

Games: the importance of being earnest

GameOn' 2016 - 14th. September

Helena Barbas

The Importance of being Earnest (1895-1898)

«we should treat all the trivial things of life seriously...»

Oscar Wilde (1854-1900)

About videogames

- Are driving technological and societal advancements from entertainment to edutainment
- The video industry has hugely advanced in the past decades
- Entertainment software is now one of the fastest growing businesses in the worldwide economy

Some statistical updates (September 2016)

- <http://www.bigfishgames.com/blog/stats/>
- <https://newzoo.com>
- <http://www.iab.com>

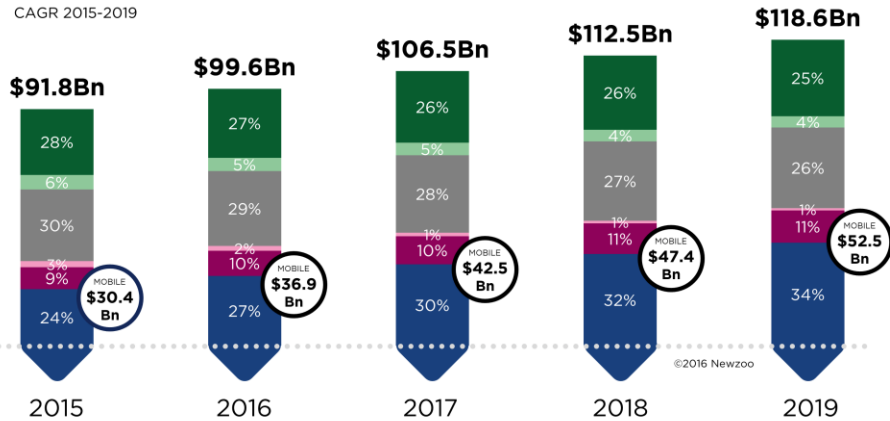


2015-2019 GLOBAL GAMES MARKET

FORECAST PER SEGMENT TOWARD 2019

TOTAL MARKET
+6.6%
CAGR 2015-2019

Smartphone Tablet Handheld TV/Console Casual Webgames PC/MMO



14th. September 2016

Source: ©Newzoo | Q2 2016 Update | Global Games Market Report Premium
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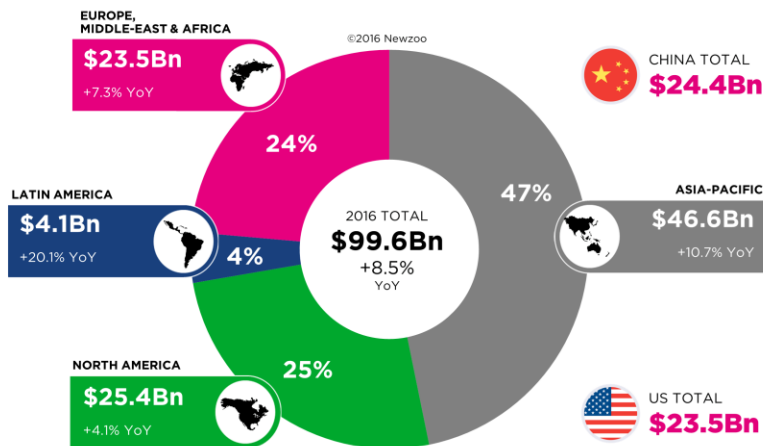


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2016 GLOBAL GAMES MARKET

PER REGION WITH YEAR-ON-YEAR GROWTH RATES



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6

In 2016
58%
of growth of the
global games market
comes from the Asia-
Pacific region

European Union Promotes Game Development

The European Union has created the Creative Europe program to provide funding and support for the cultural and audiovisual sectors.



€1.46 BILLION

2014-2020 BUDGET

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subprogram help promote the development of video games.

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£2.4 MILLION

paid to game developers last year.



10 different games received almost £110,000 each.

