to what degree are they using it now for training and development?
- How willing are they to adopt SL as a training and development tool in the future?
- Do age and gender influence their experience in using, and willingness to use, SL as a training and development tool?
- What reasons do they have for adopting or rejecting SL as a training and development tool?

## Instrument, Sample, and Procedure

The survey questionnaire consisted of two sections (see Exhibit 1). The first section requested demographic and professional background information from respondents, and the second addressed their experience and opinions about using SL as a training and development tool. We posted a solicitation e-mail message to two professional community listservs whose subscribers are professionals working in the fields of instructional design, training, e-learning, consulting, and performance improvement. They were invited to submit an anonymous survey using the Web. During the 4 weeks after the solicitation e-mail was posted, 87 listserv subscribers volunteered to participate in the study.

Among 87 respondents, 6 indicated that none of their job tasks involved training and development; therefore, they were excluded from further analyses. Among the remaining 81 respondents, 42 (51.85%) were male and 39 (48.15%) were female. The average age of the participants was 42.19 ( $SD = 8.71$ ), ranging from 22 to 59 years of age. At the time of the survey, 7 (8.64%) held a doctoral degree as their highest degree earned, 45 (55.56%) held a master’s degree, 26 (32.10%) held a bachelor’s degree, and 3 (3.70%) held a high school diploma. Their job titles were instructional/curriculum designer or developer (32.10%), training manager or director (19.75%), technical writer (11.11%), nontraining manager or director such as project/program manager (9.88%), corporate

## SECTION I: ABOUT YOURSELF

1. Age: \_\_\_\_ years old (if you do not want to identify your age, insert a number 0 in the box)

2. Gender: \_\_\_ male \_\_\_ female (if you do not want to identify your gender, click this button)

3. Educational background (check the highest degree that you currently hold):

High school diploma

Associate degree

Bachelor's degree

Master's degree

Doctoral degree

4. Please select the job title that most closely matches yours (if you have more than one job title, please choose the one that represents the role you spend the most time in):

Instructional (curriculum) designer or developer

Training manager or director

Nontraining manager or director (e.g., project/program manager)

Technical writer

Corporate trainer/instructor

Educator (K-12 or postsecondary)

Other—Please specify: \_\_\_\_\_

5. Please indicate how much of your work involves the training and development of your organization's members, on a scale of 1 to 7:

None of my work    1 2 3 4 5 6 7    All of my work

6. Please indicate the type of organization you work for:

Banking

Consulting

Education

Government

Health Care

Insurance

Manufacturing

Military

Retail

Telecommunications

Other—Please specify: \_\_\_\_\_

*(continues on next page)*

## EXHIBIT 1 QUESTIONNAIRE (continued)

### SECTION II: ABOUT SECOND LIFE

We would like to ask your opinions about a three-dimensional virtual environment called *Second Life*.

7. Please indicate your current level of awareness about *Second Life*, on a scale of 1 to 7:

I have not heard of it    1 2 3 4 5 6 7    I have heard of it a great deal

8. Approximately how many months ago did you first use *Second Life*? (Please enter only whole numbers. For example, if you started using it 3 years ago, enter 36; if you have never used it before, enter 0):

\_\_\_ months ago

9. Please indicate how frequently you use *Second Life* for personal leisure or communication, on a scale of 1 to 7:

I do not use it at all    1 2 3 4 5 6 7    I use it frequently

10. Does your organization currently use *Second Life* for any purposes?

\_\_ Yes    \_\_ No

11. Whether or not your organization currently uses *Second Life*, how likely is it that your organization would (continue to) use it as a training and development tool in the future?

Very unlikely    1 2 3 4 5 6 7    Very likely

12. Whether or not your organization currently uses *Second Life*, how willing are you to try (or continue) to use it as a training and development tool in the future?

Very unwilling    1 2 3 4 5 6 7    Very willing

13. Please write down your opinions about *Second Life* in terms of its usefulness as a training and development tool:

trainer/instructor (6.17%), K-12 or postsecondary educator (3.70%), and others, such as consultants or company owners (17.28%). They were working in industries such as banking, consulting, education, government, health care, insurance, manufacturing, retail, technology, telecommunications, and the military.

