

Seriózne videohry vo vzdelávaní v urgentnej medicíne

ESTÉZIOLÓGIA A INTENZÍVNEJ MEDICÍNY

LF UPJŠ A FNLP KOŠICE



Štefan Trenkler

KAIM UPJŠ LF Košice

Falck Záchranná Košice

Nemocnica Krompachy Agel

Colours of sepsis, Ostrava 2017

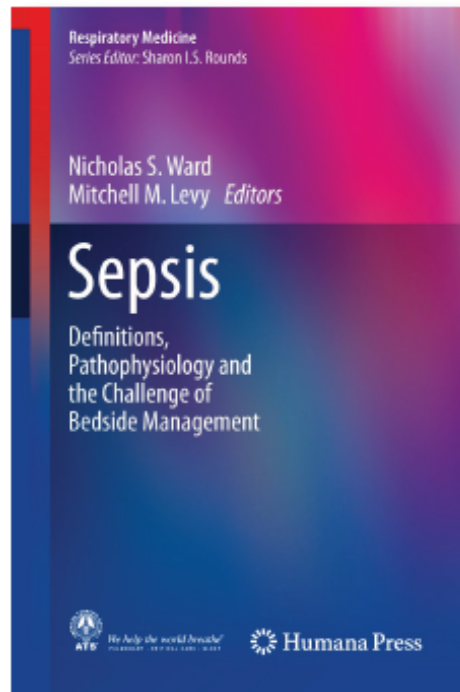
Medicína - ciele



- **Pacient**
 - Anestéziológ
 - urgentolog
 - intenzivista
 - Manažment
 - Poist'ovne
 - Právnicki
1. Kvalita starostlivosti (medicínsky výsledok)
 2. Bezpečnosť
 3. Spokojnosť pacienta

Vzdelávanie

© 2017



X, 270 p. 16 illus., 8 illus. in color.

A product of Humana Press

 Printed book

Hardcover

▶ 89,99 € | £66.99 | \$109.00

▶ *96,29 € (D) | 98,99 € (A) | CHF 99.00

N.S. Ward, M.M. Levy (Eds.)

Sepsis

Definitions, Pathophysiology and the Challenge of Bedside Management

Series: Respiratory Medicine

- ▶ Provides a comprehensive overview of sepsis
- ▶ Reviews emerging concepts and approaches
- ▶ Contains the latest scientific evidence

This book is designed to provide a comprehensive overview of sepsis for clinicians who care for patients with severe sepsis requiring ICU admission. Hospital mortality, with estimates ranging from 20% to 40%, is high. Sepsis includes underlying illness, increased mortality, and is compounded by the significant variability of these patients and clinical conditions. This book provides information from the most current, evidence-based resources. Book sections have been structured to review the overall definitions and epidemiology of sepsis as well as current insights into the pathophysiology of sepsis. This review summarizes the evidence for the international consensus guidelines for the identification and management of sepsis. The latter part of this book reviews emerging concepts and approaches in the diagnosis and management of sepsis that may significantly reduce mortality in the future. *Sepsis: Pathophysiology, Definitions and the Challenge of Bedside Management* represents a collaboration between authors drawn from a variety of disciplines and contributions from basic scientists and highly recognized clinical opinion leaders with expertise in clinical trials.