FUNDED GAMES INCLUDED



MULTIPLAYER TENNIS



UNIVERSAL COMBAT



FAIRY TALE

7

33.5

million game players aged 8-74, Great Britain

69%

Of the 8-74 year old online population have been playing games

GAMER PROFILE

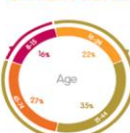
99% kids aged 8-15 years

5.9 million kids

55% ABC1



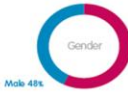
Source - online survey amongst 4,558 representative online GB individuals aged 8-74 (Feb/March June 2016)



65% Adult internet users ages 16-74 years

27.6 million adults

Female 52%



TIME GAMING



Share of time by type of device

14 Hours

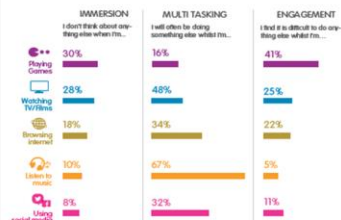
average time spent playing games amongst 8-74 gamers

Share of time by type of game



GAMING vs COMPETING MEDIA

IMMERSION vs MULTI TASKING



IN GAME ADVERTISING

of gamers accept some level of advertising on free app or online games **75%**

61%

I am happy to see advertising in games if the games were available for free

8 in 10

means that I pay less for them

58%

gamers would prefer to download a free game app with advertising than pay for an advertising free version



For more information on the IAB, please contact membership@iabuk.net

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GAMING REVOLUTION

All games are serious

- The average time spend with MOGs (multiplayer online games) or MMOGs (massively multiplayer online game) is of about 6,5 hours per week
- 75% of the most frequent gamers believe that **playing video games provides mental stimulation or education** (ESA 2016:6).

Video games and education

- Research development in Academia grew from small groups to networks
- Game design enters the Academia
- Increase of degree programs → career opportunities for gamers
- MMO [Massive Multiplayer On-line] became a science
- The first Studies - ADL Initiative = skill increase of 100% in trainees using games
- Investments in Digital Economy Development

Games as teaching device

- The use of computer and video games is a critical and still-emerging educational resource
 - To impart knowledge
 - To develop all kind of skills in all kinds of people (ethnicity, gender, age)
- It is the next generation potential learning tool

DGBL (Digital Game-Based Learning)

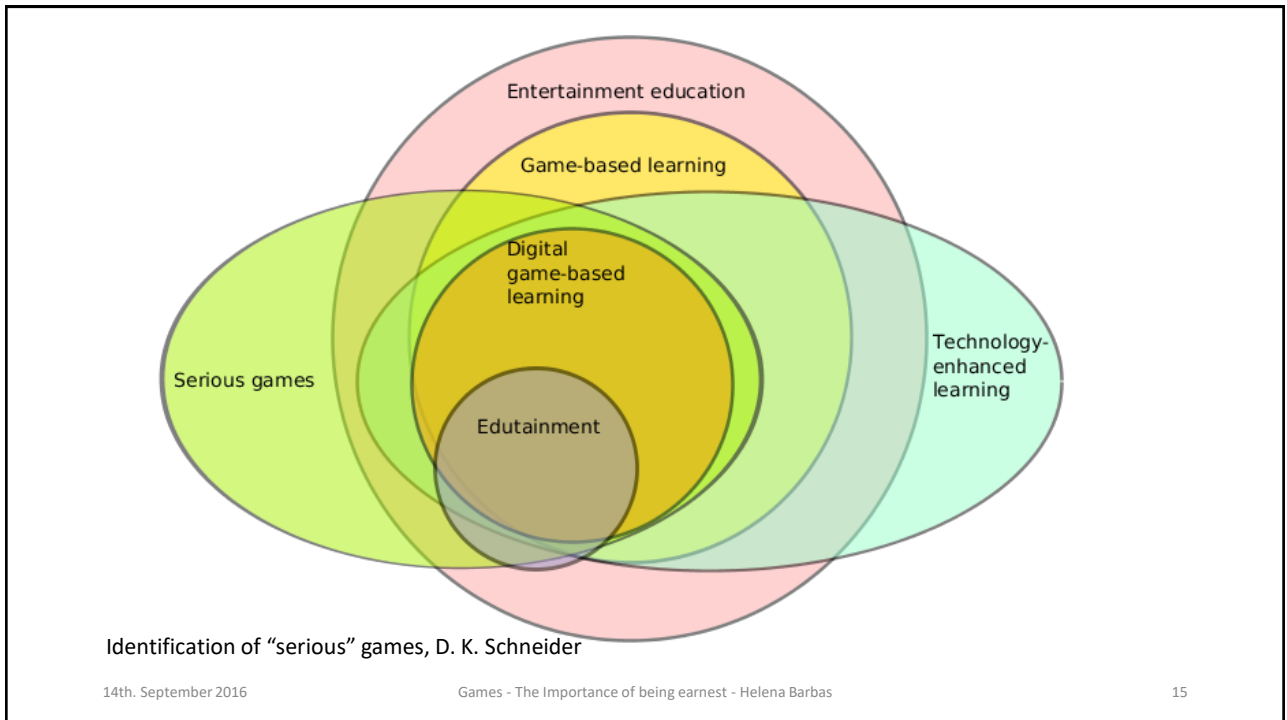
- Is becoming a key fixture to teach and train students, employees, the public in general
- It has to be built in accordance with the science of learning
- It has to target desired learning outcomes
- It has to consider third-party users (teachers, tutors) who support, augment, and monitor player's progress

