Seminár CEPENSAR, PdFUK , Apríl 23, 2018

História a základné pojmy AR

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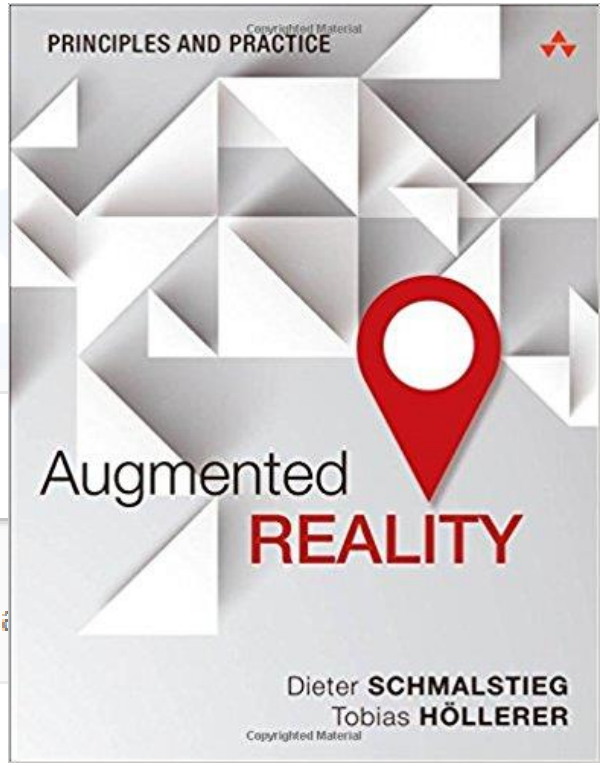
AR edu



Google

augmented reality education

Všetko Obrázky Videá Správy Ma

Približný počet výsledkov: 30 700 000 (0,45 sekúnd)

Vedecké články o **augmented reality education**

… and challenges of **augmented reality** in **education** - Wu - Citované 602-krát

… **education** with collaborative **augmented reality** - Kaufmann - Citované 511-krát

Augmented reality in **education** - Billinghurst - Citované 311-krát

Abstract

O rozšírenej realite budeme hovoriť s cieľom zaviesť pokiaľ možno základnú slovenskú terminológiu podľa najnovšej svetovej učebnice [1] a kľúčoveho edukačného projektu Construct3D [2]. Autori učebnice uverejnili podrobné slajdy [3]. Slovenská terminológia sa rozvíja od 80. rokov, ponajprv pre subsystémy AR (grafický systém [4], interakcia [5], počítačové videnie [6]). Verejnosti sa predstavila prvý raz na vedeckej výstave Virtuálny svet 2012, kde možno nájsť aj prvú AR dielňu pre deti i prehľad histórie [7]. Pripravujeme anglicko-slovenský slovník pojmov v rámci projektu CEPENSAR.

References (selection).

[1] Portal Arbook. 2016. [online] https://arbook.icg.tugraz.at/Schmalstieg-2016-AW
[2] Portal Construct3D. [online] https://arbook.icg.tugraz.at/schmalstieg/Schmalstieg_040.pdf
[3] Portal Arbook. Presentations. 2016. [online] https://onedrive.live.com/?authkey=%21AK9pNk729pgp4Yg&id=5C840DFF3D31B4BA%21943&cid=5C840DFF3D31B4BA
[4] RUŽICKÝ, E., FERKO, A.1995. Počítačová grafika a spracovanie obrazu. [online] http://www.sccg.sk/ferko/PGASO2012-bookmarks.pdf
[5] ŠPERKA, M. 2009. Počítačové Videnie. Detekcia a rozpoznávanie objektov. [online] http://vgg.fiit.stuba.sk/kniha/
[6] ŠIKUDOVÁ, E. & HALADOVÁ, Z. et al. 2013. Počítačové Videnie. Detekcia a rozpoznávanie objektov. [online] http://vgg.fiit.stuba.sk/kniha/
[7] FERKO, A. & HALADOVÁ, Z. et al. 2012. Virtuálny svet 2012. [online] http://www.sccg.sk/ferko/VirtualnySvet2012-finalPCRevue.pdf

Acknowledgment
The paper was written with the support of the grant KEGA 012UK-4/2018 "The Concept of Construcionism and Augmented Reality in the Field of the Natural and Technical Sciences of the Primary Education (CEPENSAR)".

