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Harnessing the power of game dynamics[1]

Why, how to, and how not to gamify the library experience

There is a lot of talk about games at libraries. Public libraries in particular have been active in incorporating videogames in their programs and collections.[2] Academic libraries have been much less likely to create a videogame collection or offer gaming-related programs or services. However, gaming is no longer a distant topic to academic libraries.

The 2012 Horizon Report predicted that game-based learning is on the two-or-three-year horizon for adoption in higher education.[3] Some academic libraries are already moving in this direction. University of Huddersfield Library in the UK has built a game targeting library users called "Lemon Tree."[4] The North Carolina State University (NCSU) Libraries enlivened their orientation program by adding gaming elements and created the NCSU Libraries' Mobile Scavenger Hunt.[5]

Why game dynamics matter

Gamification, defined by Gabe Zichermann as "the process of game-thinking and game mechanics to engage users and solve problems,"[6] is not just a hot topic in libraries or higher education. It is a much bigger society-wide trend. In a similar way in which Facebook has evolved from a single Web site to practically *the* social platform and layer of the real world with more than 900 million active users as of May 2012,[7] now a game layer is being built on top of the real or physical world. Just as the social layer effectively fused social elements into the world, the game layer brings gaming elements into reality.

A game layer that can be compared to Facebook has not yet emerged. Nor is clear how far gamification will penetrate our daily activities. But we can imagine what a semi-universal gaming platform will be like from location-based smartphone apps such as Foursquare. Instead of building a virtual world for a game, these apps gamify the real world. Our mundane everyday activities in the nongame context turn into gaming opportunities for rewards like badges, points, rankings, and statuses.

But why apply game design elements to the nongame context in the first place? The short answer is that people are more motivated, engaged, and often achieve more in games than in the real world. Why are people better at a game than in real life? It is because games offer an environment intentionally designed to provide people with optimal experience by means of various gaming mechanisms and dynamics. Games make people perform better in a way the real world does not. It was in this context that Jane McGonigal wrote "Reality, compared to games, is broken."[8]

Zichermann's definition expresses the goal of gamification well. Herein lies a good answer to the question of why academic libraries need to pay attention to games and game dynamics. Game dynamics can raise

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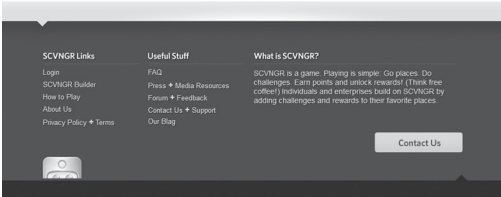
SCVNGR (www.scvngr.com/) is a location-based mobile game and partly also a mobile gaming platform. View this article online for detailed images.

library users' level of engagement with library resources, programs, and services. They can help library users to solve problems more effectively and quickly by making the process fun.

There are many game dynamics, but here are a few that an entrepreneur, Seth Priebatsch, listed and explained in detail in his talk at TEDxBoston in 2010: appointment, influence and status, and progress.[9]

Farmville, a famous social networking game played in Facebook, can change the behavior pattern of more than 70 million people by simply changing a rule for how often a Farmville user needs to water the crop. This is a simple case of the appointment dynamic in action. You get rewarded by just showing up at a predetermined time. Why do people care to check into places in Foursquare? The status of mayorship can be a draw. The progress dynamic is often responsible for making us go through all the steps of the sign-up process for an online service because we all love to move a progress bar all the way to 100 percent.

The power of game dynamics stems from the fact that it requires meeting relatively simple conditions in return for attainable rewards. Then gradually, the tasks become complicated and more challenging for bigger rewards. At the same time, a well-designed game provides an ideal environment and structure that guides players step-by-step towards their goal. Unlike the real world, a game is transparent about what information and skills are needed for progress and how to obtain them, rewards efforts and achievements fairly, and provides immediate feedback on performance. This is how game dynamics enable and motivate a player to plan and perform simple to complicated tasks towards a goal. Along the way, players exercise a significant level of diligence, creativity, and resourcefulness.

Thought experiments: Applying game dynamics to library services

Can we incite some of such diligence, creativity, and resourcefulness in our library patrons? Can academic libraries apply game dynamics to provide more engaging and interesting programs and services to library users? Here are some of my thought experiments.

1. Provide level-up experience for library users. Suppose your user logs into a library proxy system every time for browsing the library's databases, e-books, and e-journals. How about, based upon the time spent and the number and frequency of log-ins, allowing the user to level up from *novice* to *super researcher?* Of course, you would want to come up with much more appealing terms.

