Gaming for Multiliteracies: Video games into a case study with primary school students to enhance Information, Visual and Media Literacies

Cruz-Palacios, Eduardo (eduardocruzpalacios@gmail.com)
Marzal García-Quismondo, Miguel Ángel (mmarzal@bib.uc3m.es)
Authors

Ph.D. Student & Librarian
Cruz-Palacios, E.

Researcher & Professor
Dr. Marzal García-Quismondo, M.A.

Research Topics

- Information Literacy
- Educational Digital Libraries
- Learning Objects
Context of the paper: Doctoral Thesis

The Teaching and Learning Resources Centre in Digital-Competency-based Education: Gaming as Didactic Material

→ School Libraries in Spain for 21st Century Education
→ Video games for the Learning of Multiliteracies
→ Digital Competences and LIS Professionals
→ Case study with Video games in a Primary School
Gaming for Multiliteracies: Video games into a case study with primary school students to enhance Information, Visual and Media literacies

- Objectives
- Methodology
- Program
- Outcomes
- Conclusions
Objectives

→ Evaluate the effectiveness of video games when learning multiliteracies competences

→ Determine how to use video games on educational contexts

→ Carry through a program with primary school students

→ Draw recommendations to design similar projects
Methodology

- Study of 21st Century competence-based Education and learning potential of video games from a Multiliteracies perspective

- Design and implementation of a program aimed at primary school students for the learning of information, media and visual literacies

- Use of video games as digital objects, context, environment and media

- Assessment of competences learned in the program
Multiliteracies and 21st Century Education

→ Many literacy models: media, cognitive processes, learning aims, etc.

→ Multiliterate people for Knowledge Society: technology, cognition, communication, ethics and emotions

→ Changes in 21st Century Education:
  • Concept of Learning
  • Roles of Students and Teachers
  • Classrooms
  • Didactic Materials
Learning Potential of Video Games

→ Pedagogical Upsides:
  • Media and Technology
  • Content stemmed from Art of Design
  • Educative Use

→ How video games must be used in educational contexts

→ Good practices
Learning objectives: information, media and visual literacies

Based on Competence Frameworks

Modular and Scalable

Outcomes measured qualitatively and quantitatively by analyzing:
- tests and activities undertaken
- teaching of methods and tools
- discussion of topics
- projects carried out
Program: Context of Implementation

→ “Miguel Hernández” School (Fuenlabrada, Spain)
→ Public school with cultural diversity
→ Primary Education, 6th course: 24 students
Program: Context of Implementation

- Computers room:
  - 25 PCs for students
  - 1 PC for teachers
  - A projector
  - A screen

- 8 sessions of 1 hour 30'
Program: Competences Frameworks

European Union Digital Competence Framework for Citizens:

1.1. Browsing, searching and filtering data, information and digital content
1.2. Evaluating data, information and digital content
2.5. Netiquette
2.6. Managing Digital Identity
3.1. Developing digital content
3.2. Integrating and re-elaborating digital content
3.3. Copyright and licenses
4.2. Protecting personal data and privacy
5.3. Creatively using digital technologies
Program: Competences Frameworks

→ Wales Digital Competence Framework to adjust the pedagogical activities

→ ACRL Visual Literacy framework to determine relevant aspects of images:
  • Nature and Extent
  • Search and Retrieval
  • Meaning Analysis
  • Sources Evaluation
  • Effective Use
  • Design and Creation with Meaningfulness
  • Ethical, Legal, Social and Economic Issues
Program: ¿What do we understand for Gaming?

→ Statements:
  • Video games, as didactic materials, are used for pedagogical purposes
  • Learning processes must not be guided by game experience. Instead, it must help learning emerge due to possibilities no media but video games can offer

→ Steps:
  1. Set learning aims
  2. Design pedagogical activities, which have video games integrated into them, geared to those aims
  3. Select adequate video games for current context, considering:
     • Learners and content of video games
     • Budget and technology available
Program: Gaming

How were video games used?

→ digital objects to be searched

→ context:
  • about which communication on social web must be analyzed
  • to create knowledge by designing and developing web sites collaboratively
  • to prepare a presentation with digital technology

→ environment where:
  • digital identity is built up
  • there are networks that allow managing personal data

→ media in which game experience is an information source

Which ones did students play with?