Reference Model

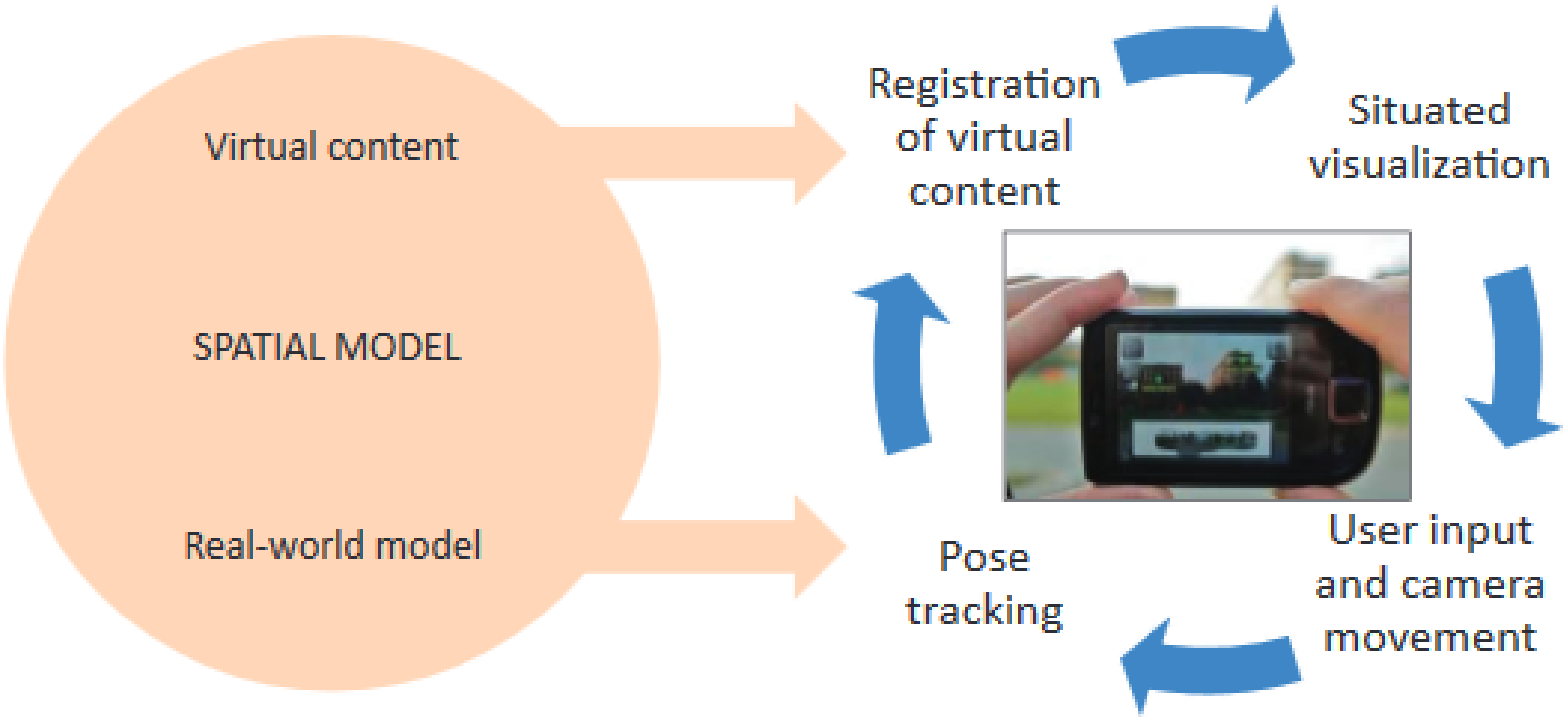