2. Award some status and powers associated with library use that can be admired. Allow users to tweet, Facebook, and G+ their updated status and powers as they level up, so that it can be publicly boasted. How about re-issuing library cards as in Judo with

some sort of belt system: red, black, brown, white etc.? Add the sleek mini-posters that celebrate some of those who got high belt statuses to the physical library space.

3. Show the progress bar in library catalog. The progress bar makes you feel goal-oriented. It gives you satisfaction whenever you move the bar one notch towards completion. Why not show the progress bar in the library catalog? If a user runs a search, show a progress bar. If a user selects a record in the search results, move the progress bar one notch. If the user clicks holdings or the links in the record, display something positive and fun like a Happy Face or a Dancing Penguin for a second before moving on. We all love positive feedback.

4. Color-code the status of checked-out library items. In the library's "My Account" page, mark past-due books as red and newly checked-out books as green. Items that are half-past the borrowing period can be displayed in yellow. Or show the check-out status as the image of an hourglass reflecting the time left until the due date. This may make people more compelled to return the overdue items. Most of all, it will be fun to library users.

5. Library currency to accumulate and spend. Let users boast about taking out and returning books from the library. Maybe give them points per transaction as a reward? How about letting library users accumulate and spend library points (or currency) for coffee at a library cafe? Social reading is already a big phenomenon. Combined with a library collection and the library currency, it can create even more interesting experience.

What to avoid in gamifying the library experience

Since games can induce strong motivation and spur a high level of productivity, it is easy to overestimate the power of game dynamics. However, not all games are fun or worth playing. Designing good game experiences is nothing but easy.

The first thing to avoid in gamification is poor design. Creating a library game or gamifying certain aspects of a library doesn't guarantee that it will be successful with its target group. Too challenging or boring games are poorly designed games. Naturally, it is much more difficult to design and create a good game than a bad one. The quality of the game—i.e., how fun it is—can make or break your gamification project.

Second, one can over-gamify and make everything into a game. This is quite unlikely to happen at a library. But it is still important to remember that people's attention is limited. If a library offers many different games or a variety of gamified experiences all at once, users may become overwhelmed and tired. For this reason, it might be best to start with a small and simple gamification project.

Third, a game that is organization-centered rather than user-centered can be worse than no game at all. A game with organization-centered design uses external rewards to increase the organization's bottom line in the short-term.[10] Games designed this way attempt to control behavior with rewards. Once users feel the game is playing them rather than they are playing the game, however, they are likely to have a negative feeling towards the game and the organization.

While a library doesn't have the goal of maximizing profits like a business, which can easily drive a business to lean towards organization-centered gamification, it is entirely possible for an academic library to design a game that is too heavily focused on educational aspects, for example. Such gamification is likely to result in lukewarm responses from library patrons if what they are looking for is fun more than anything else. This doesn't mean that gamification cannot make a significant contribution to learning. It means that successful gamification should bring out learning as a natural by-product of pleasant and fun experiences, not as a forced outcome.

Harnessing the power of game dynamics

Games are played for fun, and the fun

comes from actions not having real-world consequences. For this reason, when a goal other than fun is imposed, the game begins to lose its magical effect on our motivation and productivity. It is true that games can achieve amazing things. For example, the game FoldIt revealed the structure of a specific protein that long eluded biochemists.[11] But people played this game not because the result would be revolutionary in science but because it was simply fun.
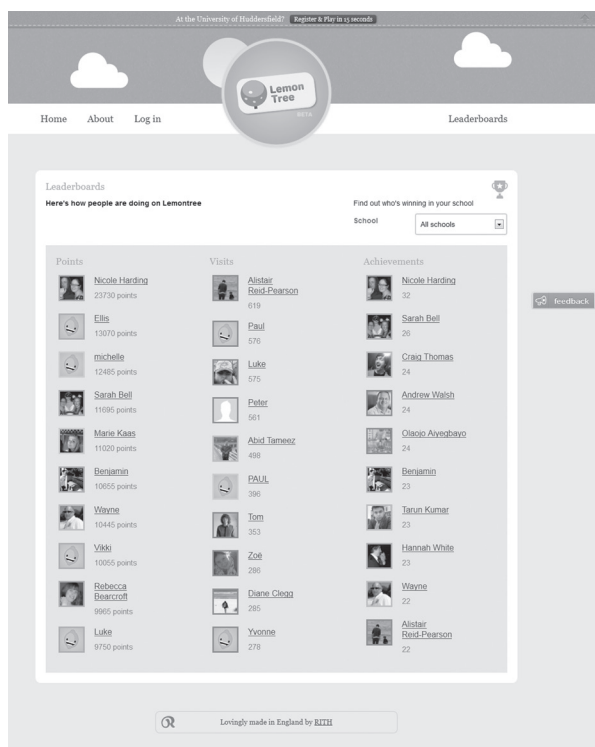
It is probably unrealistic to think that every task and project can be turned into a fun game. However, games can be used to make not-so-fun work into something less painful and even enjoyable to some degree, particularly when we lack motivation. In his book, *Game Frame,* Aaron Dignan cites the story of tennis player Andre Agassi.[12] Agassi played a mental game of imagining the tennis ball machine as a black dragon spitting balls in an attempt to smite him. He did not hit 2,500 balls a day purely because it was fun. But by making the grueling practice into a game in his mind and tying the game with his own real-life goal of becoming a successful tennis player, he was able to endure the training and make the progress he needed.