DGBL challenges

- Designers demand pedagogical support
- Faculties need assistance during development and execution
- Students need supplementary encouragement
- Institutions have to: train help desk staff - provide documentation (FAQs, configurations) - explain new procedures - offer new course materials
- It is needed a focused robust research program to stimulate the transfer of video games technologies to education and learning systems

Problems with “serious games”

- “Serious” appended by the seriousness of the user’s industries at stake (defence, healthcare, education, etc.)
- Designers do not agree about a pure exact meaning and define it by negatives - not a puzzle, not a toy, not a story, not an art
- There isn’t a **gold standard** to tell a good game from a bad one
- Cataloguing is empirical → genres, playability, immersion, pleasure
- There isn’t a game nomenclature to be aligned with learning nomenclatures



Problems with “serious games”

- Authors: no suitable description, no objective term of comparison
- Researchers: tentative methodization
- Ontologies and systematizations are in the making

Mis-use of DGLB – 3 sorts of games

- Commercial educational video games, known as edutainment, that teach specific basic skills
- COTS (Commercial off-the-shelf) entertainment titles used randomly by schools for education
- Academic games used for training and education

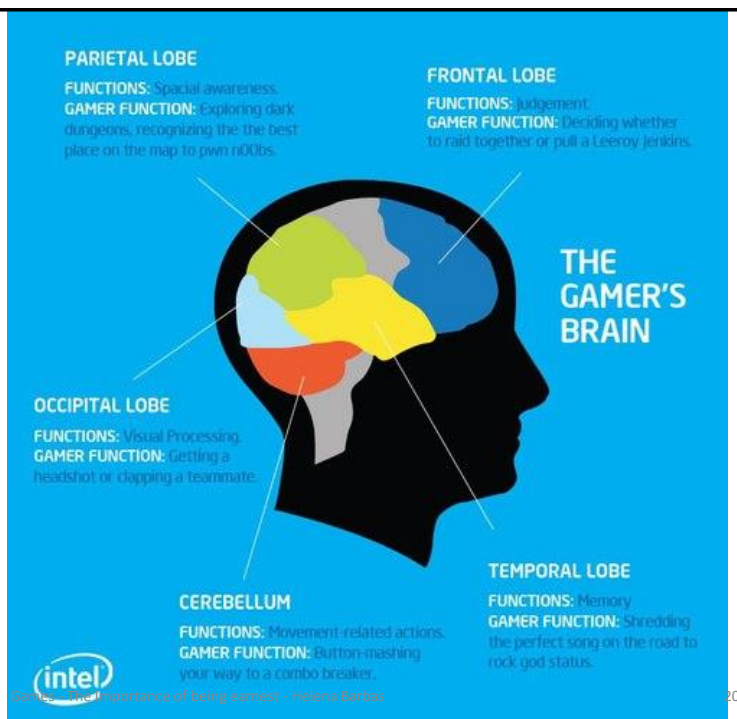
Mis-use of DGLB – 3 approaches

- Have students build games from scratch
- Have educators/developers build educational games from scratch
- Integrate COTS into the classroom – not acceptable by scientific standards:
 - developers do not accept these criticisms – theirs are fantasy games
 - yet these games have been/are being a-critically used in the classroom for learning purposes