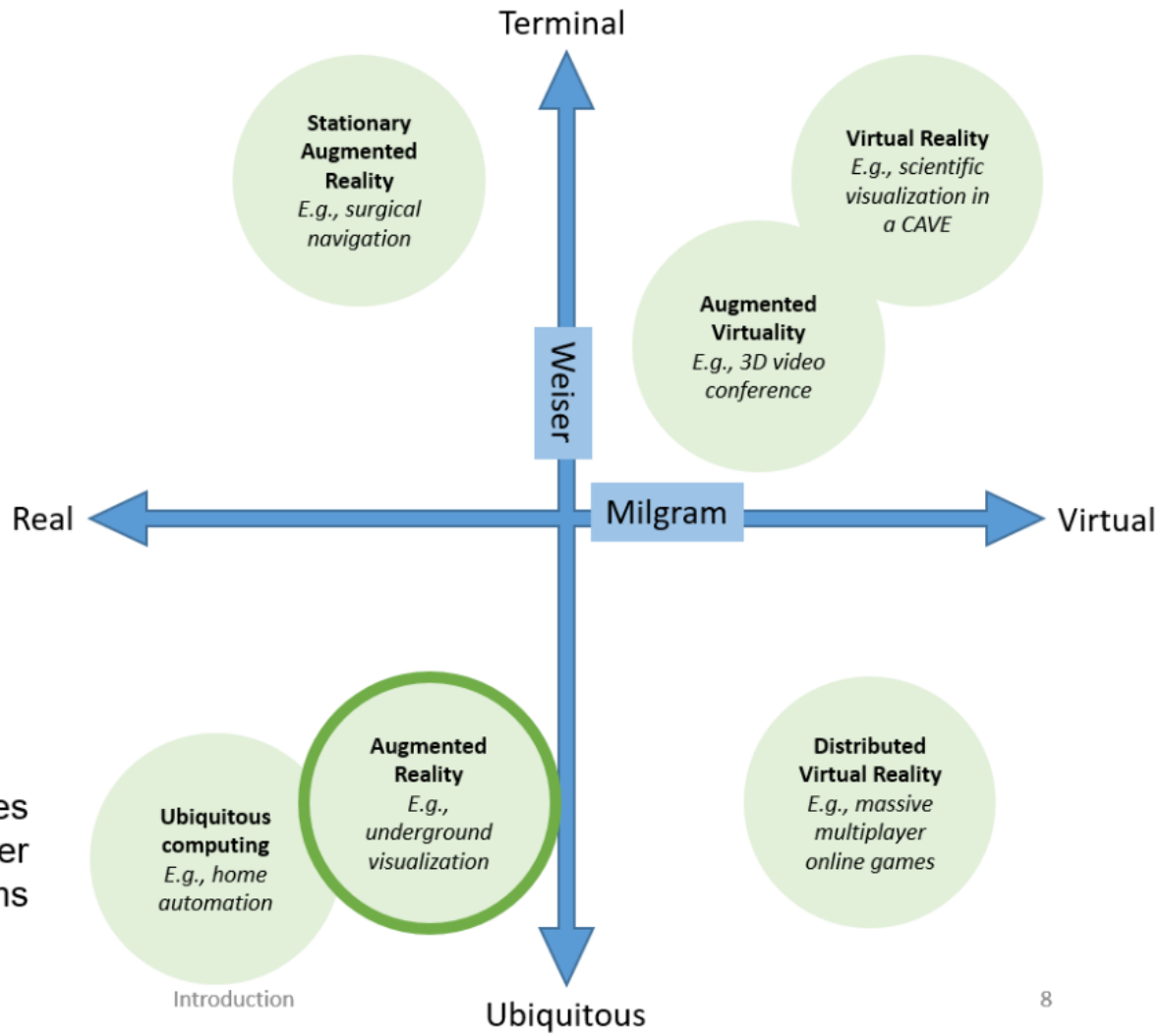


