

Serious Gains from Serious Games:

Solving Business Problems with Custom Games

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Abstract

The best way to get people to do what you want is to make them want to do it. Humans are wired for play, and games are a powerful, almost primal, method of motivation. Serious games—learning experiences built around gameplay—are increasingly being used to solve today’s business and training challenges. Games are now being used to teach managers business skills, customers about buying a product, or for onboarding. But, how can you successfully create and implement a serious game for your organization?

This whitepaper examines the use of serious games as teaching and marketing tools through specific examples that were created for Sun Microsystems. *Rise of the Shadow Specters* and *Dawn of the Shadow Specters* were created for Sun Microsystems to use for onboarding and recruiting purposes. One is an arcade-style video game and the other a role playing game; both are set in an alternate universe and have elements of both fantasy and science fiction. While many serious games focus on content and retention, the Shadow Specter games were designed with the additional goal of generating positive corporate feelings in their players. The tone of these games and the experience of playing them are not serious, but the business goals they accomplish are.



Serious Problems and Serious Solutions

The Meaning of Serious Games

The term “serious game” is somewhat nebulous. Loosely, it can be applied to any game that is meant to do more than amuse. The purpose of serious games is often to teach, but their use can extend beyond this to motivating behavioral changes and generating excitement. Having a serious purpose does not mean that serious games cannot, when appropriate, be fun. In many cases, such as marketing campaigns, fun is an effective means of reaching a serious goal.

Serious games are defined more by what they accomplish than by what they are. Examples of games that could be considered serious range from televised quiz shows, alternate reality games,¹ war games, flight simulations, and mock trials to educational children’s games, pieces of marketing campaigns, and ice-breaker exercises. The United States Army recently developed and deployed *America’s Army*,² an online game used as a recruiting tool that takes players through a series of military training and missions. *A Force More Powerful* is a simulation that puts the player in charge of organizing peaceful protests of

¹ http://en.wikipedia.org/wiki/Alternate_reality_game

² <http://www.americasarmy.com/>

dictatorships.³ This game, which will be released in February 2008, spreads awareness of what it is like to live under and oppose a hostile government and teaches which tactics are most likely to work.⁴ Few would argue that teaching is the primary objective of the popular *SimCity*⁵ games, but they can function as a lesson in city planning. Teachers in Erving Elementary School in Massachusetts have used *SimCity* to do just that.⁶

Serious games aim to solve problems, such as social problems, business problems, and training problems. An effective serious game is tailored to solve a specific problem experienced by the game's end players. The better the game is tailored to its end players, the more likely it is to have the desired effect on them.

A Business Problem

First impressions really do matter. Onboarding is a critical point in a new employee's career. Author Michael Watkins contends that a new manager's success is dependent on their performance during the first 90 days on the job. If employees do not feel inducted into their company and its culture, they will not become loyal to it. Voluntary turnover rates in the professional and business services industries are particularly high—usually between twenty and thirty percent. This rate has climbed in the past few years.⁷ When the relationship between productivity and morale is considered, the potential costs of a poor onboarding experience become even more apparent. Employees who go through more extensive onboarding programs, including those with cultural introductions to a company, tend to feel more integrated and happy in their jobs.⁸

Dissatisfaction with a working community, or lack thereof, does not only affect new hires. Even long-time employees can feel disconnected from their companies. Such feelings can compound communication problems within a single department of a company as well as between multiple departments. This is especially true if the more experienced employees, who set the standard for others, have negative feelings about their company.

An employee simply not knowing key facts about the company is another danger of a poor onboarding program. Whether concerning high-level information such as company structure, culture, and vision, or more specific data such as process or product training, employee ignorance decreases productivity.

³ <http://www.aforcemorepowerful.org/game/index.php>

⁴ Lamb, Gregory M. "Moving Beyond 'Shoot 'Em 'Up.'" *The Christian Science Monitor*. 22 Dec. 2005. 12 Nov 2007 <<http://www.csmonitor.com/2005/1222/p14s03-stct.html>>.