## RESULTS

**Overall Awareness and Use.** The degree of overall awareness and use of SL among this sample of training and development professionals was low. Only 26 people (32.1%) had some experience using SL for 2 months to 2.5 years, with an average of 10 months (group 1). Thirty people (37.0%) were aware of SL but had not used it yet (group 2), and 25 people (30.9%) had not heard of SL at all prior to the survey (group 3). In other words, group 1 would be in the implementation and confirmation stages of the

innovation-decision process, whereas group 2 would likely be somewhere in the knowledge, persuasion, and decision stages, and group 3 had not started the innovation-decision process yet. Only 6 respondents (7.4%) indicated that their organizations were using SL at that time.

**Willingness to Adopt.** From the SL adoption standpoint, group 1, which had used SL, would likely fall into the early majority category. Group 2, which had heard of it but had not used it yet, and group 3, which had not heard of it before, would potentially fall into the late majority category (see Figure 4). In order for SL as an innovative technology to spread and become a common practice in a social system, these early and late majority groups should recognize the needs for adopting the technology and should be willing to try it and to continue to use it.

The average value of respondents' willingness to use SL as a training and development tool was 4.12 ( $SD = 1.85$ )

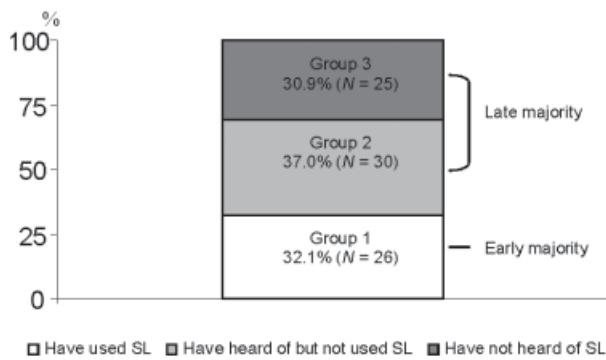


FIGURE 4. OVERALL AWARENESS AND USE OF SL

on a 7-point scale, indicating only a moderate level of willingness. This might indicate a possible chasm between the high level of enthusiasm expressed by the early adopters of SL (as shown in the literature) and the early and late majorities' moderate level of willingness to use SL as a training and development tool (as shown in this study). The mean values of the three groups' willingness were not significantly different,  $F(2, 78) = 0.63, p > .05$ . However, interestingly enough, group 1 showed the highest level of willingness to use SL as a training and development tool in the future; group 2 ranked second; and group 3 was the least willing group, and reasonably so because these people did not have any information to make a decision (see Table 1).

**Gender Difference.** A Mann-Whitney  $U$  test revealed that there were no significant gender differences in these groups' awareness of SL ( $U = 798.5, p = .84$ ), their experience in using it ( $U = 805.0, p = .87$ ), and their expectations

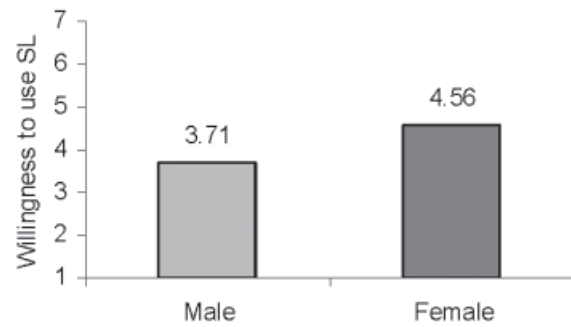


FIGURE 5. GENDER DIFFERENCE IN WILLINGNESS TO USE SL FOR TRAINING AND DEVELOPMENT

that their organization would use SL for training and development in the future ( $U = 680.5, p = .16$ ). However, female respondents seemed more willing to try it as a training and development tool in the future ( $M = 4.56, SD = 1.73$ ) than male respondents were ( $M = 3.71, SD = 1.89$ ),  $U = 616.5, p = .052$  (see Figure 5).

