

USING GAMES IN THE LIBRARY TO CREATE A MORE SUSTAINABLE WORLD

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Short summary : *The purpose of this paper is to study how, by using a game based on open environmental data, librarians can help to promote sustainability. It is important that librarians play a part in the promotion of sustainability because they have always had the important role of providing information to citizens, thus enabling them to play an active part in society. Consequently, they must play a vital role in environmental management and development, and their full participation is essential to achieve sustainable development. However everyone is aware that libraries suffer from staff shortage this is why this paper intends to demonstrate that using an interactive and educational game based on environmental data could allow librarians to raise awareness about environmental issues, without increasing their workload.*

Keywords : data literacy, learning, games, awareness, open data, sustainability

Introduction

The purpose of this paper is to study how, by using a game based on open environmental data, librarians can help to promote sustainability. Indeed we do consider that sustainability is one of the most important issues of today's society. Unfortunately not everyone is equal in front of this knowledge. A survey made by the CREDOC in 2011 (Hoibian, 2012) showed that those who know the most about sustainability are men, people who have a university diploma, people who live in big cities and people who belong to the higher social categories. All the others are left out of this knowledge.

We believe that librarians can be a gate to knowledge for everyone, and that it is part of their work to allow everyone access to knowledge about sustainability and thus enable everyone to become a responsible and aware citizen of this world.

However, it is not easy for librarians to find a way to reach everyone, without increasing their workload too much. That's why we think a game based on open environmental data could be an appropriate way to allow people to access this knowledge. We also want to see if people are open to the idea of an educational game in a library and if it could have a positive impact on the knowledge about sustainability.

The aim of this study was to answer the following questions:

- Are people ready to use a game in library for an educational purpose?

- Are people used to playing games?
- What would be the target audience of our game?
- What would be the most appropriate medium for our game?

Review of literature

Using games to help people in learning has been debated in a variety of scientific writing. As a matter of fact, this theory is not recent, and we can find more than one article which corroborates the pertinence of this idea.

“Games are thought to be effective tools for teaching hard and complex procedures because they (a) use action instead of explanation, (b) create personal motivation and satisfaction, (c) accommodate multiple learning styles and skills, (d) reinforce mastery skills, and (e) provide interactive and decision making context.” (M. Kebritchi and A. Hirumi, 2008). And it has already been stated that “people acquire new knowledge and complex skills from game play [...] Games and simulations can also serve as powerful “hands-on” tools for teaching practical and technical skills, from automotive repair to heart surgery.” (Federation of American Scientist, 2006).

Many researchers proved that games’ principal asset is that they can motivate people. Certainly “one of the principal assets of games when compared to other educational programs is likeability and the resulting motivation for students. Motivation has always been an important issue in educational programs.” (David Furióá, Santiago González-Gancedoa, M. Juana, et al., 2012). Moreover “The contribution of digital games to education for sustainability also depends on their extraordinary potential to motivate players and emotionally engage them in the game dynamics. Emotional involvement and commitment is essential to engage in sustainability, the same way that motivation and fun are fundamental to engage players in the game.” (C. Fabricatore and X. López, 2012). This article is really useful in the framework of our study, since it deals with sustainability.

Additionally, in the same article they show that in every game, people want to learn things, because if they don’t, the motivation of the gamer drops and they stop playing (Carlo Fabricatore, Ximena López, 2012). As showed, game and learning are really close.

Methods

In order to prove our hypothesis that using a game based on open environmental data, could help librarians to promote sustainability, we did a survey on a diversified public mostly composed of university students (75%). We created the survey on a google form and we distributed it via Facebook and email between the 27th of November and the 6th of December 2013. Due to the deadline for the conference paper submission, we were able to open this survey only for a relatively short period of time.

106 people answered the survey. They were born between 1931 and 1998, however nearly 75 % of the people were born after 1991. So we can say that a majority of our sample was quite young. Among these people there were 78% women. And all of the people we surveyed had a diploma (baccalaureate or more) since all those who were not students had jobs which require a diploma.

We analyzed the survey results in two ways: by studying the results on their own and by crossing data.

This method was completed by a research on literature about games as a way to learn.

Results

Even if our sample is not representative of the French people, it gave us significant results which comforted us with the idea that electronic games based on open data should be used in libraries to promote sustainability.