⁵ <http://en.wikipedia.org/wiki/SimCity>

⁶ Lipinski, Michael. "Why Use Sim City 2000." 1999. 10 Nov 2007 <<http://www.fi.edu/fellows/fellow3/apr99/simcity2000/why.htm>>.

⁷ Nobscot Corporation. "Historical Employee Turnover Rates." *Retention Management and Metrics*. 15 Nov 2007 2005-2007 <http://www.nobscot.com/survey/historical_turnover_rates.cfm>.

⁸ Wheeler, Kevin. "Five Tips to Ensure a World-class Onboarding Experience." *ERE.net*. 1 March 2006. 12 Nov 2007 <<http://www.ere.net/articles/db/261E432B48494606B5261C6744682BD7.asp>>.

A Training Problem

In today's knowledge economy, well-trained employees are the lifeblood of a company. However, training is costly in nature, needs to be updated as a company changes, and frequently doesn't speak to companies that resent the fact that every hour dedicated to training is an hour taken from working. Condensed training minimizes this loss of productivity, but training that is condensed to the point of being ineffective wastes potential working time without producing results.

Traditional training such as classroom-style lectures is costly. It is also often inefficient in a business setting where learners are adults who are more concerned with getting back to work than absorbing information. Adult learners expect to have control over their learning experiences. Traditional training rarely offers this control, leaving learners frustrated and less likely to retain course content.

This is especially true for younger adult learners who have grown up in the digital era and make up a large and quickly growing segment of the work force. Such learners are used to instant gratification when it comes to training, having access to the "fingertip" knowledge that Google and Wikipedia provide. People who were born in the 1980s or later have had access to computers and the internet from an early age, making them proficient at accessing information as they need it. This makes them less likely to pay attention to a course about things they may or may not need to know in the future. However, it also makes them more likely to proactively seek out information as need for it arises.⁹ This style of working is becoming more and more effective and accepted in many business settings, particularly in technologically oriented fields. More of those entering the workforce are accustomed to being entertained as they learn. Some have come to appreciate and even demand this in their training experiences.

Quality e-learning is a proven solution to these problems. Good e-learning gives learners control over their learning experience. It can be taken from home, making employees' families more likely to become involved in and understand the new job, benefits, and company culture, which makes employees less likely to quit. This is true only of good e-learning, however. Forcing employees to sit through dry or tedious online learning not only decreases the likelihood of content retention; it increases the same risks that come along with poor onboarding programs. In the mind of an employee, bad training can be a symptom of a bad employer and a bad job, and rightfully so. Turning training into play by making a game out of it, however, can do just the opposite.

Solving these Problems with Serious Games

Sun Microsystems is a large company with businesses in various sectors of the technology industry. It employs over 33,900 people worldwide,¹⁰ has offices in dozens of countries, and sells products and services in many more. In the summer of 2007, Sun commissioned a serious games vendor, Enspire Learning, to

⁹ Skiba, Diane J. "Adapting Your Teaching to Accommodate the Net Generation of Learners." The Online Journal of Issues in Nursing 2007. 25 Oct 2007 <http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume112006/Number2May31/tpc30_416076.aspx>.

¹⁰ Sun Microsystems Home Site. <<http://www.sun.com/aboutsun/index.jsp>>. 5 Nov 2007.

create two onboarding games, *Dawn of the Shadow Specters* and *Rise of the Shadow Specters*. The games were released in October 2007 and made publically available on Sun's website. New hires at Sun are encouraged to play them as an optional part of their onboarding process.



As with many technology companies, a sizable percentage of Sun's employees work remotely. Many of these employees hardly see the office at all. While this is a considerable perk of working for Sun, it can leave employees feeling disconnected from their company. New hires are especially likely to be affected by such problems.

