Gamification in Libraries
The State of the Art

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Gamification is undoubtedly a major trend: it was the topic of sessions at both of the previous ALA Annual conferences, has an interest group under LITA, and was mentioned in the last three NMC Horizon reports for higher education. While there is interest in creating games that are both engaging and educational, doing so is challenging and requires great investment. In this column, Kyle Felker relates the experiences of the Grand Valley State University library. His writing not only discusses how libraries can effectively utilize games but also the theory behind them as well.—*Editor*

Libraries are currently grappling with an engagement challenge. Users have more choices than ever before as to where and how they obtain information, and the library is no longer the only game in town (if, indeed, it ever actually was) when it comes to doing research. Information provision services such as Google are often easier to use and access than library resources, and users often prize convenience over quality. The availability of electronic resources that students can access from home, combined with the ready availability of reference resources and free information on the open web, are resulting in fewer students actually coming to the library and using physical resources.

The question of how to drive physical and virtual traffic into buildings, webpages, and library electronic resources in the face of such competition has become very pressing, and libraries have responded to it in a variety of ways. With regard to the web presence, user centered design has gained ground as a method for making library information more accessible. Discovery layers have been developed to provide a more "google-like" centralized search interface to library resources. Libraries have experimented with making physical spaces more attractive by installing cafés and art exhibits and offering more computers and study space. Many libraries are engaging in outreach programs, establishing service points outside the physical building in the hope of making it more convenient for users to take advantage of such services.

A convergent trend is the interest in libraries as places for discovery, learning, civic engagement, and community. Libraries have always been places where people could discover new knowledge in books, but in the last ten years, libraries have been reinventing themselves as places for communal discovery, conversation, and exploration. The establishment of Makerspaces in libraries is one way this focus is being realized. More and more, libraries are partnering with people in their communities to bring in speakers, host events, and design spaces that encourage collaboration and stimulate learning.

Gamification sits at the crux of these two trends. It can be both a strategy for engagement and a framework for immersive learning and play. Well designed games can offer compelling, educational experiences that can foster positive user interactions with the library.

WHAT IS GAMIFICATION?

Gamification is defined as the process of applying game mechanics and game thinking to the real world to solve problems and engage users. There are two broad ways the concept can be applied: in the first, game-like structures and systems are grafted onto existing systems or processes. An example would be using a badging or point system in a classroom teaching environment to supplement the final grade. This form of gamification is usually simple and easy to apply, but it often feels artificial and doesn't really change the nature of the underlying experience. In this example, students may well ignore the badging system in favor of the final grade if they feel it isn't offering anything meaningful.

The second strategy is to design learning experiences from the ground up as games. This is requires more work, since it means rethinking and reworking the entire experience. Instead of attaching a badging system to the class, an instructor might redesign the entire class to be an extended game, with points, badges, level-up mechanics, and so on. This is obviously a significant investment of time and energy, and it requires a skillset that librarians and educators don't typically have. Game design is an art, not a science, and designing fun and engaging games that also teach is no easy feat, as attested by the number of failed educational games that litter the gaming graveyard.

It's important to separate the concept of gamification from the discrete forms it can take. Gamification may involve leaderboards, badging, or points. Or it may involve none of those things. Author and game designer Ralph Koster defines a game as a system of rules that, taken together, creates a simplified model of some aspect of reality.[1] I find this definition very useful in thinking about designing games, because it focuses attention less on specific mechanics or technologies and more on how defining player interaction with the game system creates a specific kind of experience. For example, think about how the experience of playing Monopoly is different from the experience of playing chess. One uses a system of rules about movement and resources to simulate capitalism. The other uses a different set of rules to simulate strategic warfare.

GAMIFICATION AS AN ENAGAGEMENT STRATEGY

Successful commercial games have a very long track record of generating outrageous amounts of engagement, in terms of both money and time invested in them by players. World of Warcraft, one of the most successful massively multiplayer online games in history, has more than 8 million worldwide subscribers who play, on average, about 20 hours a week, the equivalent of a part-time job. Tetris for the Game Boy, one of its most successful titles, sold more than 33 million copies. Merchandising of the extremely successful console game franchise Halo has grossed more than $3 billion. The entertainment software industry has experienced consistent economic growth even at times of economic recession according to reports released by the Entertainment Software Association.[2] Clearly, people are willing to invest enormous amounts of time, money, and energy into games. Given that libraries need and want to generate engagement, the applicability of gamification to library services and collections would therefore seem to be obvious. If a library could mobilize a fraction of the engagement of games like Halo, they could potentially have more patron use and interaction than they would know what to do with.

