Debunking Myths[15] about Serious Games

By Anne Derryberry

Anne is an analyst and advisor for serious games, online learning games, simulations, and virtual worlds. She works with learning organizations, game developers, tools developers, and analysts as a learning architect, advisor, consultant, and industry observer. She is interested in both group experience, and how groups learn in virtual environments, especially through games. She also focuses on business modeling and monetization strategies, so that learning and meaningful game play is a profitable and sustainable industry. Anne earned her Bachelor's Degree at UCLA, and her Master's Degree in Educational Technology at San Diego State University.

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[15] A few, anyway.

Overview

I like the people on Discovery Channel's *MythBusters*. They prove or disprove everyday myths through scientific demonstrations, and have a raucous good time doing so. Did you see the one where they tried to determine whether blindfolded pistol duelers could actually shoot bullets at each other that collide and fall to the ground on the dueling field?

More interesting to me than the answer they arrived at (you'll have to set your TiVo to find that out) is the number of myths that need busting. These *MythBuster* guys have a whole lab and several assistants, all for the purposes of determining whether a man could have been blown out of a window by a gust of wind only to be blown back in some floors lower; or whether hanging a disco ball from the rearview mirror inhibits speed-radar detection(!); or whether your stomach explodes if you eat a Coke-Mentos combo meal.

Watching *MythBusters* has also brought me face-to-face with myths in my own life. I had no idea how many misconceptions I've been laboring under. Not to be alarmist, but did you know that lava lamps could be lethal?

My now-heightened awareness of everyday mythology has also forced me to acknowledge some of the most persistent myths surrounding serious games[16]. And so, in homage to Jamie and Adam and their merry band, I, too, take up the *MythBuster* standard.

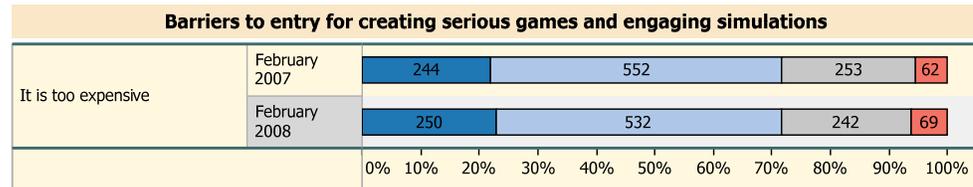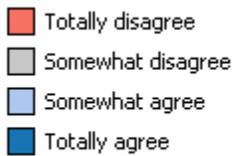[16] Yes, I come down on the "serious game" side of the nomenclature debate.

Survey Says…

Myths surrounding serious games touch many categories. Many of these are reflected in the data provided by The eLearning Guild's survey respondents.

Myth #1 – Serious games are too expensive.
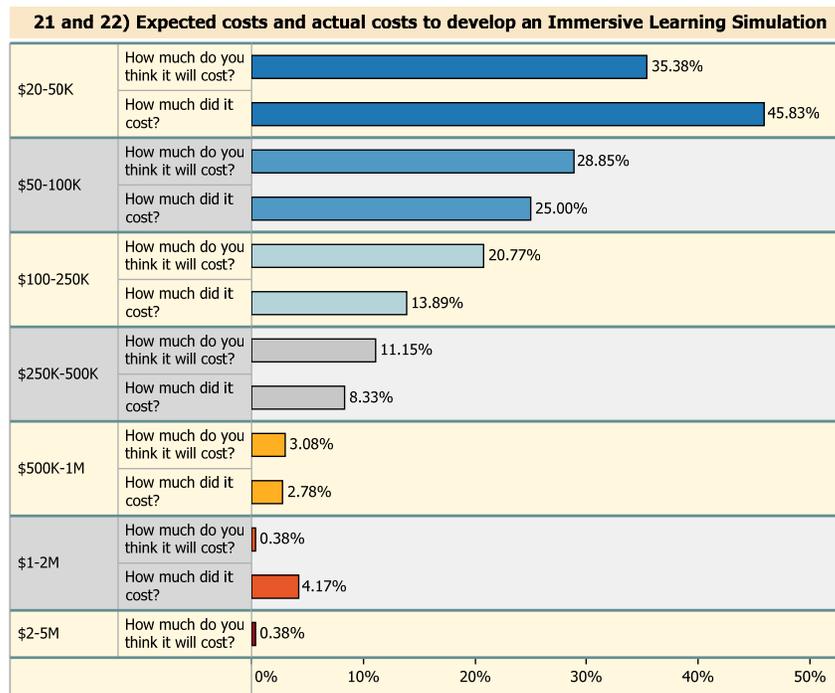### Truth or Fiction: FICTION