Figure 1.1 AR uses a feedback loop between human user and computer system. The user observes the AR display and controls the viewpoint. The system tracks the user's viewpoint, registers the pose in the real world with the virtual content, and presents situated visualizations.

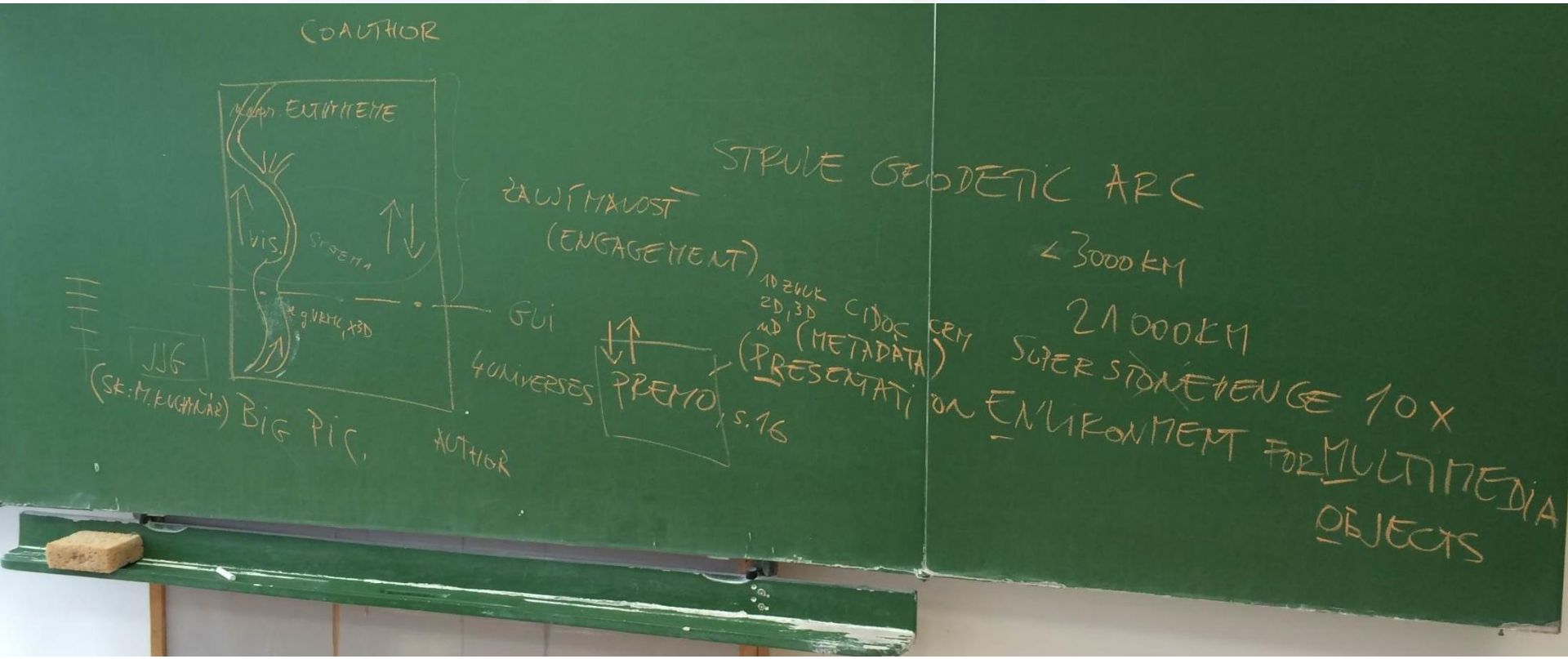
MW Continuum

Milgram-Weiser Continuum



The Milgram–Weiser chart visualizes the relationship of various user interface paradigms

Global & Local Interestingness



Schema of Global & Local Interestingness, from a question to an Enthymeme or Flow User Experience. The user becomes a coauthor of given message/mem/perception/understanding. Virtual & Augmented Reality class. Comenius University 2015.

Each class is a virtual museum

Construct3D: A Virtual Reality Application for Mathematics and Geometry Education

Abstract

Construct3D is a three dimensional geometric construction tool based on the collaborative augmented reality system „Studierstube“. Our setup uses a stereoscopic head mounted display (HMD) and the Personal Interaction Panel (PIP) – a two-handed 3D interaction tool that simplifies 3D model interaction. Means of application in mathematics and geometry education at high school as well as university level are being discussed. A pilot study summarizes the strengths and possible extensions of our system. Anecdotal evidence supports our claim that the use of Construct3D is easy to learn and encourages experimentation with geometric constructions.

Keywords: Virtual reality, geometry education, enhancing spatial abilities, user-interface design, 3D modelling

https://www.ims.tuwien.ac.at/projects/construct3d

Figure 2: PIP sheet and menu of Construct3D.

Figure 4: Working in Construct3D. The tutor assists the student while working on the model. (Image composition)