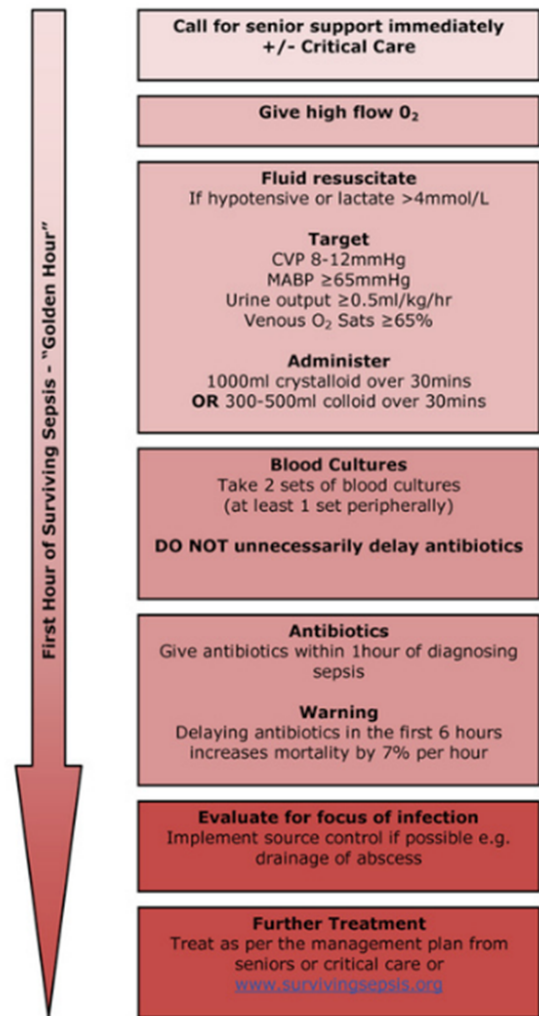




už íst'



Adult Sepsis "Golden-Hour" Management Flowchart





South Sudan - San Francesco Hospital

Marial Lou

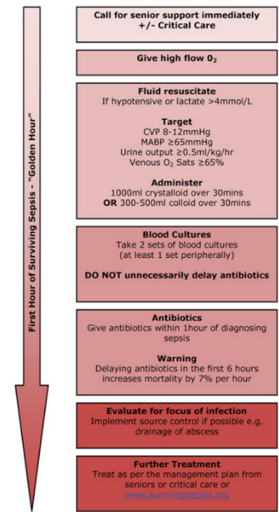


RESEARCH

Open

Adequate antibiotic therapy prior to ICU admission in patients with severe sepsis and septic shock reduces hospital mortality

José Garnacho-Montero^{1,2,3*}, Antonio Gutiérrez-Pizarraya^{2,3,4}, Ana Escobresca-Ortega¹, Esperanza Fernández-Delgado¹ and José María López-S



3-Hour Bundle

Measure Lactate Level

Background

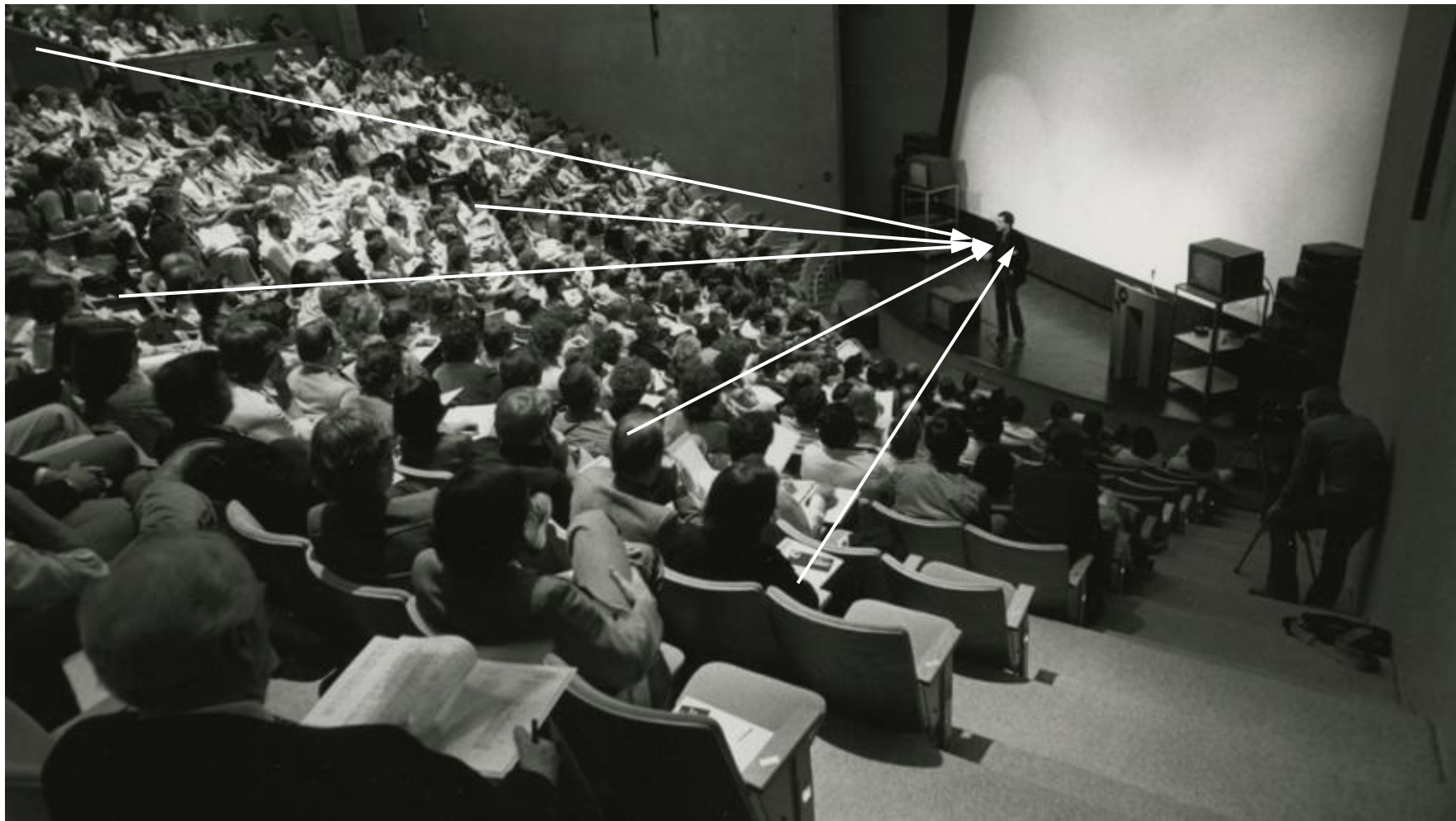
Lactatemia is typically present in patients with severe sepsis or septic shock and may be secondary to anaerobic metabolism due to hypoperfusion or other complex factors. The prognostic value of raised blood lactate levels has been well established in septic shock [1], particularly if the high levels persist.[2,3] In addition, blood lactate levels have been shown to have greater prognostic value than oxygen-derived variables.[4] Obtaining a lactate level is essential to identifying tissue hypoperfusion in patients who are not yet in septic shock but who are at risk for septic shock.