This survey showed that sustainable development ideas still have a long way to go in people's minds. Indeed even if 72% of the people are aware that sustainability is more than just an environmental theory and if nearly all the people we surveyed declared they made some gestures in favor of the environment, only 26% considered that it was important to keep informed about it. Among these people only 12% choose to keep informed through institutional websites such as data.gouv.fr or developpement-durable.gouv.fr (French platforms offering open government data). Also, only 2 % realise that extensive search online should be limited to what is really necessary, for it consumes a lot of energy not because the computer is switched on, but because the data centers require a lot of electricity. Some companies have understood that and are trying to find solutions. Google for example declared "we're striving to power our company with 100% renewable energy" (Google green). But it is far from being enough.

The survey also showed that even though 64% of the people knew about open data before they began this survey, 30 % thought it was something they wish to know more about. That is really encouraging for us.

And even though 76% declared that they have had information literacy courses in their training, only 11% of them use databases and 7% use archives when they need to do some in-depth research. This shows that they did not gain knowledge through their training and also that they once again need to be taught about how to access information. Our investigation reveals interesting informations in term of the use of books is. Indeed, books are used by all kind of public since there are as many students as people inserted in professional life in our survey, but it should be noted that books are often used in conjunction with other tools or by people who don't know about other research tools

A large majority (79%) of the people we surveyed goes to the library regularly. But only 9% of the answers state that the library is a place where they can learn. However, 22% consider it is a place where they can discover things. For all these people our game wouldn't feel out of place in a library since it aims to make them discover open environmental data and to teach them how to use it. Also our game could be welcomed by the 16% who considered libraries as a place where you can relax and enjoy yourself.

According to this survey, we noticed that public libraries were much more visited than university libraries. So to make sure that our game would touch a large number of people, we should put it in a public library.

Most of the time people play on computers (40%) or on smartphones (28%).

They consider that playing electronic games is a good way to spend time (29%) and to enjoy themselves (45%) and only 16% think that games are a way of learning. 57% of the people surveyed really believe that electronic games are not out of place in a library. However 15% are strongly against it. But among these people some are ready to try this game if it is developed.

72% of the respondents answered « yes » to the question: « If there was an educational electronic game in your library would you use it? ». For the remaining 28% they had to explain why they were against it, and the main reasons were:

- they see libraries as a place of calm and silence, and they believe games are noisy and a source of excitement ;
- they don't believe in education through games ;
- they feel too old to play games ;
- it does not fit with the way they use the library ;
- a library is a place where they go to find BOOKS.

Discussion

First, this survey confirmed our hypothesis that people are ready to act in favor of sustainability, and therefore that they could be interested in the subject of our game.

Also most of the people do not really keep informed about environmental data and sustainability, so this game could allow progress of knowledge in this field. And we believe that librarians are not only keepers of knowledge but they should also encourage progress in it.

On the other hand, what surprised us the most in the results of this survey was that many of the respondents had had training about how to research information, but they still had the reflex to look on a search engine when they had to do a precise search. It means one of two things : their training was poorly done or it did not interest them so they don't remember anything of it.

This shows us that our game, which will not only give them knowledge about sustainability but give them a new way to learn how to access knowledge, is needed. Moreover, many people also said they were aware of what Open Data could provide and also want to learn more about this topic. So gaining knowledge on this subject seems to interest people, and a game will help them.

Such a game could help people to develop their knowledge on sustainability and it could also teach them how to access precise information easily.

According to this study librarians are in a good position to teach about sustainability because a) a lot of people go to libraries b) according to UNESCO “The public library, the local gateway to knowledge, provides a basic condition for lifelong learning, independent decision-making and cultural development of the individual and social groups.” (IFLA/UNESCO, 1994) c) they are supposed to have this knowledge. However we realised that librarians are not available to teach since there is a lack of man power in libraries. So, they have to give people an attractive way to access knowledge by themselves. Thus the idea of an educational game on a library computer.

Moreover because the creation of a more sustainable world requires people to cooperate with each other, the game we intend to create should imply an idea of collaboration between players. Libraries should be the place where people gather and become strong together.

We are aware that having this kind of game in a library would change a bit the traditional image of what a library should be (a place full of books). Our purpose is to diversify the ways of accessing

knowledge in order to make sure that everyone will be able to reach it.

Perspectives

During our research we realised that there were already some educational game promoting sustainability (Open Education Europa, 2011). However non of them used open data. So, the results of this study confirmed our will to create an educational game based on open environmental data to help librarians to promote sustainability. So we intend to create it in partnership with the computer science department of our university.

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