Sun recognized a need to strengthen the sense of community within its workforce. One of its efforts to do so entailed revamping its onboarding program, as a strong onboarding program shows employees that their company cares about not only training them, but welcoming them as well. The games were designed to teach new hires about Sun, but this goal was secondary to making employees feel welcome, at home, and integrated into the Sun Microsystems culture. The word "game" was the driving force in this endeavor. Sun wanted to give its new hires something to be excited about, to make them feel that Sun is a cool, fun place to work. The point was, and is, to have new hires fall in love with Sun right from their orientation.

Learner Profile

The Shadow Specter games were designed for a dual audience: prospective Sun employees and actual Sun employees.

Prospective Employees

The average age of a Sun employee is forty-two. While the collective work experience this affords is an asset, Sun would like to make better use of today's large population of young, technologically oriented talent. Much of this talent has grown up playing and loving video games, from *Pac-Man* to *Super Mario Bros*. Many have fond memories of the puzzle and platformer games of the 1980s and 1990s.

Sun's company vision is based around the concept of a connected world. In keeping with this notion, the Shadow Specter games were made publically accessible on Sun's website. One hope was that this would reflect and advertise the fact that Sun, a proponent and creator of open source software, advocates sharing knowledge rather than hoarding it. Knowledge sharing appeals to the ideals of many younger (and older) prospective employees. Sun hopes to impress its merits as an employer and belief in its vision upon current, emerging, and future members of the workforce. The intention is to make the recruiting benefits of the games last for years to come.

Current Employees

While the Shadow Specter games were designed with prospective employees in mind, their content must inform current and new employees about Sun, who are often middle aged or older. Such employees may or may not enjoy the kind of action-based play associated with video games.

It was the belief of game developers that, while generational gaps are a concern with video games, this problem would not necessarily extend to other kinds of games. The thinking was that employees of any generation would appreciate a fun and entertaining welcome, provided that this welcome actually is entertaining and fun. The Shadow Specter games would, hopefully, increase employee enthusiasm for Sun's community, which would in turn increase the sense of community within the company itself.

The Backstory

Sun Microsystems needed the games to be fun and impressive. They needed to show Sun as an innovative institution with a strong vision and values. The story and world of the games were made to reflect this.

Both games are set in an alternate reality on the planet Solaris, home to a society based on Sun's core values. A group of travelers known as "the lost colonists" settled this world after spending centuries wandering through space, disconnected from the rest of the galaxy. To ensure that nobody would ever be lost again, the colonists made it their mission to create a great network of information and make it available to the entire universe. Sun Microsystems exists in this universe as the company that founded the network. Shadow specters threaten this world. These selfish, monster-like hackers hoard knowledge and technology for themselves rather than sharing it.

The task of saving Solaris from the shadow specters falls to the players. They play the role of a hero, something people usually don't get to be at work every day. The science fiction-inspired story is also exotic to the workplace but familiar to the personal lives of many prospective players, helping them to feel at home at work.

Game Design in *Rise of the Shadow Specters*

Puzzles and Platformers

Originally, Sun Microsystems asked game developers to create *Rise of the Shadow Specters* only. As the intent was to make an impression, a video game seemed fitting. Game designers also wanted to include elements that would appeal to the problem-solving nature of Sun's employees. To meet these needs, *Rise of the Shadow Specters* was designed as a puzzle-based platformer video game.



Platformers are very arcade-like and can inspire nostalgia in those who played the early video games of the eighties and early nineties. Many of Sun's target recruiting pool were children or adolescents when video games first became popular, making such games that much dearer to them. In a platformer game, the main mechanic of advancing is having the player's avatar jump from one platform to the next. The objective of these games is simple: get from point A to point B while navigating obstacles. Well-known examples of platformer games include *Donkey Kong* and the early *Super Mario Bros.* games. For simplicity's sake, the avatar in *Rise of the Shadow Specters* progresses through a series of still screens like the avatar in *Donkey Kong* rather than moving through a long scrolling screen as *Super Mario* does.