In applying game dynamics to library services and programs, we can take either of two approaches:

1. The ultimate goal can be simply having fun in some library-related context. There is nothing wrong with this, and, at minimum, it will make the library a more friendly and interesting place to patrons.

2. Or, we can use game dynamics to transform a more serious task or project (such as learning how to cite research literature for a term paper) into something less painful and even enjoyable.

Gamification is still a new trend. A pioneering gamification app, Gowalla, lost to Foursquare in competition, was acquired by Facebook, and shut down. Budge, which offered gamification of everyday activities, such as exercise or packing lunch, closed at the end of August 2012. This may discourage those who are interested in trying a new gamification project at a library. However, gamification doesn't necessarily require complicated technologies or huge investments.

For example, you can run a successful game in your library instruction class with a pencil and paper. How about rewarding your library patrons who write on the library's Facebook page and get most "likes"? Or perhaps, a library can surprise and delight the first library patron who checks out an item on any given day of a month by offering a free cup of coffee or a fun sticker? In gamification, imagination and creativity

The leaderboard of Lemon Tree (https://library.hud.ac.uk /lemontree/leaderboards.php), the library game played by University of Huddersfield library users.

can go a long way towards creating a more positive and engaging library experience.

Notes

1. This article has been expanded and revised from my two blog posts published in ACRL TechConnect blog. Bohyun Kim, "Applying Game Dynamics to Library Services," *ACRL TechConnect Blog,* July 9, 2012, acrl.ala.org/techconnect?p=1333. Bohyun Kim, "Why Gamify and What to Avoid in Library Gamification" *ACRL TechConnect Blog,* August 7, 2012, acrl.ala.org /techconnect/?p=1633.

2. American Library Association, "International Games Day @ Your Library," ngd. ala.org/.

3. L. Johnson, S. Adams, and M. Cummins, *The NMC Horizon Report: 2012 Higher Education Edition* (Austin, Texas: The New Media Consortium, 2012), 18–21.

4. "Lemon Tree," University of Huddersfield, https://library.hud.ac.uk/lemontree /leaderboards.php.

5. Anne Burke, "Demystifying the Library with Game-Based Mobile Learning," *ACRL TechConnect Blog,* July 9, 2012, acrl.ala.org /techconnect/?p=1418.

6. Gabe Zichermann and Christopher Cunningham, *Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps.* (Sebastopol, CA: O'Reilly Media, 2011), xiv.

7. Nicholas Carson, "Facebook Now Has 901 Million Monthly Users, With 526 Million Coming Back Every Day," *Business Insider,* April 23, 2012, http://articles.businessinsider.com/2012-04-23/tech/31385452_1 _active-users-facebook-numbers.

8. Jane McGonigal, *Reality Is Broken: Why Games Make Us Better and How They Can Change the World* (New York: Penguin Press, 2011), 3.

9. Seth Priebatsch, "The Game Layer on Top of the World | Video on TED.com," TED, 2010, www.ted.com/talks/seth_priebatsch _the_game_layer_on_top_of_the_world. html. Also see the description of game dynamics in this article: Seth Priebatsch,

"3 Powerful Game Dynamics That Create Brand Superfans," *Fast Company,* Nov. 17, 2011, www.fastcompany. com/1795487/3-powerful-game-dynamics -that-create-brand-superfans.

10. The distinction between games with organization-centered design versus those with user-centered is from Scott Nicholson, "A User-Centered Theoretical Framework for Meaningful Gamification," (pre-print) scottnicholson.com/pubs/meaningfulframework. pdf.

11. Elizabeth Armstrong Moore, "Foldit Game Leads to AIDS Research Breakthrough." *CNET,* Sep. 19, 2011, news.cnet.com/8301 -27083_3-20108365-247/foldit-game-leads-to -aids-research-breakthrough/.

12. Aaron Dignan, *Game Frame: Using Games as a Strategy for Success* (New York: Free Press, 2011), 80. ⌘