→ Plants vs. Zombies (2009)

→ The Simpsons Hit & Run (2003)

→ Zoo Tycoon 2 (2004)

→ El secreto de las miradas (2008).
  Thyssen-Bornemisza Museum
## Program: Structure and Planning

<table>
<thead>
<tr>
<th>Modules</th>
<th>Didactic Units</th>
<th>Sessions in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Video games and Culture</td>
<td>1. Video games and Culture</td>
<td>February 19(^{th})</td>
</tr>
<tr>
<td>2. Information Literacy</td>
<td>2. Information Search and Retrieval</td>
<td>February 26(^{th})</td>
</tr>
<tr>
<td></td>
<td>3. Information Sources</td>
<td>March 5(^{th})</td>
</tr>
<tr>
<td>3. Media Literacy</td>
<td>4. Digital Identity</td>
<td>March 12(^{th})</td>
</tr>
<tr>
<td></td>
<td>5. Creating Knowledge Collaboratively</td>
<td>March 19(^{th})</td>
</tr>
<tr>
<td>4. Visual Literacy</td>
<td>6. Image as Information</td>
<td>April 9(^{th})</td>
</tr>
<tr>
<td>5. Presentation with Digital Technology</td>
<td>7. Presentation with Digital Technology</td>
<td>1: April 16(^{th})</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2: April 23(^{rd})</td>
</tr>
</tbody>
</table>
# Program: Didactic Unit 1  
*(Video games and Culture)*

<table>
<thead>
<tr>
<th>Learning aim</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Become aware of the cultural value of video games in the 21st century</td>
<td>Do a test regarding one's habits of using libraries, how to search on the Internet, and use of social networking sites and visual materials</td>
</tr>
<tr>
<td></td>
<td>Be provided with demographic data and graphics about the use of video games</td>
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<tr>
<td></td>
<td>Talk and discuss about one's habits of playing video games and those of relatives</td>
</tr>
<tr>
<td></td>
<td>Play the video games offered by the teacher while analyzing their objectives, history and aesthetics</td>
</tr>
</tbody>
</table>
# Program: Didactic Unit 2
(Information Search and Retrieval)

<table>
<thead>
<tr>
<th>Learning aim</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn why and how to use different information search and retrieval systems</td>
<td>Learn to use: advanced Google search, a Spanish digital reference service and the OPAC of Fuenlabrada libraries</td>
</tr>
<tr>
<td></td>
<td>Use these systems to search for video games available on libraries’ collections and for information related to them</td>
</tr>
<tr>
<td>Learning aim</td>
<td>Activities</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Learn relevant criteria to determine whether information sources are reliable and useful to meet information needs</td>
<td>To be told the concept of information source and aspects to determine whether a web page is reliable and relevant for one’s information needs</td>
</tr>
<tr>
<td></td>
<td>Do an exercise that consisted of relating different web sites to a type of information source (digital newspaper, e-commerce, wiki, library catalog, online encyclopedia and social networking site)</td>
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<tr>
<td></td>
<td>Play a video game offered by the teacher and design a web site on a sheet about it</td>
</tr>
</tbody>
</table>
# Program: Didactic Unit 4 (Digital Identity)

<table>
<thead>
<tr>
<th>Learning aim</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn how visual aspects and social behavior influence on digital identity</td>
<td>To be told the concept and characteristics of Digital Identity</td>
</tr>
<tr>
<td></td>
<td>Talk and discuss about the relations between video games and identity: to be the main character in a story, choose among a range of characters according to one’s personality, create a character based on oneself, and use an avatar to identify oneself on the digital platforms that are needed to play online</td>
</tr>
<tr>
<td></td>
<td>Do an exercise that consisted of analyzing and describing how, on a social networking site, visual information and social behavior have an effect on people’s digital identity</td>
</tr>
</tbody>
</table>
## Program: Didactic Unit 5  
(Creating Knowledge Collaboratively)