There is also a puzzle aspect to *Rise of the Shadow Specters* that resembles that of *Abe's Odyssey*, a platformer which was originally released in 1997 for both PlayStation® and Windows®. While *Abe's Odyssey* is a side-scrolling game, its avatar, Abe, must solve puzzles in order to advance. Game designers took cues from Abe in creating Ray, the avatar in *Rise of the Shadow Specters*.



Learning to Play

There is a certain appeal to the mechanics of platformers, which the Shadow Specters game developers wished to take advantage of. The avatar's abilities are usually limited to running and jumping. Abilities can sometimes extend to a few more actions such as climbing, ducking, shooting, and punching, but simple platformers rarely go beyond this. It is easy enough for a player to learn how to make the avatar do these things, which makes it simple for people to learn how to play these games. This ease, in turn, makes people more likely to become players.

Ease of learning suited the game's target audience. Busy Sun employees are not generally inclined to spend much time learning the controls. This is doubly true for new hires, who are already being bombarded with large amounts of new information. It is not wise to force people to learn complicated controls for an optional game. Sun employees are technically savvy and, in many cases, experienced with video games. This gives them a confidence in their gaming abilities that can make them likely to skip or skim game instructions and tutorials. The goal of creating *Rise of the Shadow Specters* was to make an enjoyable experience rather than a tedious one. To reach this goal, the games need to accommodate employee playing styles rather than requiring employees to adapt their natural playing styles to accommodate the game. Controls were designed to be as intuitive as possible. Arrow keys were chosen for movement while commonly used keys such as "x" and "c" were designated for special actions such as pushing and pulling boxes. A cheat sheet describing how to play is always readily available in case a player misses this information when it is first presented.

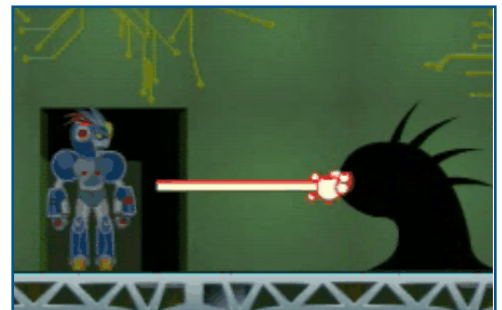
A Difficult Balance

Simple game mechanics do not necessarily mean easy or boring gameplay. The avatar in *Donkey Kong* can only run and jump, but a few obstacles in the form of wayward barrels make it one of the most challenging

games of its era. Learning how to control the avatar in a platformer is easy. Actually playing the game, however, can be much more challenging. Game designers are able to control how difficult it is to play a platformer by adding obstacles or adjusting the responsiveness of game controls. The level of difficulty was especially important in *Rise of the Shadow Specters* because it is an optional part of Sun's onboarding program. If the game were too easy or too challenging, people simply would not play.

With such a large player demographic, it was difficult for game developers to determine how sensitive to make the controls and how many obstacles to put into the game. These two elements are closely linked; the more obstacles a game has, the more sensitive the controls need to be. More obstacles can make for a more exciting game, but this can create a cluttered or overwhelming look.

The main obstacles in *Rise of the Shadow Specters* are the shadow specters themselves, dark creatures that troll the gaming area. In order to avoid overwhelming the player, the number of shadow specters was kept relatively low. To maintain an engaging level of difficulty and add to the game's aesthetic and atmosphere, the shadow specters were given the ability to recognize when Ray is near and respond by firing lasers at him.



Despite careful control of these elements, many found *Rise of the Shadow Specters* either too difficult or too easy in an early playtest. This did not come as a surprise to the game's developers, who chose a diverse pool of test subjects in an effort to mirror the diversity of Sun's new, current, and prospective employees. Finding the balance that would appeal to the largest amount of players, however, was a challenge.