**Age Difference.** Younger people are often seen as savvy and more interested in trying new technology than older people are. However, this survey did not show any significant relationships between the respondents' age and their awareness, experience, or personal use of SL. Instead, interestingly, the older respondents were more willing to try SL as a training and development tool in the future (Spearman's  $\rho = .261, p = .01$ ), and more than the younger respondents, they also thought that their organization would likely use it in the future (Spearman's  $\rho = .193, p = .04$ ).

**Reasons for Adopting or Rejecting SL.** Figure 6 presents the frequency of responses to question 12 (Q12), asking how willing the respondents are to use SL as a training

	WILLING TO USE SL IN THE FUTURE	
	M	SD
Group 1 (N = 26)	4.42	2.06
Group 2 (N = 30)	4.10	1.51
Group 3 (N = 25)	3.84	2.01

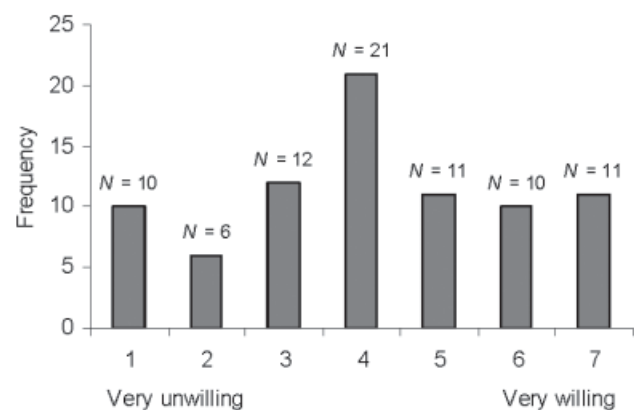


FIGURE 6. FREQUENCY OF RESPONSES TO QUESTION 12

and development tool in the future. Based on their choices on the 7-point scale, seven groups representing different degrees of willingness were formed from 1: *Very unwilling* to 7: *Very willing*.

Then the respondents' comments to the open-ended question (Q13) about the usefulness of SL as a training and development tool were sorted into the seven categories. Those who were less willing to use SL in the future pointed out the organization culture, the infrastructure (including costs), technical skills among participants, and instructional value as the main reasons for their reluctance or unwillingness. Those who were more willing to adopt SL seemed to be oriented toward the novelty of the product and expressed positive expectations for its potential. Following are sample comments sorted by the degree of willingness to use SL (the number after Q5 or Q7 in parentheses indicates their choice on the 7-point scale in response to the question):

#### *Willingness 1 (very unwilling)*

- A 41-year-old male with a master's degree, whose job involves a lot of training and development (Q5: 7) and who has heard a great deal about SL (Q7: 7) and first used it 2 years ago (Q8):

The 3D training environments do not fit into our organizational culture. Our current online learning does not involve asynchronous training at all, and our synchronous training consists of the infrequent webinar or teleconference. Our culture is not ready for Second Life. Our training personnel do not have the skill sets to deliver that kind of training online. Many on our staff would find it difficult to navigate through Second Life environment. It would end up being a distractor in the training and not just a means for delivering the training. Our training budget also could not afford the cost of another software/service package for training. Our IT program does not have high bandwidth. In some parts of the state, [users] still use dial-up modems to connect to our servers. Integrating that technology with our LMS [learning management system] would be a challenge. Some of our instructors don't know how to update a class roster in the LMS. Management also has trouble in pulling up even the most basic reports from our LMS. Second Life is not useful in any capacity as a training and development tool in our culture.

- A 35-year-old female with a master's degree whose job involves a lot of training and development (Q5: 7) and who has heard much about SL (Q7: 5) but has not used it (Q8):

I just don't see the value. What is the bang in getting an avatar to do the same activities that the learner could do

with other technologies? Additionally, people behave differently in a virtual environment. "Flame emails," for example, or the virtual violence, etc., on the Internet since people started interacting in cyberspace.

