

Developing video games with cultural value at National Library of Lithuania

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Abstract:

This paper presents two cases at the National Library of Lithuania (NLL), which demonstrate how video games can be used to interest younger generation in cultural heritage or provide educational value, what are the challenges and lessons learned.

Hosting Global Game Jam event in Vilnius – where few hundred professional and amateur game developers gather for one weekend and develop game prototypes.

NLL develops video game experiences as with traditional exhibitions – Virtual reality experiences or video games provide additional context to the exhibition.

The core difference between making games with library users and making games for library users is quality requirements. When making a game with users the experience is process itself, and focus should be learning. However, when game is made by the library, as a library service, it must be polished or the whole concept of gamification can be ruined. Libraries that develop games should choose scope of the project, and tools carefully. Game development for users should be only considered, if adequate resources are available.

From our experience Simple 2D games with powerful message require less development, more thought about content, and digital resources already owned it the libraries can be used. Problem when developing 3D games about history or cultural heritage is 3d objects. Libraries and museums still have very few 3d scans, therefore we need to develop models from scratch, this increases development budget significantly. Using scanned images to make stories, or remake games from book stories is recommended approach for libraries.

Keywords: Video games, virtual reality, gamification

National Library of Lithuania (NLL) organizes several activities related to video games:

Hosts Global Game Jam event in Vilnius – where few hundred professional and amateur game developers gather for one weekend and develop game prototypes.

NLL develops video game experiences as with traditional exhibitions – Virtual reality experiences or video games provide additional context to the exhibition.

NLL is also working on a virtual reality system in e-cultural heritage portal and plan to introduce it in 2019, for users and libraries to develop experiences with cultural heritage.

This paper presents two cases, which demonstrate how video games can be used to interest younger generation in cultural heritage or provide educational value, what are the challenges and lessons learned.

Case 1:

While hosting Game Jam 2018, on January 26-28, National library was open for 24 hours for 3 days. Over three hundred developers gathered, they split up into 67 teams and created over 50 game prototypes in these 3 days. Library provided space and internet, some developers stayed overnight, special sleeping area was also provided in the library. The Game Jam theme this year was “Transmission”.

It is worth noting, that Global Game Jam is really a global event, and libraries in most countries could contact with organizing teams. For library, which is willing to make games of their own hosting event like this can serve several purposes:

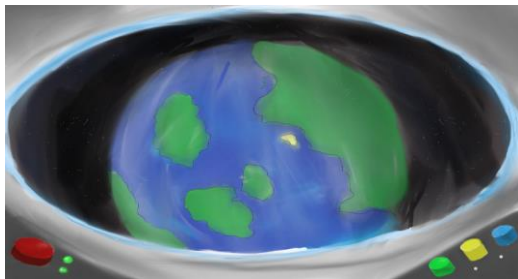
1. Library employees can participate and train with professional game developers, in case of NLL it was also good opportunity to see what tools developers use. Most development tools are free. Game engines like Unity, Unreal, Cry or Defold are all accessible and free, but selecting the best for the library can be a real challenge due to complexity. Some engines require knowledge of C#, others C++ or Lua programming languages, and some also support visual programming – easier to understand for non-programmers. Game Jam is a good opportunity to try them, discuss with teams that use certain engines. Other tools like Audacity for sound, Gimp for image editing, Blender for 3d modelling are also free and being aware of these tools can save a lot of money for the libraries.

2. If library does not have people who can develop games, but is willing to start, Game Jam event is good for finding young developers, and recruiting them. Young game developers are often willing to be in game business to make games, and are ready to work for less if the job is fun. Larger salaries is always an issue for libraries.

3. Library can be just a place where Game Jam event is happening, and it is good, because this is often the first time when some youngsters visit the library and see it not just as a place full of bookshelves and old librarians, but as a cool place with many young people and activities.