While a few playtesters were adamant about *Rise of the Shadow Specters*' being too easy, the majority of feedback stated that the prototype version of the game was too difficult. Most of this came down to the number and speed of obstacles. Game developers made several adjustments in response to this. The speed of the shadow specters' lasers was slowed and time windows during which blocked paths open up were lengthened. Ray has a health meter that is partially drained each time he is hurt by the shadow specters. When the meter runs out, he "dies" and is sent back to the beginning of the level. To decrease player frustration, the game developers increased the amount of health Ray has on this meter.

This is one example of the many iterations both *Rise of the Shadow Specters* and *Dawn of the Shadow Specters* went through before the final versions were released. As with commercial games, multiple versions were designed, tested, and tweaked before the final versions were released. Analyzing players and planning for their needs goes a long way toward making a good final product, but there are many unpredictable factors in game design. To create a polished game, game designers must make multiple versions, noting what works and changing what does not.

One game detail intended to keep *Rise of the Shadow Specters* from being overly difficult was actually found by playtesters to make parts of the game too easy. Hits from the shadow specters' lasers drain Ray's health. However, in the prototype, his coming into physical contact with the shadow specters themselves

did not. Playtesters often commented on this specifically, stating that it robbed the game of the challenge of evading the specters. Many even found this to be counterintuitive and wondered if it was a bug rather than an intentional aspect of the game's design. This could possibly be due to that fact that, in most platformer games, it is harmful to touch enemy characters. Game developers saw a risk of causing dissatisfaction in going against people's general expectations of how a platformer should work. In order to eliminate this risk and the confusion it could cause, Ray's health meter was redesigned to be partially drained when he touches a shadow specter.

Puzzling Players' Perspectives

While dodging lasers and evading villains is fun and fast-paced, game developers wanted to engage players on a logical level as well. Sun employees are problem solvers by nature. They must constantly learn and adapt in response to fresh challenges. In order to appeal to the traits that originally attracted these people to Sun, game developers decided to build puzzles into *Rise of the Shadow Specters*.

To avoid stalling the pace of *Rise of the Shadow Specters*, puzzles are built into the action of the game. Ray must often move and arrange blocks in order to construct a path to a destination. He does this while dodging shadow specters, introducing a timing element into this spatially based puzzle. Playtesters generally enjoyed combining action with problem solving; thinking analytically to solve puzzles while simultaneously thinking on their feet to evade shadow specters. Game designers worried that the stress of doing both things at the same time could cause frustration. Having the game set in a series of fixed screens rather than using a scrolling screen seemed to go a long way toward keeping things manageable for players.

A Second Game

Even video games with simple mechanics are problematic for some players. Some playtesters reported having trouble playing *Rise of the Shadow Specters* and consciously attributed the fact to their lack of experience, and even lack of interest, in video games. This can be true even for people with technical backgrounds; one playtester with over twenty years of experience in technology-based positions struggled to get a hang of the game.

It is tempting to assume that older players will automatically struggle with platformers while younger players will take to them, but playtests did not support this assumption. One 22-year-old reported taking several tries to get past an obstacle that most surmounted on their first attempt. She wrote that she quickly became frustrated and would have quit the game if she were not participating as part of a playtest. The idea of a game itself was not troubling to her, however. She indicated that she was excited about the idea of serious games in general.

There are other risks to onboarding and marketing goals that are inherent in video games. *Rise of the Shadow Specters* requires the most recent version of Flash web player and a strong internet connection.

This decreases the number of people the game can reach and can result in longer loading times and clunky gameplay on some computers, which conflicts with Sun's wish to create a positive experience.

These drawbacks of *Rise of the Shadow Specters* were a concern, but developers did not feel they outweighed the benefits of the game's design. While some people do not enjoy video games, a great many do. Though some could not play the game on their computers, most systems can handle it. *Rise of the Shadow Specters* is a good fit for the majority of the people Sun hoped it would reach, but the company wanted to provide something for the minority of whom it would not reach. The solution was to create a second, more accessible game, *Dawn of the Shadow Specters*.