The most common myth surrounding serious games is the cost associated with their development. While survey respondents are marginally less concerned about this issue in 2008 than they were a year ago, over 70% believe that costs associated with serious games development were prohibitive.

Totally disagree
Somewhat disagree
Somewhat agree
Totally agree

Barriers to entry for creating serious games and engaging simulations					
It is too expensive	February 2007	244	552	253	62
	February 2008	250	532	242	69

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Source: The eLearning Guild Research

Figure 101 – Over 70% of Guild members cite cost as a barrier to adoption.

When asked to estimate the cost of a serious game development project (*n.b.*, the question gave no parameters about the game), nearly 36% projected costs over $100,000, with fully 15% of respondents anticipating a budget in excess of $250,000, as shown in Figure 102.

21 and 22) Expected costs and actual costs to develop an Immersive Learning Simulation		
$20-50K	How much do you think it will cost?	35.38%
	How much did it cost?	45.83%
$50-100K	How much do you think it will cost?	28.85%
	How much did it cost?	25.00%
$100-250K	How much do you think it will cost?	20.77%
	How much did it cost?	13.89%
$250K-500K	How much do you think it will cost?	11.15%
	How much did it cost?	8.33%
$500K-1M	How much do you think it will cost?	3.08%
	How much did it cost?	2.78%
$1-2M	How much do you think it will cost?	0.38%
	How much did it cost?	4.17%
$2-5M	How much do you think it will cost?	0.38%

Source: The eLearning Guild Research

Figure 102 – Expected costs vs. actual costs.

In fact, however, for those who went ahead with their plans, the median project budget was $75,000, with nearly 45% having actual project costs running at or below $50,000. When you amortize project budgets across the target learner population, costs per learner are $102, as Figure 103 shows.

Immersive Learning Simulations Cost Per Learner
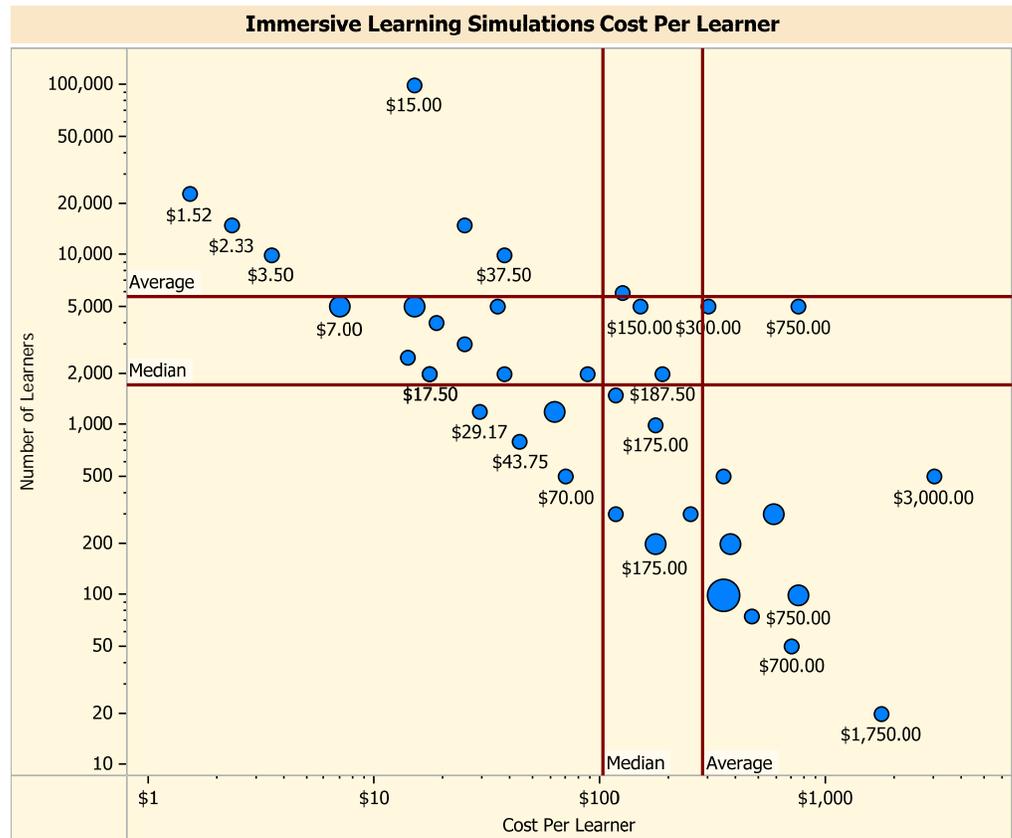
Source: The eLearning Guild Research