4. Library can participate as a team and build game prototype different than most shoot/kill type games. This year in Game Jam at NLL, while presenting ideas few participants decided that being at the library they should make games about transmission of knowledge. At the end of event, everyone was presenting prototypes; one prototype was about knowledge sharing

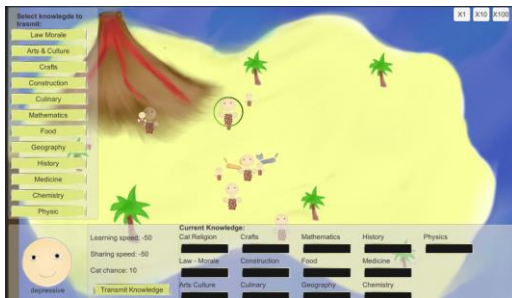
and dissemination from generation to generation, helping to see how values change over time. Games like this can help libraries show their value to public. Since there was no professional designer game art was made by 14 year old student (images 1, 2, 3). The purpose is not to make a great finished game, but to try out ideas, discuss, learn and make working prototype.



Img. 1 - "Starting screen"



Img. 2 - "Gameplay"



Img. 3 - "Gameplay"

Case 2:

For the "To Be Banned: Baltic Books 1918–1940" exhibition, held in all three Baltic countries: Lithuania, Latvia and Estonia, NLL developed Virtual reality experience, to provide context about the books, what is their history, and what are these books about. A usual problem for book exhibitions at the libraries, - young people do not really understand what it is about this old book behind glass that makes it important. Long texts that libraries provide do not capture their attention. Virtual reality experience with historical events helped deliver the message. Experience allows a person to walk on big map of Baltic States, and see events as they evolve, virtual books can be touched, and read. We also used video archive materials for this exhibition.

Genre: Virtual reality 1st person experience.

Target Audience: Casual visitors, non-book experts

Controls: Gaze (people control elements by looking at them, no remote controls to remove complexity for people who never tried Virtual reality before, it also removes the need for support personnel)

Thematic Setting: Clouds and map view from the top, user is on a big map to grasp the scale of events.

Tech Stack: Unity 2017, 3ds Max, Gimp, Audacity

Platform(s): PC, Windows Mixed reality. Windows Mixed reality device was chosen, because it does not need base stations, while Vive and Oculus do need base stations. Windows mixed reality was easier to set up and transport. The main problem with it was that it went to sleep mode every 20 minutes, therefore we had to design special moving pad, which turns every 2 minutes, so the headset does not go into sleep mode.

Development process:

Content for the book exhibition was chosen by experts, there were around 20 selected books from each country. It did not seem as a very big scope at the beginning. Book Science and Publishing expert was hired to write scenarios with objective to write 3 minute scenario on each topic. Scenarios took 1 month to write, scenarios had to be translated to English and recorded in Lithuanian and English. All recorded stories took more than 1 hour in one language, this was the moment when team realized, that project scope is going to be very big if all initial ideas were to be developed.

Sounds with English and Lithuanian stories had to be synced by hand, in order to match with animations, making separate animations for each language would have increased scope even more.

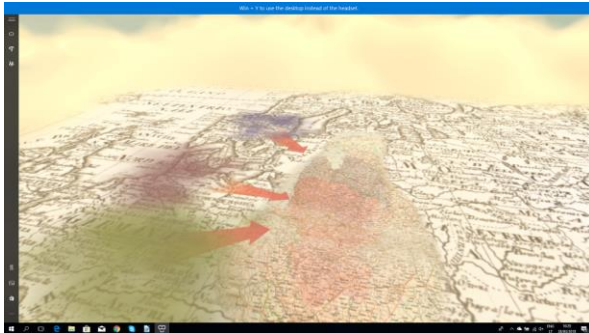
Some books were already digitized and available through digital heritage portals, others had to be digitized. In addition we needed pre world war 2 films, some were available in Lithuanian archives, but most of them were in German archives and not under Creative Commons license. Therefore developers used CC footage's from Belgium archive and Lithuanian archive.

The idea was to show changing maps with certain events, but it appeared that old maps do not match and have to be stretched, also some maps representing just Baltic countries did not present all countries in full (Lithuania, or Estonia where cut). This led to using just a few overlapping maps, some of them stretched on top of others. (Img.4)

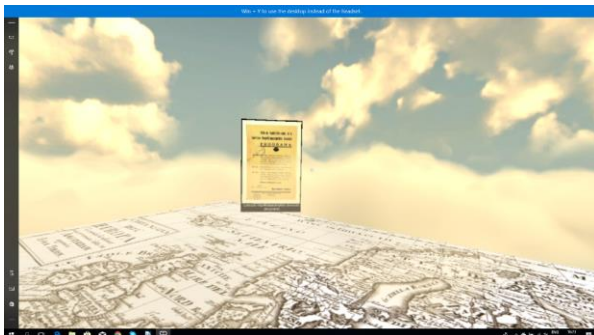
All 3d objects had to be made by hand. The most complex 3d object was book binding machine. User would be able to try and bind the book. In addition to 3d model, complex script had to be written to imitate book binding controlled by gaze.