Game Design and Mechanics in *Dawn of the Shadow Specters*

Dawn of the Shadow Specters was developed by the same team that created *Rise of the Shadow Specters*. Its purpose is also the same: to generate excitement about Sun in its new, current, and potential employees while educating them about Sun's structure, vision, mission, and cause. As in *Rise of the Shadow Specters*, the content of *Dawn of the Shadow Specters* is most important to new hires while the experience of playing it is designed to be enjoyable for all. This experience is very different from that of the platformer game, however.



Dawn of the Shadow Specters is a graphic text adventure game. These games are like hybrids of *Myst*,¹¹ “choose your own adventure” books,¹² and computer role-playing games.¹³ Players explore a world by moving from screen to screen and shape the plot of the game by making dialogue-based decisions. Interfacing with *Dawn of the Shadow Specters* is simpler than in *Rise of the Shadow Specters*. Players cannot die and there are no villains to avoid, eliminating the timing and evasion elements that some people find stressful in video games. While *Rise of the Shadow Specters* entails player scoring, *Dawn of the*

¹¹ <http://en.wikipedia.org/wiki/Myst>

¹² http://en.wikipedia.org/wiki/Choose_Your_Own_Adventure

¹³ http://en.wikipedia.org/wiki/Computer_role_playing_games

Shadow Specters does not. This game differs from many graphic text adventures in that there are no irrevocable decisions. Saying or doing the right thing opens avenues through which the player can progress, but saying or doing the wrong thing does not permanently seal off these avenues. This design decision was made to avoid causing player frustration.

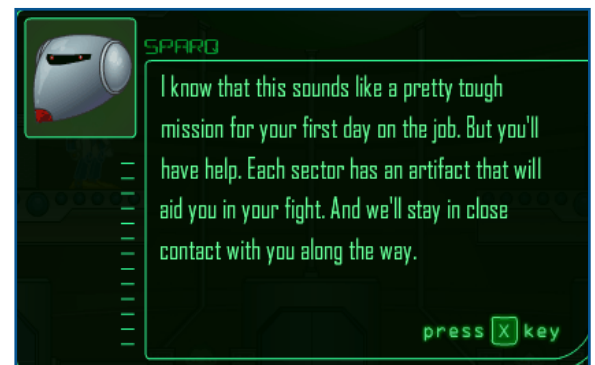
Players progress through *Dawn of the Shadow Specters* in two ways. One is by interfacing with and exploring the environment, moving from screen to screen. In *Dawn of the Shadow Specters*, interfacing with the environment can range from picking up objects to manipulating computer consoles. The other way to make progress is by meeting non-playable characters, speaking with them, and helping them to solve problems.

The same playtester who commented that she would have quit playing *Rise of the Shadow Specters* were she not doing so as a part of a playtest found *Dawn of the Shadow Specters* to be highly enjoyable. This, she noted, is because she got a sense of the personalities of each character she spoke with, making her care more about their fate and, consequently, the plot and outcome of the game. Her motivation to win was encouraged by this brand of personal interaction, rather than by the action-driven excitement and competitive drive to reach a high score of *Rise of the Shadow Specters*.

The Stories

In *Rise of the Shadow Specters*, Ray is a new hire. He shows up for his first day of work to find that the shadow specters have attacked and he needs to help defeat them. This game has a clear plot, but players can enjoy the action and puzzle-based elements without paying much attention to it. In a graphic text adventure, however, the plot and the characters make the game. *Dawn of the Shadow Specters* is no exception.