*Figure 103 – More than 50 respondents have created immersive learning simula-
tions, AND have provided the costs to develop these projects and the number of
learners the system impacts. The median cost per learner is $87.50; the average
cost is $273.88.*

Bersin & Associates recently set the average cost per learner for blended learn-
ing at $240[17]. Admittedly, this is a bit like comparing a Los Angeles ranch
house to a Kansas farm. But the truth is, from a generalized view, serious
games and immersive learning simulations have as competitive cost-per-
learner figures as any other technology-based learning program.

Indeed, some organizations, like the U.S. Department of Justice, are conclud-
ing that favorable costs, coupled with enhanced learner engagement, make
games and simulations an ideal approach to workplace learning and develop-
ment. Michael O'Shea, law-enforcement program manager at DOJ's Office of
Justice Programs, puts it this way: "Because of the cost-effectiveness of these

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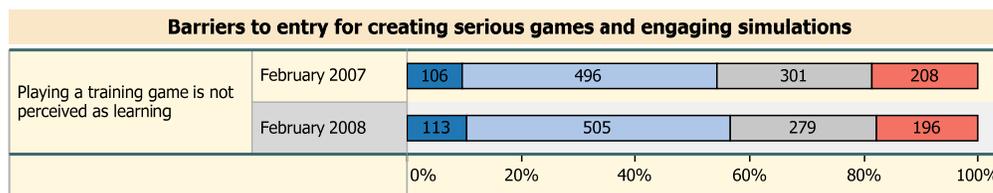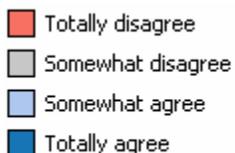[17] http://www.bersin.com/newsletters/april_2003.asp

programs, and the ability to realistically engage users, we will see simulations applied to all areas of services provided by government."

Myth #2 – Playing games isn't learning. Work isn't for play.
Truth or Fiction: FICTION

This myth mystifies me. In addition to the body of literature that disputes this point of view, my own training, experience, and logic lead me to a clear understanding of how effective and impactful serious games and game-based learning are for adult learners. Yet, a significant (almost 60% of respondents) and expanding (approximately 1.5% increase from 2007 to 2008) group of survey respondents feel otherwise.

| ■ Totally disagree |
| ■ Somewhat disagree |
| ■ Somewhat agree |
| ■ Totally agree |

Barriers to entry for creating serious games and engaging simulations

Playing a training game is not perceived as learning	February 2007	106	496	301	208
	February 2008	113	505	279	196

| 0% | 20% | 40% | 60% | 80% | 100% |

Source: The eLearning Guild Research

Figure 104 – Almost 60% of Guild respondents agree with the statement that a training game is not perceived as learning (although members themselves indicate an openness to adopt game-based learning. See "Barriers to Entry" on page 34.)

Have you read the case studies included in this report? Each one of the serious games or simulations described in these write-ups is a very serious learning effort with very serious goals. Some may not have any "fun" in them, but, strictly speaking, that isn't the objective of games or playing, anyway. Still in all, those who commissioned them judged these games and simulations effective and worthwhile.