#### *Willingness 2*

- A 51-year-old male with a master's degree whose job involves a lot of training and development (Q5: 6) and who has heard a great deal about SL (Q7: 7) and first used it 6 months ago (Q8):

It is slow, awkward, and confusing. I have spent more hours than I wanted to stumbling around SL . . . not to mention the number of times that I was stuck in the middle of a wall unable to move. It is a neat technology, but as Clark pointed out, it is the message, not the medium, that makes instruction. I think for the amount of cognitive energy I put into SL, I got very little training out of it.

#### *Willingness 3*

- A 46-year-old female with a master's degree whose job involves a lot of training and development (Q5: 7) and who had heard much about SL (Q7: 5) but has not used it (Q8):

[I] don't know enough about it to make an educated, informed comment. As a training professional, I am curious to learn more about it.

#### *Willingness 4*

- A 31-year-old male with a master's degree whose job involves a lot of training and development (Q5: 5) and who had heard a lot about SL (Q7: 6) but has not used it (Q8):

It seems like it would [be] interesting to explore this option. My primary hesitations are regarding the economics of training for what we do and whether Second Life would prove beneficial when other (cheaper???) media could accomplish the performance objectives.

- A 40-year-old female with a doctoral degree whose job somewhat involves training and development (Q5: 3) and who has heard a great deal about SL (Q7: 7) and first used it a year ago (Q8):

The visual quality is not yet suited to our needs and the programming too time-consuming. Also, we have problems with bandwidth. At this point it's just a "cool" new technology, not a "killer app."

### Willingness 5

- A 51-year old male with a doctoral degree whose job involves a little bit of training and development (Q5: 2) and who had heard a lot about SL (Q7: 6) but has not used it (Q8):

I am still trying to figure out how to use Second Life in higher education for education (not social) purposes. I am also concerned about what I perceive to be a pretty steep learning curve in using Second Life.

- A 41-year-old woman with a bachelor's degree whose job involves a lot of training and development (Q5: 7) and who has heard a lot about SL (Q7: 6) and first used it 9 months ago (Q8):

Find it interesting and intriguing. Just not sure how to use it best. Would need to see that using it was the best method instead of just something new and "fun."

### Willingness 6

- A 54-year old man with a master's degree whose job involves a lot of training and development (Q5: 7) and who had heard of SL (Q7: 4) but has not used it (Q8):

Not sure how Second Life really works, but my organization is actively using simulations for learning. Currently we do all live simulations. We are actively looking at two different online simulation tools. So this sort of training is very useful to our field and I see it as the "next new horizon" and will be the new state of the art in training development.

### Willingness 7 (*very willing*)

- A 52-year-old woman with a master's degree whose job involves a little bit of training and development (Q5: 2) and who has heard a great deal about SL (Q7: 7) and first used it 6 months ago (Q8):

I haven't participated yet in a training and development event, so I can't address specifics. However, I think it WILL be useful as a training and development tool. The "coolness" factor might be an initial motivation too.

## CONCLUSION

While SL has vast potential for online training and development, it is merely a venue in which this potential is yet to be realized. A review of the data from the question asking participants about the usefulness of SL indicated that many of those who rated themselves as very familiar with it agree that it has potential, but they also indicate that

its potential usefulness is overshadowed by what they perceive as functional barriers: a steep learning curve for new users, a nonintuitive interface, and the high investment of time and money required for programming content relative to its benefits. SL's main intended function is similar to that of MySpace, a virtual social space for people to connect and play together. SL has been singled out by industry and educational institutions because of the relative popularity with the general public and the preexisting 3D environmental structure provided by Linden Lab. Ultimately this makes SL an excellent marketing tool and subject of research, but of questionable worth for formal instruction. Although the potential for training and development in the 3D VR environment is there, the technology has not fully developed to a state that will allow the full potential of this form of media to be realized in an appreciable manner by instructors or trainers, and there is much research yet to be done.