<table>
<thead>
<tr>
<th>Learning aim</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve teamwork skills while learning how to create knowledge collaboratively on a web site</td>
<td>To carry out a project to create a web site about a video game</td>
</tr>
<tr>
<td></td>
<td>The activity was guided by the teacher and consisted of the following steps:</td>
</tr>
<tr>
<td></td>
<td>• make groups of 4 or 5 students and choose a video game per group</td>
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<td>• assignment of roles: researcher or web designer</td>
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<td></td>
<td>• decide the contents of the web site</td>
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<td></td>
<td>• researchers search for the needed content on the Internet while web designers build the structure of the web site on a free blogging platform</td>
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<td></td>
<td>• all the members of each group take the information retrieved and place it on the website</td>
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</tbody>
</table>
# Program: Didactic Unit 6
(Image as Information)

<table>
<thead>
<tr>
<th>Learning aim</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn relevant aspects of visual materials and images</td>
<td>To be told the importance of analysing visual elements on websites in terms of navigation, information retrieval and copyright</td>
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<tr>
<td></td>
<td>Analyze visual elements of Thyssen-Bornemisza Museum</td>
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<tr>
<td></td>
<td>• Play a video game created by Thyssen-Bornemisza Museum</td>
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<td></td>
<td>• Use the video game and digital collections of the museum to search and retrieve information regarding the paintings of the video game</td>
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<tr>
<td></td>
<td>• Create a digital document in which all the information retrieved is organized, and send it by email</td>
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</table>
**Program: Didactic Unit 7, 1\(^{st}\) session**  
(Presentation with Digital Technology)

<table>
<thead>
<tr>
<th>Learning aim</th>
<th>Activities</th>
</tr>
</thead>
</table>
| Learn how to prepare a presentation with digital technology | To be told what aspects are relevant in a public presentation with digital technology:  
  • Information provided and its Organization  
  • Visual material and Design  
  • Verbal and non-verbal Communication |
|                                      | To be told the presentation topic: types of gamers and their characteristics                                                           |
|                                      | Make 5 groups and prepare a presentation with digital technology about a type of gamer and video games that they would like to play  |
|                                      | Do a rehearsal                                                                                                                          |
## Program: Didactic Unit 7, 2\textsuperscript{nd} session (Presentation with Digital Technology)

<table>
<thead>
<tr>
<th>Learning aim</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn how to prepare a presentation with digital technology</td>
<td>Do a rehearsal</td>
</tr>
<tr>
<td></td>
<td>Do the presentation in front of classmates</td>
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<td></td>
<td>Receive feedback from classmates and the teacher in terms of what is right and what needs to improve</td>
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<td></td>
<td>Do a test about students’ habits of playing video games and eagerness to be involved in educative projects with them</td>
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<td></td>
<td>Do a test to measure improvement in information, visual and media literacies competences</td>
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</tbody>
</table>
Outcomes: learning of competences

→ Information Literacy:
  • How to use these systems to meet information needs:
    • Advanced search of Google
    • OPAC
    • Digital Reference Service
  • Information sources: types and evaluation

→ Media Literacy:
  • Social media: how behavior have an impact on digital identity
  • Web sites: analyze and design considering layout, functionality and content

→ Visual Literacy:
  • Search on the digital collections and a video game of a museum
  • Description of images
  • Design and creation of digital content with visual materials
  • Consideration of Ethical, Legal, Social and Economic issues
Outcomes: recommendations for similar programs

→ Consider students’ habits of playing in Pedagogical Activities

→ Projects with:
  • Blogs to report game experience and learning progress:
    • Engagement of students in educative projects
    • Context for learnings: intellectual property, digital creation, discussion on social media, etc.
  • Virtual Desktops and Wikis:
    • Evaluation and Management of Information Sources
    • Creation of Knowledge collaboratively
  • Virtual Learning Community within video games: Digital Identity
  • Digital Collections and video games of Cultural Institutions:
    Integration of Multiliteracies Skills, Culture and Fun

→ Web site with all the resources and didactic materials of the program: https://videojuegosyalfabetizacion.wordpress.com/
Conclusions

→ A Competence-based Education for Knowledge Society

→ Video games for Learning: why and how

→ Multiliteracies competences transversally integrated into curricula

→ Digital repositories for learning objects:
  • Sharing of Knowledge and Resources
  • Digital Preservation
¡Thanks very much!