All games affect the brain

- Positively and therapeutically - or negatively
- All games imply some kind of action/activity → modify the cognitive functions
- All demand responses/provide feedback → **active learning** reinforced by the **repetition** of tasks and rewarding
- From Old Rhetoric: ***repetitio est mater studiorum*** [repetition is the mother of study/learning] and ***repetitio est mater memoriae*** [repetition is the mother of memory]

How a Gamer's brain is supposed to work



Learning in (serious) games

Occurs at the same structural four levels as in non-serious games:

- Game mechanics (replica of the real world)
- Goal / mission (fighting a particular type of problem + the strategies to win)
- Context (supports the learning objectives in time to solve the several levels of the problem)
- Challenge (tools and activities to overcome a particular objective)

Learning in (serious) games

Three top cognitive science-based recommendations for success used by the industry are:

- To engage active recall (short term memory) to promote deeper learning
- To foster metacognition to help the concepts become more memorable (long term memory)
- To implement spaced repetition at customized intervals in accordance with learner confidence levels and memory spans (long term memory)

Playing alters the cognitive functions

- Playing produces significant and long-lasting beneficial effects
- Research groups have tested it in real-world contexts - rehabilitative or job training
- Carried cross-sectional experiments
- Some conclusions: action video game players have learned to play better
- Off-the-shelf action video games can be used for the practical purposes above

Violence and ethical issues

- Prizes award violent games and bloody aesthetics
- Top selling video/computer games are violent and misogynist
- Games are still accused of developing violent tendencies, criminal behaviour, addiction

Games violence control

- Index of banned video games
- Institutional rating systems (ESRB, PEGI)
- Support Groups (OLGA)
- Game developers have tried to create moral games – Christian, humanistic (Unesco) environmental, addressing social issues – and failed

Moral in games

- Games can foster ethical thinking, discourse and actions
- Avatars can be made more complex than good/evil determined at survival level (to kill/be killed)
- Moral dilemmas can be embedded in content via storytelling coupled with AI – implementation of choice mechanisms

Edutainment and Learning theories

- The learning outcome from the educational use of video games seems promising - games affect humans and humans can learn from games
- Issues to be addressed: terminology - research methodologies - over-generalization – control of learning outcomes – good design of instructional objectives – clear assessment and testing
- Main focus on **content** – who's responsible: teachers, students, game designers

Edutainment and Learning theories

Approaches tainted by traditional (analogic) learning theories:

- Behaviourism (Pavlov, Thorndike, Watson, Skinner)
- Cognitivism (Bode, Miller, Sweller)
- Constructionism (Piaget, Papert, Kafai)
- Socio-cultural (Bruner, Vygotsky)
- Blended learning (Heinze, Procter).

Edutainment and Learning theories

Approaches tainted by gaming theories:

- Playability (interactivity, original trade-offs)
- Immersion (intrinsic/extrinsic motivations)
- Control

Edutainment and Learning theories

- Should resort to the most recent educational cognitive theories based on brain functions, types of memory, and attention spans
- Be aware of and consider pedagogically the new efforts for mapping the brain (i. e. The Human Connectome Project)
- Video games in edutainment have something to offer that sets them apart from the existing educational practices and demand new responses

Summarizing

- Entertainment software and video games are the fastest growing industries in a worldwide economy driving huge technological and societal advancements
- Game studies are still ill prepared for pedagogical contents
- The lack of game taxonomies and ontologies affects negatively DBGL
- Traditional learning theories are inadequate and the cognitive studies' advances have not yet been fully applied
- Considering that gameplay always affects the brain, all games should be considered **earnest**

Some references

- Blunt, R., 2006. 2007. "Does Game-Based Learning Work? Results from Three Recent Studies, Advanced Distributed Learning"
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Thank You

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