The interpretation of blood lactate levels in septic patients is not always straightforward. A number of studies have suggested that elevated lactate levels may result from cellular metabolic failure in sepsis rather than from global hypoperfusion. Elevated lactate levels can also result from decreased clearance by the liver. Although blood lactate concentration may lack precision as a measure of tissue metabolic status, elevated levels in sepsis support aggressive resuscitation.

- nepodávej bolusy tekutin zbytečně
- pokud se už rozhodneš tekutiny podat, pak vždy nejdříve otestuj jestli je pacient „fluid responder“



Tradičné vzdelávanie



21. storočie



Ako optimalizovať medicínske vzdelávanie



- Medici, lekári, sestry, záchranári....
Pre-/postgraduál, kontinuálne ...
- Lavice, tabuľa, poznámky
Učiteľ učí, žiak sa snaží sledovať
Master – slave (študent)
- Inovatívne vzdelávanie
- Integrácia nových technológií
- Zamerané na **študenta** (master)



Informačné technológie

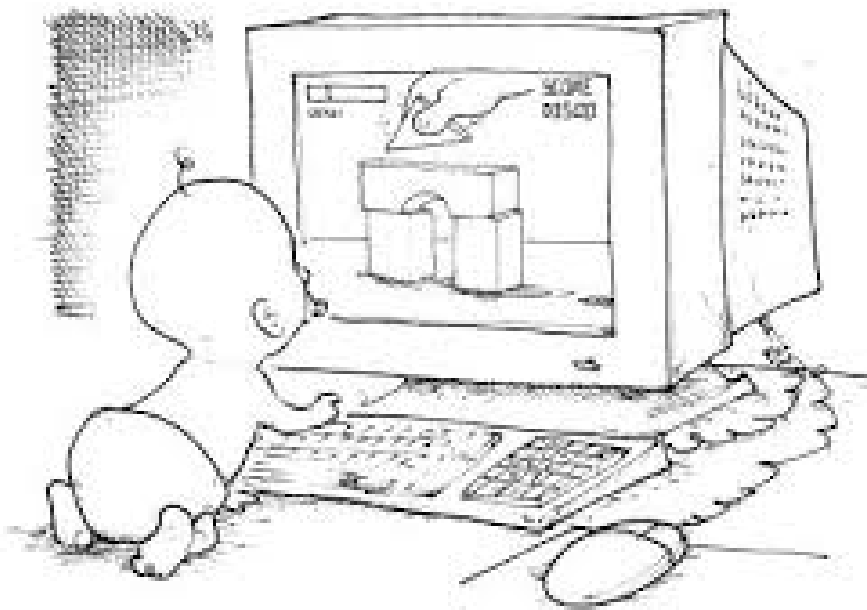


- Osobné počítače: Microsoft, Apple, Lenovo ...
- Tablety, smartfóny: Apple, Android, MS
- Herné konzoly: Playstation 4; Xbox One, WiiU
- Virtuálna realita: Gear VR, Box VR 3G
- Internet: Gooooooooooooooooogle
- Sociálne siete: Facebook, Twitter ...
-