In *Dawn of the Shadow Specters*, players take the role of SparQ, a sentient robot created by the futuristic version of Sun Microsystems to carry the knowledge of all Solarian citizens. The game begins at the moment SparQ is brought to life by Selena Savage, one of Solaris's society's most brilliant scientists. This moment coincides with an attack from the shadow specters and a call for SparQ to join in the fight against them. To do this, SparQ must convince five scientists who are scattered throughout the building to join Selena Savage in a central control room known as "the hub" to coordinate their defense. Each scientist has a problem that prevents him or her from doing so. SparQ must help the scientists solve their problems and enable them to reach the hub.



While the two different games were designed to reach a diverse audience, Sun hoped that many would play both. Playing both would result in more content retention and, more importantly, more fun and a better impression of Sun. In order to encourage dual gameplay, game developers made the plot of *Dawn of the*

Shadow Specters lead directly into that of *Rise of the Shadow Specters*. *Dawn of the Shadow Specters* ends with SparQ assembling the team of scientists in the hub only to be attacked and rendered immobile by shadow specters. *Rise of the Shadow Specters* begins with Ray stumbling upon SparQ at the start of the game, who gives him the mission to save Solaris.

Learning Content Presentation in Games

As creating a fun experience was the primary concern in the Shadow Specter games, learning content had to be integrated into the games in an effective but unobtrusive way. Sun's vision of connecting the entire world through a network fits nicely with the futuristic world in which the games are set. The games also needed to contain an overview of the company structure. Sun is composed of multiple business units, each equally important. In order to reflect this equality and familiarize new employees with all of the units, the scientists that SparQ encounters were cast as the various business heads. They reprised their roles in *Rise of the Shadow Specters*. Ray must clear several sectors to win the game; each sector represents one of Sun's core businesses. The sectors were designed to be played in any order to avoid implying that any business is more or less important than any other. The artwork and puzzles in each sector reflect the product or service that sector's business provides.

Character dialogue is another way in which content was inserted into the Shadow Specter games, particularly in *Dawn of the Shadow Specters*. The live action nature of *Rise of the Shadow Specters* made it more difficult to integrate content in dialogue, so it was done more sparingly. In *Dawn of the Shadow Specters*, SparQ stumbles upon a library with optional reading materials, presenting content to interested players without forcing uninterested players to learn it in order to proceed. Both Ray and SparQ must verify their identity as Sun employees at security panels throughout the game by answering questions about Sun Microsystems.

Fantasy vs. Reality



Setting the Shadow Specter games in an alternate reality went a long way towards making them fun and interesting, but it carried the risk of causing confusion. Game developers had to be very careful not to blur the lines between reality and fantasy or confuse real facts about Sun with invented pieces of story. For the sake of clarity, all products, endeavors, and facts mentioned in the games that are directly connected to Sun Microsystems are factual. The one exception to this is SparQ. Game designers were confident in their players' ability to realize that Sun Microsystems has not actually engineered a sentient robot that holds the knowledge of an entire fictional society. They were also fairly certain that players would realize that anything they were asked about or tested on was real information. Playtests proved this supposition to be correct.

The most confusing element of the games is the scientists. One playtester worried that some might mistakenly believe these fictional characters were based on real Sun department heads. However, he and every other playtester rightly assumed these characters to be fictional. This may be partly due to the

characters' creatively outlandish appearances. Sun employs a diverse, international workforce. In order to ensure that no employee feel excluded from the game and therefore excluded from Sun Microsystems, characters were designed in a way that does not denote any particular race or nationality. They dress in lab coats and have green and blue skin. As a robot, SparQ is neither male nor female. Shadow specters are also genderless. There are both male and female scientists.



Knowledge Retention and Game Reception

Players tend to prefer *Rise of the Shadow Specters* to *Dawn of the Shadow Specters*. The exceptions to this rule are strong ones, however, and a different audience than the one Sun wished to target would most likely receive the games differently. A large number of those who preferred *Rise of the Shadow Specters* also liked *Dawn of the Shadow Specters* while fewer of those who preferred *Dawn of the Shadow Specters* were able to enjoy *Rise of the Shadow Specters*. Age proved to be less of a determinant of who liked which game than expected.