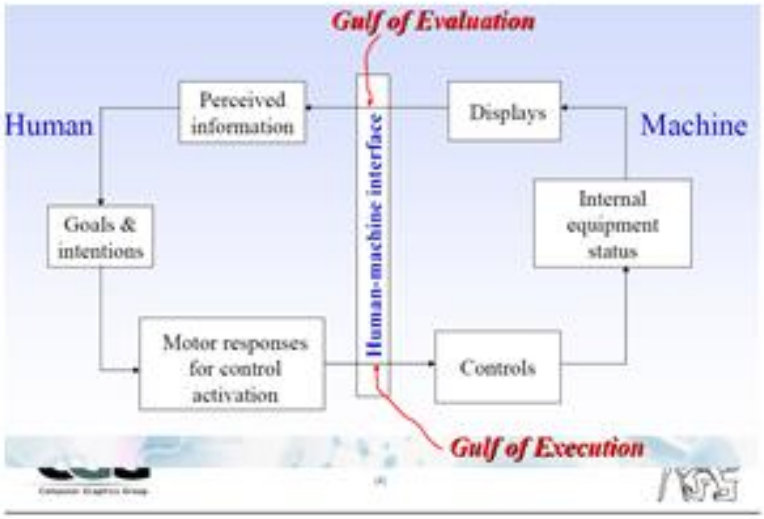
User Interface .. Orientation and Navigation .. Tools and Functions .. Audio Help System .. Hardware and Software Setup

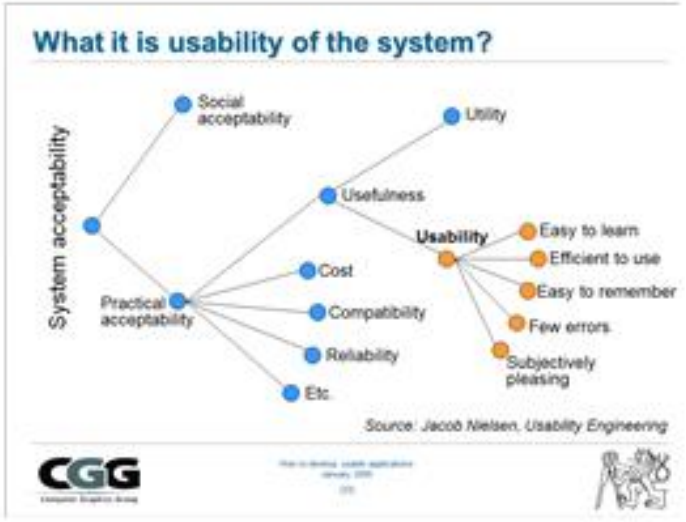
User Studies .. informal pilot study .. Subjects 14 participants (6 female, 8 male)…

Methods .. The test session consists of two parts… Results .. Discussion .. Future Work

Quality Measures, UX

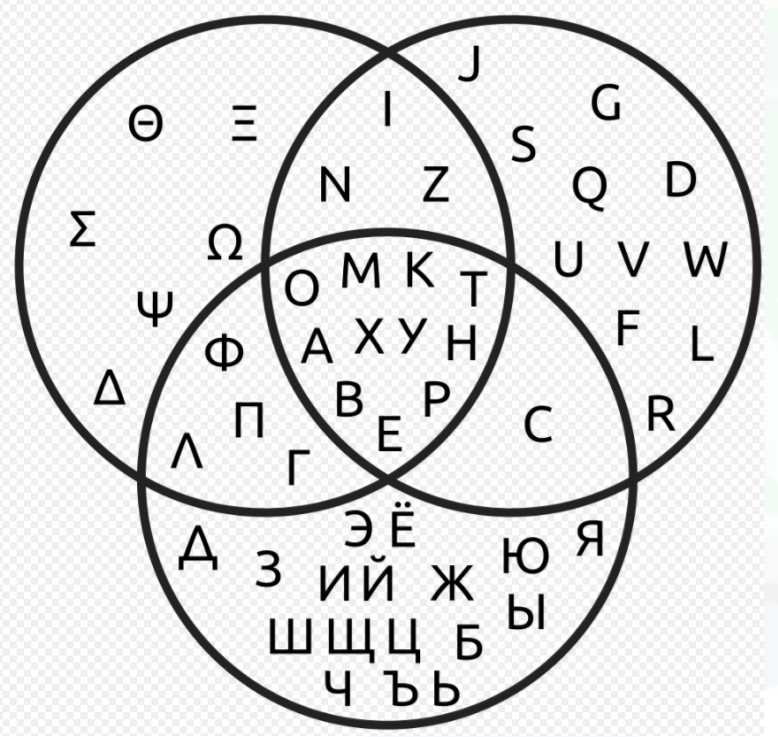
Shneiderman vs. Nielsen (Norman)