Digitálni domorodci

i-generácia

Mozog má už iné prepojenia ako u **digitálnych „imigrantov“**



Máme
rozdielne
vybavenia

Áno, ty si
vybavený wifi
anténou a ja
USB portom



Titanic 1912



"All the News That's Fit to Print."

The New York Times.

THE TITANIC
SINKS FOUR HOURS AFTER HITTING ICEBERG;
866 RESCUED BY CARPATHIA, PROBABLY 1250 PERISH;
ISMAY SAFE, MRS. ASTOR MAYBE, NOTED NAMES MISSING

Col. Bruce and his wife, Lady Bruce, were among the 866 rescued by the Carpathia. Mrs. Astor, Mrs. Astor's daughter, Mrs. Astor's son, and Mrs. Astor's daughter-in-law were among the names noted as missing.



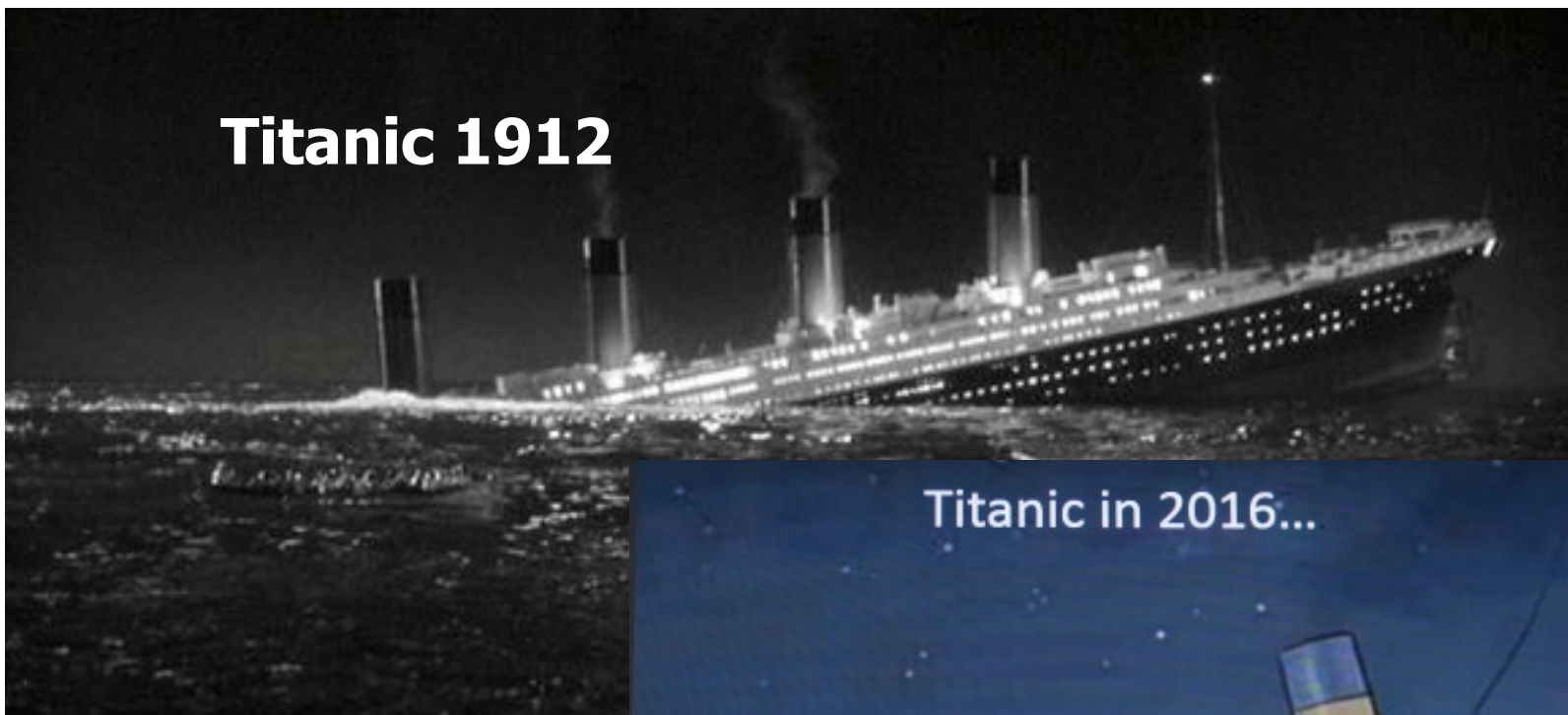
The Last Titanic Debris Towed Out of Belfast Harbor.