GAMIFICATION AS A TEACHING STRATEGY

There is a bevy of educational research showing that people learn better when they are active participants in the learning process, and when knowledge is presented in a contextualized framework, so that they can see how and where knowledge is applied. Games can do both. Video games in particular often present players with scenarios in which they need to learn a skill or piece of information, and then successfully apply it, in order to progress to the next stage or level of the game. Author James Paul Gee argues in his book "What Video Games Have to Teach Us About Learning and Literacy," that video games employ sophisticated systems that introduce information incrementally, forcing users to apply an ever-growing body of knowledge and skill to solve increasingly more complex problems.[3] Libraries, especially academic libraries, have a teaching mission that centers on instilling in users at least some basic tenets of information literacy. Games may offer an avenue for teaching users important concepts such as evaluation, currency, or open access in a way that is not only fun and enjoyable, but deepens the learning experience, providing better understanding of the concept and a higher likelihood of retention and application.

GAMIFYING THE LIBRARY: POTENTIAL APPLICATIONS

Some libraries have already recognized the potential for creating engagement that gamification offers. There are many accounts of library-based games on the web and in the library literature, and their number is growing. NCSU libraries recently received attention for a library orientation scavenger hunt that used iPods and the Evernote app.[4] University of Alabama took a slightly different approach to the same problem, developing an alternate reality game called Project

Velius, which sought to engage students in library orientation by involving them in a sort of online mystery scenario[5]. University of Michigan has developed Bibliobouts, a short game designed to teach students how to evaluate information.[6] Recently, the University of Huddersfield partnered with an internet start-up called Running in the Hall to prototype Librarygame, a system that point-scores patron interaction with library materials.[7] Here at GVSU, we have partnered with a local game development company to create a quest-based mobile game called LibraryQuest.[8]

Gabriel Zicherman, a recognized expert on gamification, argues that anything has the potential to be fun and that almost anything can serve as the basis for a game.[9] Successful games have been built around everything from waiting tables to harvesting crops to air traffic control. If that's true, the potential applications for gamification in libraries is limited only by our imagination and our knowledge and skill in applying the concept. However, there are some areas of library operation that stand out as obvious candidates for gamification:

Library Orientation

First contact with users is critical in establishing a positive and enduring relationship with the library. Games that orient first time users, like incoming freshmen for academic libraries, may offer a positive and enjoyable first contact experience that can also teach patrons some basic information about how the library operates and what services they can take advantage of.

Information Literacy Instruction

Games can be used to create experiences in which users can have active encounters with complex concepts that may result in a deeper understanding than traditional lecture. Consider, for example, trying to teach students about the importance and implications of open access. Players might take on the roles of researchers and publishers within a rules framework that models information scarcity and control. Time and money could be represented with cards, tokens, or other physical objects. A rules structure could be designed in which students are forced to negotiate the cost of producing information and the cost of providing access versus the number of people who actually see the information. A game like this would allow students to explore the reality of open vs. closed access provision rather than just looking at or hearing about it.

Resource Usage

Library systems are full of numbers. Catalogs are full of statistics about when and how often items were checked out, for example. Numbers serve as the basis for many different kinds of games, and point scoring is one of the oldest game mechanics there is. Games could be built on these numbers to encourage users to access library resources more frequently or for longer periods. This is the idea behind RITH's LemonTree game, which point-scores resource usage by department or discipline, mobilizing natural competitiveness to drive up resource usage.

Reading Programs

Summer reading programs in public libraries are already very game-like, with prizes, built-in metrics, and even a sense of competition (some programs post the number of books read by each participant in a public place where everyone can see). There is tremendous room for using experiential gaming to deepen children's engagement with the literature they read. Consider a game in which readers take on the persona of a character from their one of the books they've read (perhaps with costumes!). Each player chooses a special power within the framework of the game, and readers then work together to use their powers to solve a challenge or overcome an obstacle. Players could be exposed to interesting characters from books they might like to read, especially if the characters are from the kinds of books the readers didn't think they might be interested in before. Such a game might broaden children's reading tastes as well as encouraging them to read further in their interests.

CHALLENGES

According to game designer Gabriel Zicherman, most educational games that fail do so for one basic reason: they aren't fun.[10] He argues that the fundamental problem with most educational gaming is that the educational goal takes precedence at the expense of the fun of the gaming experience: in other words, educational gamers are so preoccupied with trying to get the game to teach, they fail to devote enough time and attention to perfecting the experience of playing the game. Tracy Fullerton, author of Game Design Workshop, stresses how important having a good vision of the experience you want players to have is, and of how testing and iteration is vital to producing a good game. And by "good," he specifically means "fun."[11] Fullerton also talks about the multitude of skills needed to create good games (and here, he specifically seems to be referencing video games): graphic designers, programmers, marketers, businesspeople, etc.

Designing a good and engaging game, then, means leveraging a multitude of skills towards answering the question: "How can we create a fun experience?" This is not a question that training in librarianship has equipped us to answer. Nor are we necessarily taught anything in library school about game design or any of the related skills: graphic design, programming, etc. This means that to date, efforts to create library games have been a ground-up endeavor, with librarians struggling to understand principles of game design as they produce their first game. Certainly, learning by doing is possible, and it's a credit to the entrepreneurial spirit of many librarians that they have been willing to try. Some libraries are solving this problem by partnering with commercial game designers, the way Huddersfield is partnering with RITH on

LemonTree, or the way we here at GVSU have been working with YetiCGI on LibraryQuest. Such partnerships can free the library to concern itself with educational value and tweaking gameplay, while the game designers provide experience, skills, and technical expertise.