Prof. Slavík, CVUT Praha: User interfaces and usability, 2008

Model of Engagement



- O'Brien&Toms.2008.p.21
- **http://eprints.whiterose.ac.uk/78832/6/WRRO_78832.pdf**
- O'Brien, H.L. and Toms, E.G. (2008) What is user engagem
  the American Society for Information Science and Technolo

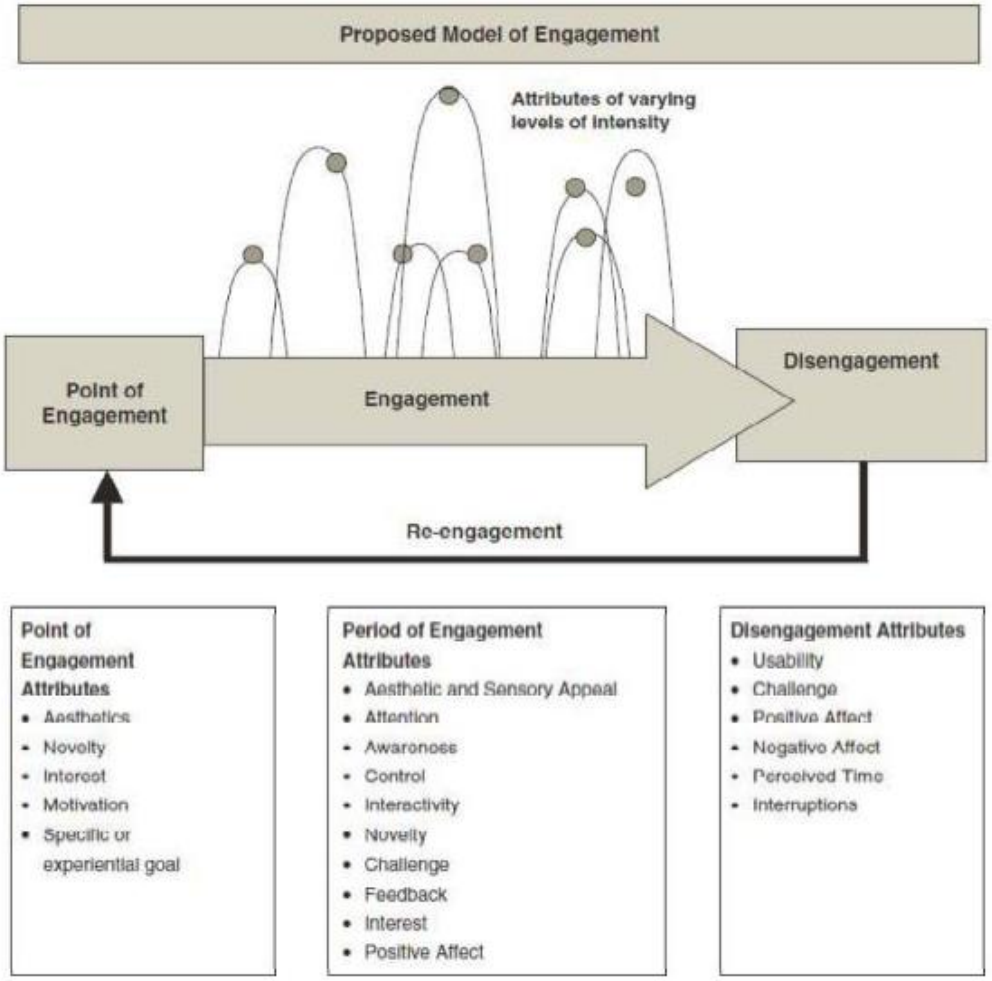
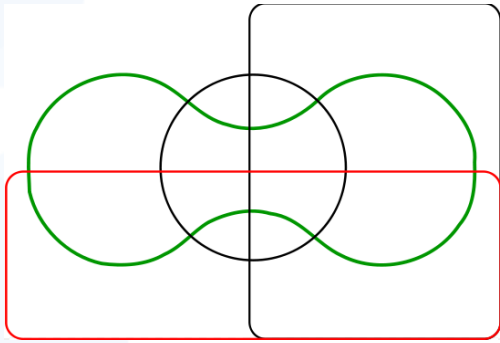


FIGURE 1. Proposed model of engagement and its attributes.

Games & Stories => 16

- The end of computer games
- A. Glassner: Interactive Storytelling, p. 205



- Social – individual
- Story – no story
- Computer – no computer ((AR both))
- Game – no game
- ((story expectation, game goal: verify-falsify))

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