There is more and more research on the effectiveness of online games as learning tools. In her 2007 review of peer-reviewed material from the previous ten years, Mary Jo Dondlinger concludes, "There is widespread consensus that games motivate players to spend time on-task, mastering the skills a game imparts… [A] number of distinct design elements, such as narrative context, rules, goals, rewards, multi-sensory cues, and interactivity, seem necessary to stimulate desired learning outcomes."[18]

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[18] Dondlinger, M.J.. "Educational Video Game Design: A Review of the Literature." J. of Applied Educational Technology 4(1): 21-31, 2007.

Myth #3 – Game-based learning is not as effective as current e-Learning
Truth or Fiction: BOTH

In some ways, this myth is a more refined version of Myth #2. It acknowledges that games and simulations do offer some benefit to the learner – just not to the same degree as more formal e-Learning does.

While I challenge this myth, I can certainly sympathize with the sentiment. We have experience and history with e-Learning. We have strong documentation as to its efficacy. The jury is still out on game-based learning. Suddenly, everybody's from Missouri, the "show me" state.

Survey respondents, too, need to be persuaded, it seems, of the effectiveness of games and simulations vis-à-vis e-Learning. Eighty percent of respondents indicated agreement or strong agreement with this myth.
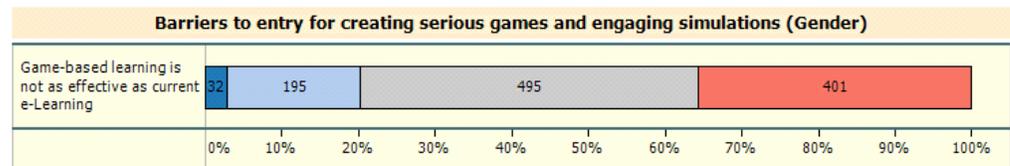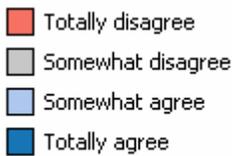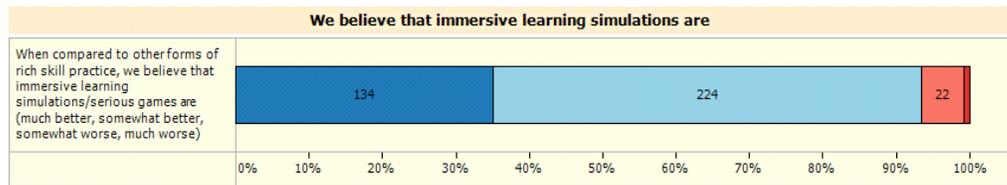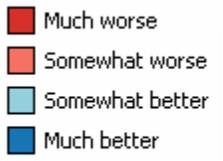

Source: The eLearning Guild Research

Figure 105 – 63% are "somewhat undecided" as to the effectiveness of e-Learning relative to immersive learning simulations.

It's hard to know what respondents mean by partial agreement or disagreement with an absolute statement: do they not have an absolute opinion because they haven't made up their minds, or is it because they don't make an absolute distinction? For those whose ambivalence stems from a revolt against absolutism, I share your pain. Not every audience, content domain, or environment is appropriate for game-based learning.

Still, those survey respondents who have actually created one or more serious games or sims – some 381 as of this writing – paint a different picture. No fewer than 93% of those with recent personal experience of implementing game-based learning report a belief that game-based learning can be superior to other forms of rich skill practice (see Figure 106).

Legend:
- Much worse
- Somewhat worse
- Somewhat better
- Much better

We believe that immersive learning simulations are

When compared to other forms of rich skill practice, we believe that immersive learning simulations/serious games are (much better, somewhat better, somewhat worse, much worse)