Most playtesters and players who commented on their experience with the games felt that they learned a decent amount of high-level information about Sun Microsystems. Few, however, felt they retained all of the content that was presented. Most felt confident having a conversation about what Sun Microsystems is, what it does, and what it values. Almost every playtester had a higher opinion of Sun after playing the game, and an excitement about the company, its culture, and what it does. This exceeded Sun's goals of spreading a buzz, which was its highest priority in creating the Shadow Specter games.

Considerations in Making or Commissioning Serious Games

Many business problems can be solved with serious games, but serious game design is quite foreign to most business and training managers. Although Sun Microsystems commissioned a vendor to create the Shadow Specter games, much of their success was due to the fact that Sun and Enspire worked closely to match game elements with Sun's needs. In making a serious game, there are certain things that both game designers and commissioning companies need to keep in mind.

Know the audience

Everyone likes some games, but not everyone likes every game. The success of the Shadow Specter games is largely due to the fact that they were catered to a specific audience. Video games intimidate some people while graphic text adventures bore others. The Shadow Specter game designers created the games knowing that their audience included technically oriented people, some video game enthusiasts, and some people who would shy away from video games. Knowing their audience allowed them to make educated guesses as to how certain kinds of games would be received. These guesses were generally accurate.

Balance game experience with player motivation and business objectives

Different game experiences produce different results. If a company offers a lighthearted, optional game, players would be likely to form a positive opinion of this company. If the United States Army wished to

impress the importance of safety training upon soldiers, however, a realistic simulation game serious game with a much graver tone would be more effective. For a compulsory training game, making it fun would not be nearly as high a concern as it is in the Shadow Specter games.

Balance content needs with game experience needs

Dawn of the Shadow Specters is driven by story and *Rise of the Shadow Specters* is driven by action. Both are based in fantasy. This makes them effective in generating excitement in their intended audience. They are also effective in conveying the content that Sun needs them to convey. More complicated content would have stalled the pace and stifled the fun of playing. Content presentation works better in *Dawn of the Shadow Specters* because it is a graphic text adventure game, but the information delivered is still very high-level rather than detailed. A game based in solving mysteries or modeled after game shows would not work for Sun's purposes, but would be a good choice when conveying detailed content is important.

Balance Game Experience Needs with User Needs

In the Shadow Specter games, it was important for game mechanics to be simple and easy to learn. This is because players were likely to skim through tutorials in order to get right into playing, a fact that Sun accepted. In order to sustain interest, the game needed to be challenging but not frustrating. The level of difficulty in the Shadow Specter games was designed to accommodate a Sun employee looking for a casual, stress-free experience.

A serious game designed to teach doctors how to interface with medical equipment, however, might require more complicated mechanics. Making game mechanics mimic the interface of the medical equipment would be more important than making them intuitive. Making the difficulty of the game match the difficulty of using the medical equipment would be preferable to making game difficulty match player expectations.

Plan to Make Multiple Versions

Research and planning are good ways to prepare to design a serious game. It is impossible, however, to predict every factor that will affect how a certain audience will play a certain game. In order to attain the desired gaming experience, game designers must make various versions of their game and balance its elements in response to the ways these versions do and do not work. This is a time-intensive process that must be worked into the schedule and budget of game production.

About Enspire Learning

The Shadow Specter games were developed by Enspire Learning. Enspire Learning was founded in 2001 with the mission to create effective online learning. Headquartered in Austin, Texas, Enspire Learning

develops e-learning courses, simulations, and blended learning programs that motivate learners with interactive multimedia and engaging scenarios.

Visit our website www.enspire.com to view interactive course demonstrations or contact sales@enspire.com for more information.

Serious Gains from Serious Games:
Solving Business Problems with Custom Games

Written by



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