Even for experienced game designers, the process of creating a good game is a slow, iterative process that involves a great deal of prototyping and testing. Video game companies spend millions on development, prototyping, and playtesting their games (Halo 4 had a development budget of $100 million, more than the GDP of some developing countries). This doesn't mean successful games can't be produced on a smaller scale, but it does mean that any library looking to work with games needs to be ready for some long-term investment. Very few of the library-created games that are still operating look much like their initial incarnations, and willingness to assess and adapt the game in response to user feedback is essential. Paper prototyping in the early stages of development is highly recommended, since it's far cheaper to work with paper and pen than with computer code, mobile devices, or professional printing. Library Game designers need to look at developing in iterative cycles of testing, deployment, feedback, revision, and then more testing.

Any game designer must be able to answer the question "Why would people play my game?" If sufficient thought isn't put into ensuring the game provides some way of drawing players in and rewarding them, it will fail. There are two basic philosophies on how best to do this. The first values external motivators like money or prizes. An excellent example is author Gabriel Zicherman's hierarchy of motivators: SAPS, which stands for Status, Access, Power, and Stuff.[12] According to Zicherman, status is the most potent motivator, followed by access (to persons or areas players normally would not have access to), power (to make choices or decisions players normally would not be able to make), and finally money and other material rewards. The critique of this model is that extrinsic motivation may actually damage user's own innate desire to learn or explore, and that player participation only persists as long as the player regularly and continuously receives rewards. Extrinsic rewards can be time and resource intensive to provide, and can drive up the cost of game development.

The second philosophy relies on intrinsic motivations such as the desire to learn or explore. Such games either try to awaken the users desire to play by making them feel empowered, or align game objectives with something that is personally meaningful to the player. Games built on this philosophy often place a significant amount of the locus of control for the game on the player, allowing them to make key decisions about how the game plays or the form it takes. SuperBetter, a game designed by Jane McGonigal, is a very good example of a game built on this philosophy.[13] SuperBetter is designed to help players recover from the effects of chronic, painful illnesses (and thus, players have a powerful internal reason to participate at the outset). Players within the game choose a persona and a set of "superpowers" they will use to help them recover, as well as sidekicks and helpers in the form of friends and family to provide support. The details of the game are largely set by the player, including the "victory" conditions, which usually involve reaching specific recovery milestones related to their illness. Games like this can offer powerful transformative experiences with little external rewards, but can be tough to design.

Finally, benchmarking and assessment for games is largely unknown territory. While most games provide a plethora of metrics to look at, there are very few established best practices or models to follow. Determining what success looks like can be a challenge. In the first iteration of our own game, participation was lower than our projected numbers, yet qualitative feedback from players was extremely positive, which left the question of whether the game had been successful difficult to answer.

DESIGNING A SUCCESSFUL GAME: ISSUES TO CONSIDER

Each game is unique and poses its own challenges, but there are some concerns that probably hold true for the design of any game:

Define Your Objectives

Successful educational gaming experiences must begin with a discrete set of concrete learning goals. What should players be able to know or do at the end of the game? If they are supposed to learn something, how can that learning be assessed? If the game is designed to change their perceptions or feelings about something, define the change and find or devise a way of measuring it. Without this, there is no way of determining if the game has been successful.

Be Patient, Be Iterative

Gamification is a relatively new development in libraries, and best practices are still emerging. Budding game designers need to resign themselves to the fact that there are few best practices to rely on, and they will probably not get it right the first time. Settle in for the long haul with an iterative design process: prototype, test, deploy, assess, and then start the cycle over again. Success will probably be a matter of refinement until the goal is met rather than instant gratification.

Involve Others

Game design in the commercial sector is a team affair that involves a diversity of skill sets. Find or make a diverse team to help design your game. Look for ways to draw patrons and users into the design process. Does your community have a

gaming group, or a coding club? Reach out to those people. Partnerships can provide you with access to perspectives and skillets you lack, and that will help your game be more successful.

Identify Player Motivation

Locate the fun in your game early, and identify the reasons why people will want to play. Deciding whether to use extrinsic or intrinsic motivators will shape the form and direction of your game considerably (and this is a decision where player input is vital). This needn't be an either/or decision, here at GVSU we are using both in LibraryQuest, extrinsic rewards to lure people in and intrinsic ones to hopefully sustain interest. Balancing player motivation with your educational objectives is one of the most difficult parts of game design, so it's important that you keep sight of both in the development process.

Marketing

Unless the game is very small or situated in a framework like a classroom, letting people know about the game is going to be the first step in getting them to play it. Set aside time and money for marketing efforts, and make strategizing about how to get the word out part of the development work.

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