134 | 224 | 22

Source: The eLearning Guild Research

Figure 106 – Of those respondents who have created Immersive Learning Simulations or Serious Games, over 93% consider them much or somewhat better than other forms of rich skill practice.
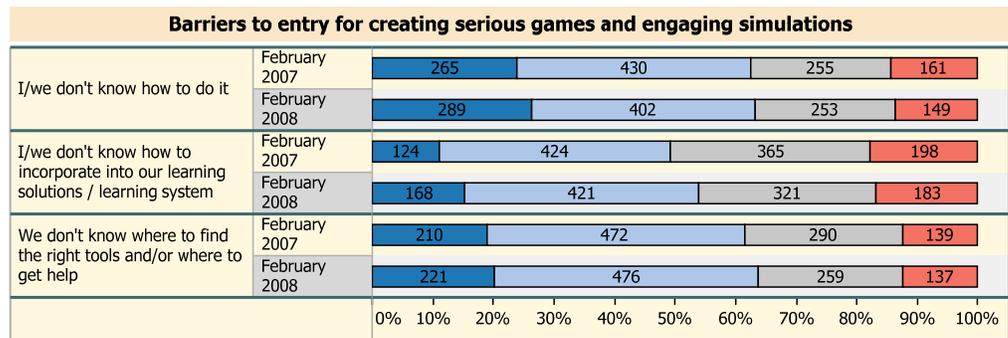
Therefore, while experience seems very much to alter one's appreciation of serious games, a note of caution seems to be in order. As with every other approach to workplace learning, you must integrate, appropriately and judiciously, games and simulations into a learning environment in order to optimize their value for learners.

Myth #4– Serious games are really complicated and difficult to develop.
Truth or Fiction: BOTH

Do you remember the first e-Learning project you were involved in? In all likelihood, you joined other members of a multidisciplinary team; instructional designers, Web developers, graphic designers, technical writers, subject matter experts, and database programmers likely had roles in your project team as well. The project worked because, together, all the players contributed their expertise to the project's success.

Yet, coming from this team orientation did not swell the confidence of survey respondents. From 50-65% of respondents were in some way stymied in their interest in serious games by their lack of confidence in their own abilities, and, seemingly, those of their colleagues.

Barriers to entry for creating serious games and engaging simulations		
I/we don't know how to do it	February 2007	265 / 430 / 255 / 161
	February 2008	289 / 402 / 253 / 149
I/we don't know how to incorporate into our learning solutions / learning system	February 2007	124 / 424 / 365 / 198
	February 2008	168 / 421 / 321 / 183
We don't know where to find the right tools and/or where to get help	February 2007	210 / 472 / 290 / 139
	February 2008	221 / 476 / 259 / 137
		0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Source: The eLearning Guild Research

Figure 107 – Many members cite lack of knowledge and know how as an impediment.

My suspicion is that respondents' trepidation is born of the sub-myth that serious games must contain certain elements, like 3-D, to be truly serious. Kevin Corti's essay in this report speaks to this point specifically by spotlighting a 2-D game (see "Demystifying Immersive Learning Simulations – Moving From the Potential to the Practical" on page 121.)

In many ways you can compare designing and developing serious games to making a movie. They can be as vast in scope, and as complicated in production values, as any high-budget Hollywood film, or as contained and unassuming as a local-access TV production. The budgets, scope, and complexities adjust accordingly, and the right project team can make a project crash and burn, land perfectly, or soar.

Learning designers have many balls to juggle. Multi-player environments and cohort learning requirements make serious game design, development, and testing quite challenging. Then there's figuring out how to make the game do meaningful assessment; and pass relevant data from within the dynamic game environment to the LMS. No wonder one's best options seem to be to freeze or go fetal.

The good news is that more and more developers, vendors, and integrators know how to play their role in the serious game environment. More case studies are appearing every day. Learning designers can easily find lifelines, just as has been true with technology and design innovations of the past.

Editor's Note: If you're not sure what to do, why not find somebody who can help you. There are a lot of fellow members, consultants, and vendors with successful implementations under their belts. The authors of this report, and last year's report, have years of experience, as do the people submitting the
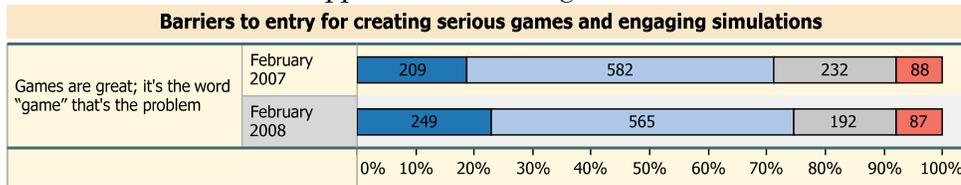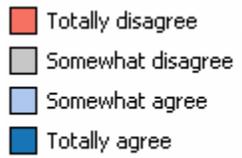
case studies. Make sure to check out the resources section on page 205 for where to find help in getting started.