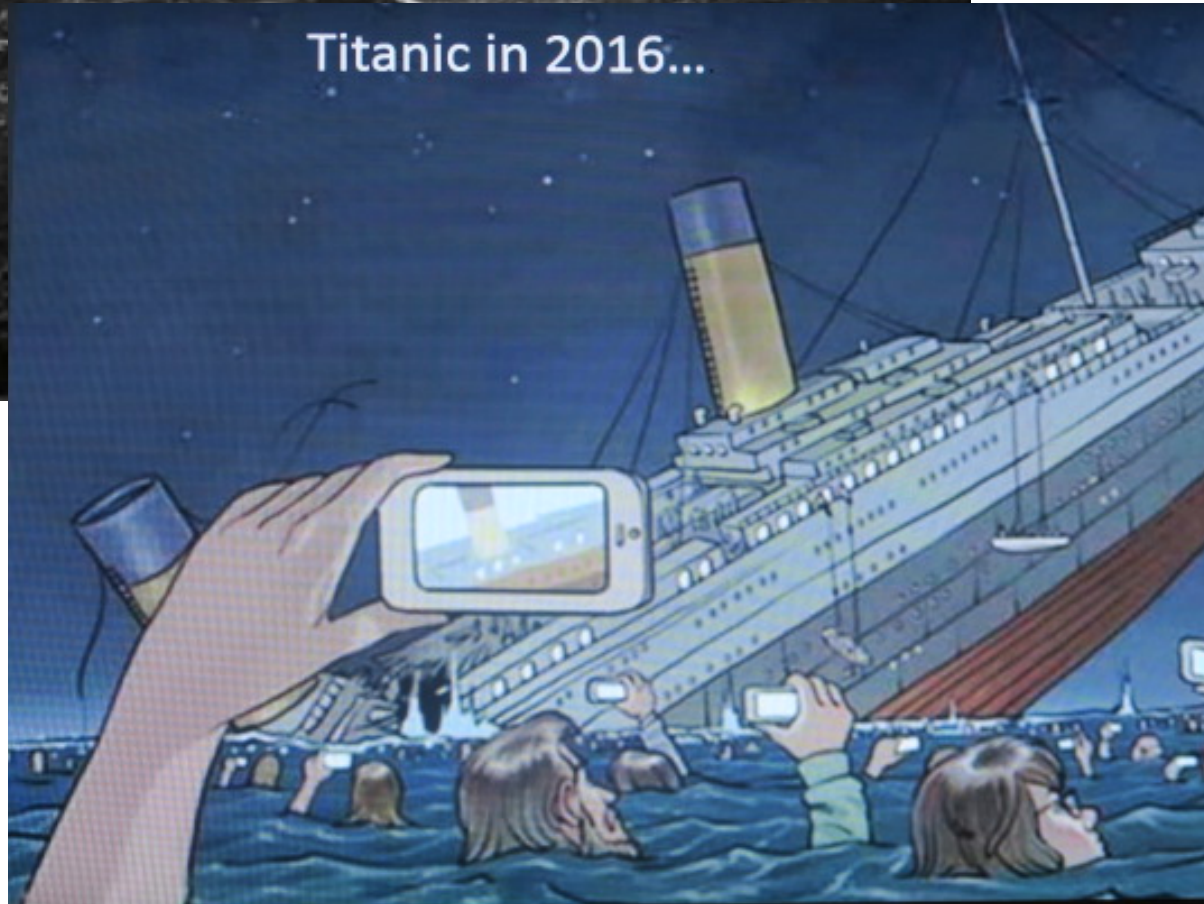
CAPTAIN J. BRUCE ISMAY

... ..