Nevertheless, the effects of a 3D VR environment in general and the interaction between the 3D VR environment and human learning should continue to be researched. A guiding structure for this research can be garnered from theories currently in use in human-computer interaction, usability, and instructional design. For example, while the novelty of specific experiences in a 3D VR environment such as SL may help learners recall specific aspects of the experience, this same richness could interfere with the retention and transfer of content, since VR users have a tendency to remember the aspects of environment that stand out the most (Mania et al., 2006) or are inconsistent with the mental models they have of a particular environment (Flannery & Walles, 2003). Avatars in SL are an example. Although some of these avatars are tastefully done and even whimsical in appearance, these may prove highly distracting for learners trying to focus on the content. Experiments comparing the avatar effects in a 3D VR learning environment, SL in particular, might consider designing four conditions for the research: (1) an environment with avatars that are allowed to appear only as human and dressed in a plain, nondescript manner (typical), (2) an environment with a mix of avatars with more fanciful appearances (mixed), (3) an environment comprising all decorative avatar appearances (atypical), and (4) an environment in which the individual learners would receive the content alone (the control group). Then the degrees of recall of the content after training would be compared.

Practitioners should also pay attention to the learning curve that SL novice users might experience. SL has what 3D VR researchers refer to as a low interaction fidelity interface: navigation is done with a mouse, keyboard, and computer screen. The keyboard and mouse interface for SL can cause a steep learning curve that could demotivate



learners. Without preparing learners before introducing them to the new 3D VR environment, they might quickly reject the innovative technology and have difficulty crossing the chasm between the early majority and the late majority categories. 🏞️

## References

- Bedford, C., Birkedal, R., Erhard, J., Graff, J., Hempel, C., Minde, B., et al. (2006). Second Life as an educational environment: A student perspective. In D. Livingstone & J. Kemp (Eds.), *Proceedings of the Second Life Education Workshop at the Second Life Community Convention* (pp. 25–26). University of Paisley, UK. Retrieved August 12, 2007, from <http://www.simteach.com/SLCC06/slcc2006-proceedings.pdf>.
- Clark, R.C. (2003). *Building expertise: Cognitive methods for training and performance improvement* (2nd ed.). Washington DC: International Society for Performance Improvement.
- Flannery, K.A., & Walles, R. (2003). How does schema theory apply to real versus virtual memories? *CyberPsychology and Behavior*, 6(2), 151–159.
- Gronstedt, A. (2007, August). Second Life produces real training results: The 3-D Web is slowly becoming part of the training industry. *Training + Development*, 61, 44–49.
- Hayes, F. (2007, August 13). Virtual trouble. *Computerworld*, 41, 52.
- IBM. (2007). *Virtual worlds guidelines for IBM employees*. Retrieved July 9, 2008, from [http://domino.research.ibm.com/comm/research\\_projects.nsf/pages/virtualworlds.index.html/\\$FILE/VWguidelines.pdf](http://domino.research.ibm.com/comm/research_projects.nsf/pages/virtualworlds.index.html/$FILE/VWguidelines.pdf).
- Kemp, J., & Livingstone, D. (2006). Putting a Second Life “metaverse” skin on learning management systems. In D. Livingstone & J. Kemp (Eds.), *Proceedings of the Second Life Education Workshop at the Second Life Community Convention* (pp. 13–18). University of Paisley, UK. Retrieved August 12, 2007, from <http://www.simteach.com/SLCC06/slcc2006-proceedings.pdf>.
- Mania, K., Wooldridge, D., Coxon, M., & Robinson, A. (2006). The effects of visual and interaction fidelity on spatial cognition in immersive virtual environments. *IEEE Transactions on Visualization and Computer Graphics*, 12, 396–404.
- McConnon, A., & Jana, R. (2007, June 11). Beyond Second Life: Companies thinking twice about the popular virtual world are finding more security and flexibility in alternatives. *Business Week*, 24–25.
- Moore, G.A. (2007). *Crossing the chasm* (Rev. ed.). New York: HarperCollins.
- Ringo, T. (2007, September-October). IBM explores new frontiers in collaborative innovation. *Research Technology Management*, 50, 6–7.
- Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- Unauthorized Apple iPhones available in China at double U.S. cost [home edition]. (2007, September 5). *Los Angeles Times*, C7.
- Welch, S.J. (2007, March). Get a (second) life: Companies from IBM to Starwood Hotels are holding events in Second Life’s virtual world. Here’s why. *Successful Meetings*, 56, 38–43.

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