Serious games can be complicated to design and develop, and so teams make serious games. If you are a learning designer, you have an essential, albeit limited, role to play. It is not incumbent upon you to learn what everyone else knows, just be able to do your part well. Without your contribution, the learning that makes the game serious won't come through.
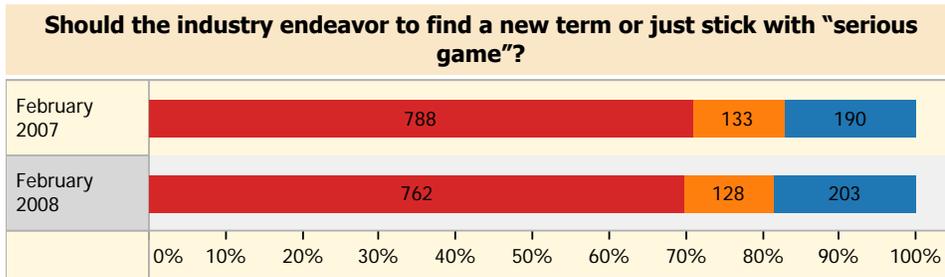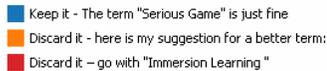
Myth #5 – We ought to call serious games something else.
Truth or Fiction: ???????

I wasn't going to wade further into this debate, having said my piece last year[19], but there you go. The fact is that the vast majority of survey respondents – 75% – believe that the terminology is an impediment, so much so that 70% want to find a new term for this approach to learning.

Totally disagree
Somewhat disagree
Somewhat agree
Totally agree

Barriers to entry for creating serious games and engaging simulations					
Games are great; it's the word "game" that's the problem	February 2007	209	582	232	88
	February 2008	249	565	192	87
		0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%			

Source: The eLearning Guild Research

Keep it - The term "Serious Game" is just fine
Discard it - here is my suggestion for a better term:
Discard it – go with "Immersion Learning "

Should the industry endeavor to find a new term or just stick with "serious game"?			
February 2007	788	133	190
February 2008	762	128	203
	0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%		

Source: The eLearning Guild Research

Figure 108 – Guild members – or at least the organizations they work in – still have problems with the term "game."

Several expressions come to mind as I contemplate this dissatisfaction: "The horses have left the barn," and "Tilting with windmills" are the first two. Probably the one that echoes the loudest is, "The market has spoken."

Now, I recognize that survey respondents are as much The Market as anyone. Nevertheless, the question cedes the point in its very construction – "serious

[19] http://imserious.typepad.com/imserious/2007/05/rant-serious-de.html

games" *is* the term of art. If you want to call Barbie, Lola, please go right ahead. However, since her name is Barbie, that's what the rest of us are going to call her.

Editor's Note: Gee, had I known that Anne had written that screed last year… ☺ (see below). Actually, I'm personally comfortable with the term "serious game" and prefer it to "immersive learning simulations." But I recognize that A LOT of people are not comfortable at all with the term "game" (whether it be serious or not), and I appreciate having a "corporate-correct" term that will not be summarily rejected.

The Guild has spent more time this year reviewing the history of serious games, and we've uncovered useful – and entertaining – information that should help you and your organization surpass this conceptual and terminology hurdle. See

With such strength of opposition, the market may indeed change its mind and adopt a more pleasing term. We have a mythical mystery on our hands until people stop asking this question, or we stop saying "serious games."

So In Conclusion…

As with stereotypes, myths usually develop out of a lack of information and a healthy dose of fear and/or anxiety. Most myths have a hard time withstanding the scrutiny of a critical eye, as we've seen.

If you find yourself in the group of naysayers and resisters to serious games, it may be valuable to examine the myths you hold that put you in that group. It just might be that, in shining a light on some of these beliefs and misconceptions, your resistance will dissolve into enthusiasm.

Use your desk lamp, though. I was serious about the lava lamp.