Titanic 1912



Titanic in 2016...



Top 100 tools for learning 2014



Jane Hart

c4lpt.co.uk/jane-hart/

The collage features the following logos and text:

- Twitter
- Google Drive
- YouTube
- LinkedIn
- Google+ Hangouts
- moodle
- Evernote
- facebook
- W
- X
- EDUCATION TRAINER
- WIKIPEDIA
- Prez
- Pinterest
- slideshare
- Blogger
- P
- Microsoft Yammer
- skype
- feedly
- diigo
- Audacity
- CAMTASIA STUDIO
- articulate
- Scoop.it!
- Snagit TechSmith
- Flipboard
- iSpring
- zite
- Google Scholar
- hootsuite
- KHAN ACADEMY
- udutuTeach
- udutuLearn
- Jing TechSmith
- padlet
- coursera education for everyone
- edmodo
- vimeo
- SurveyMonkey
- Explain Everything

#FOAMed

Free Open Access Meducation

Medical education for anyone, anywhere, anytime

WEB based.

Top 100 tools for learning 2014



- IT technológie, sociálne siete
- Ako sa vzdelávať v odbore:
 - pred 5 rokmi učebnice
 - pred 2 rokmi časopisy
 - v súčasnosti dobrá konferencia
 - v budúcnosti **FOAM**.

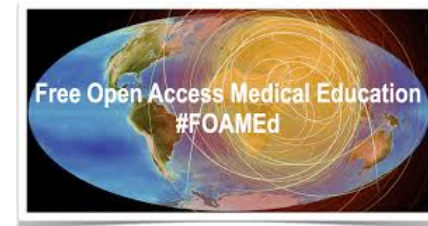


International EM Education Efforts & E-Learning by Joe Lex 2012

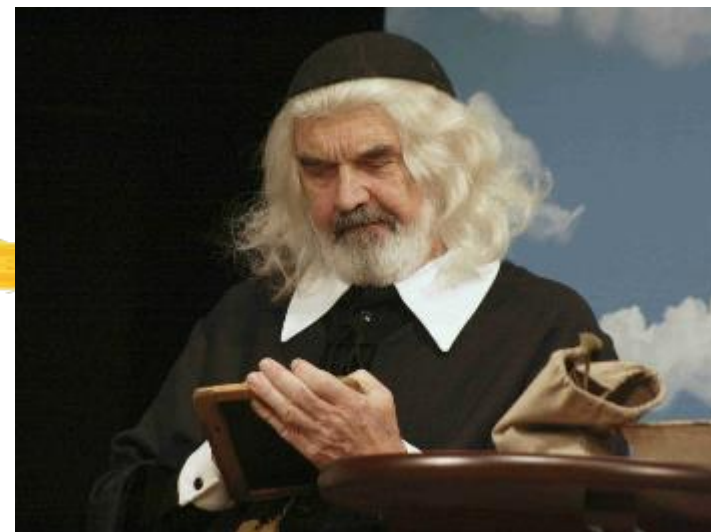
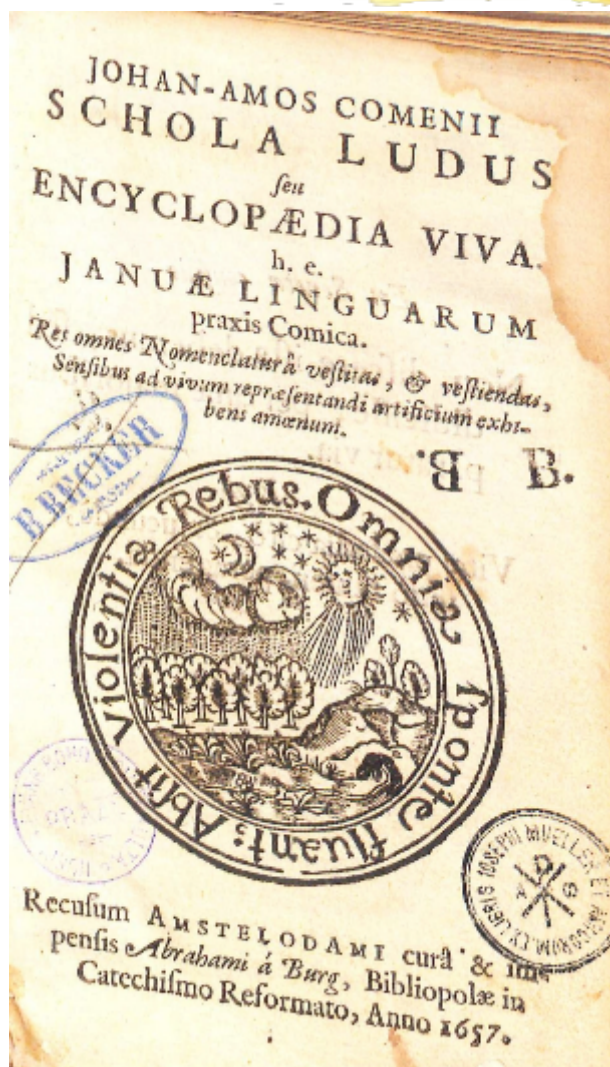
Inovácia vzdelávania