Since real old books should not be touched in exhibition, The team wanted to make digital books for users to turn pages and read in virtual reality. Original books were scanned, and images turned into pages. The team soon realized that there is no point in making whole

book, because no user will be able to read it all in virtual reality, and if fully made, 1 book would consist of 200 or more high resolution images. Just listening to all stories would take over an hour, and if a person would read the book it would take more than a few hours per book, and there were over 20 books. The decision was made to make book cover and several representing pages for each book that can be read, usually 1 book per topic. Other books and posters are resented as floating images, and close up when person is looking at them. (Img. 5) In conclusion development took 9 months, and cost 15K Eur. Main tasks being UX design, Scenario, programming, sound recording and editing, translation, 3d modelling. Drawing was small part, because mostly scanned documents were used.



Img. 4 - “Maps”



Img. 5 - “Book cover”

Discussion:

The core difference between making games with library users and making games for library users is quality requirements. When making a game with users the experience is process itself, and focus should be learning. For example library can collect group of schoolchildren and teach them drawing, sound editing, programming while developing games, these games will not have value as games, but they will have value as teaching activities, and as idea generation process, since library will end up with many unfinished prototypes.

However, when game is made by the library, as a library service, it must be polished or the whole concept of gamification can be ruined. User experience is the single most important factor for commercial games, not the graphics, not game mechanics, and not even marketing. User experience (UX) is not just how the player moves, but what the player feels emotionally, and what he or she experiences. Celia Hodent distinguishes 5 main misconceptions about UX design:¹

- UX will distort artistic / design intents (In reality The main purpose of UX practices is to offer the experience intended to the targeted audience.)
- UX is just common sense (In reality the human brain is filled with perception, cognitive, and social biases that affect both the developers and the players, therefore rigorous testing and expert knowledge is needed)
- UX is yet another opinion (in reality UX experts do not give opinions, they provide an analysis based on their knowledge of the brain, past experience, and data when it's available)
- There's not enough time / money for UX (most libraries don't have a lot of resources to apply UX best practices. They don't have a lab and they don't have experts to provide them with UX expertise. However, if library builds a game through only librarian perspective and if they never test, chances are that it will fail when it's too late and too costly to recover)
- UX is separated from the design loop (while UX should be a concern of everyone in the team, not only the concern of a UX designer.)

User experience is also most often missed by the beginners in game development. Libraries that want to develop games should choose scope of the project, and tools carefully. Game development for users should be only considered, if adequate resources are available, the answer to “why” question is answered. Why are we building this game, or what experience do we want the player to have? Resources are allocated for not only art and programming, but for UX (there is a person who knows how to align experience to the targeted audience, there is enough knowledge for testing and trying to achieve good usability).

Problem when developing 3D games about history or cultural heritage is 3d objects. Libraries and museums still have very few 3d scans, therefore we need to develop models from scratch, this increases development budget significantly. Even if a museum does have some 3d scans they will most likely be in CAD format and have to be converted to be usable in real time game engine.

Game development is a complex project with many elements involved, one of the personal experiences in game planning with librarians, was when a librarian suggested to build something like “Sims”. The team of 100+, for a few year period, developed “Sims”. Many games we know and play cost from 10 mln. to 200 mln. USD. Library will never have such resources for a game, and there is no need to build such a game for a library. Another issue of big games, is they have many levels. Level design is game design exercised in detail, and it isn't easy, so another team member – level designer is required. Level design is different for every game, because every game is different, therefore big ideas should be split into small pieces.

Conclusion:

From our experience Simple 2D games with powerful message require less development, more thought about content, and digital resources already owned at the libraries can be used (digitized cultural heritage objects, book images, drawings, postcards). Using scanned images to make stories, make games from book stories or using local environment (nature, city) and make geocaching, or other simple game is recommended approach for libraries. And users should be involved in development process as soon as possible, if not as developers, at least as a testers.

References

1. Celia Hodent, “5 Misconceptions about UX (User Experience) in Video Games”, 04.06.2015
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