Informačné technológie

- E-learning
 - on-line / off-line
 - synchrónny / asynchrónny
 - textový, multimedialny
- Simulácia
- Virtuálna / augmentovaná realita
- Počítačové **hry** - seriózne



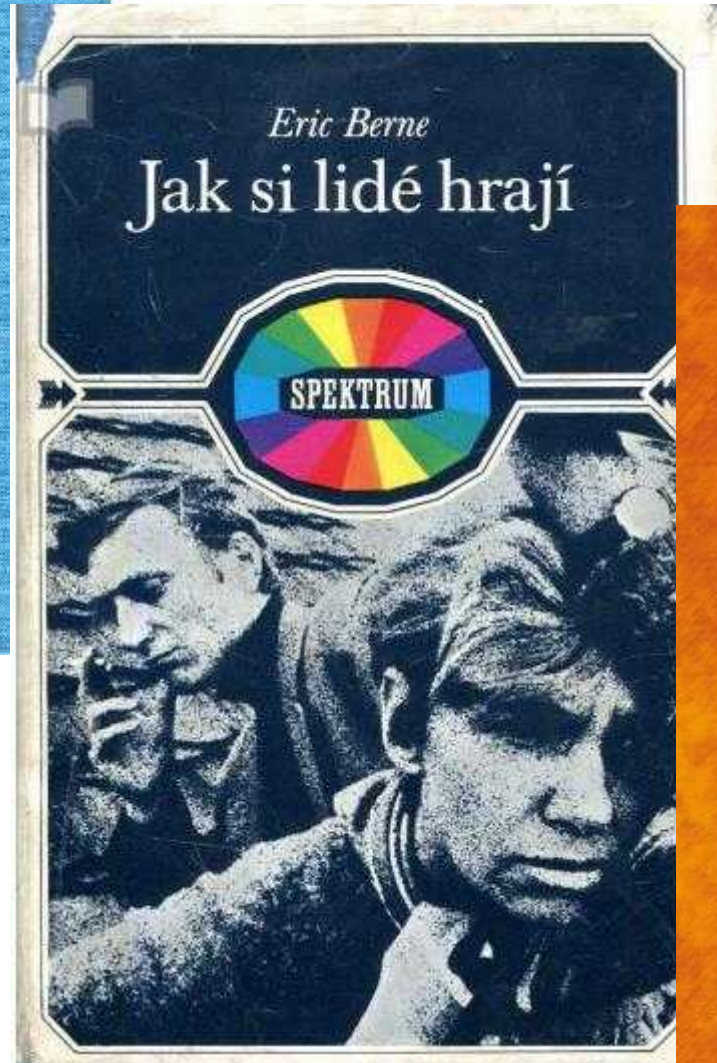
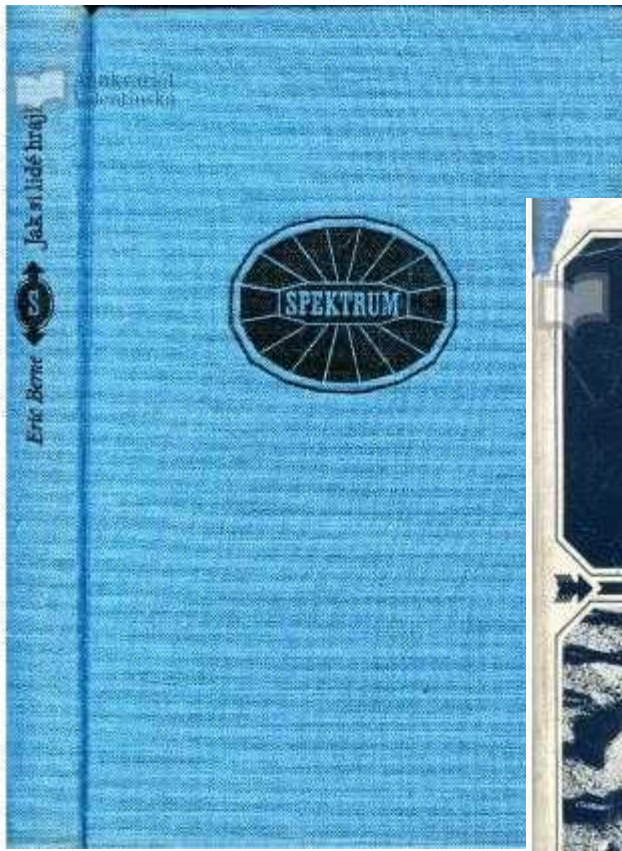
Škola hrou 1630



J.A.K. 1592-1670

Knihovna Evang. teologicke fakulty,
UK Praha
Vydanie 1657

Aj dospelí sa hrajú

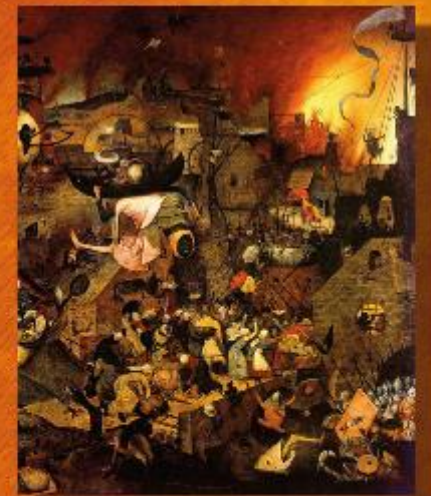


Sociálny život
človeka ...

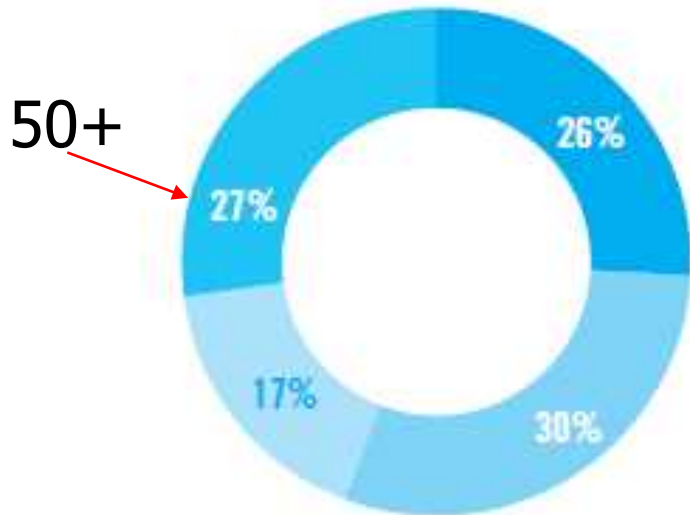
životné hry
sexuálne hry
manželské hry,
mocenské hry
súťaživé hry ...

ERIC BERNE

Jak si lidé hrají

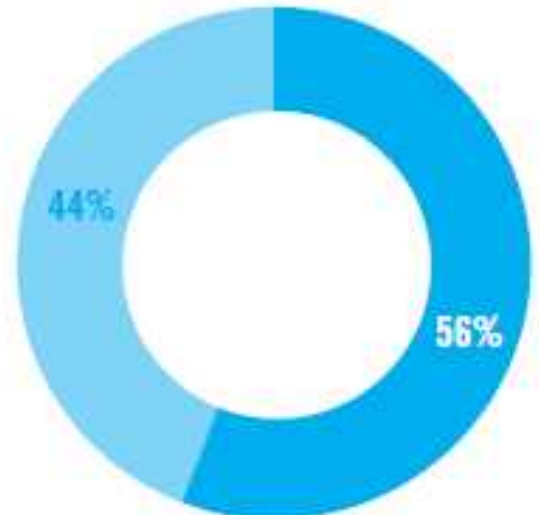


Aj dospelí sa hrajú - videohry



AGE
of Game Players

- 26% under 18 years
- 30% 18-35 years
- 17% 36-49 years
- 27% 50+ years



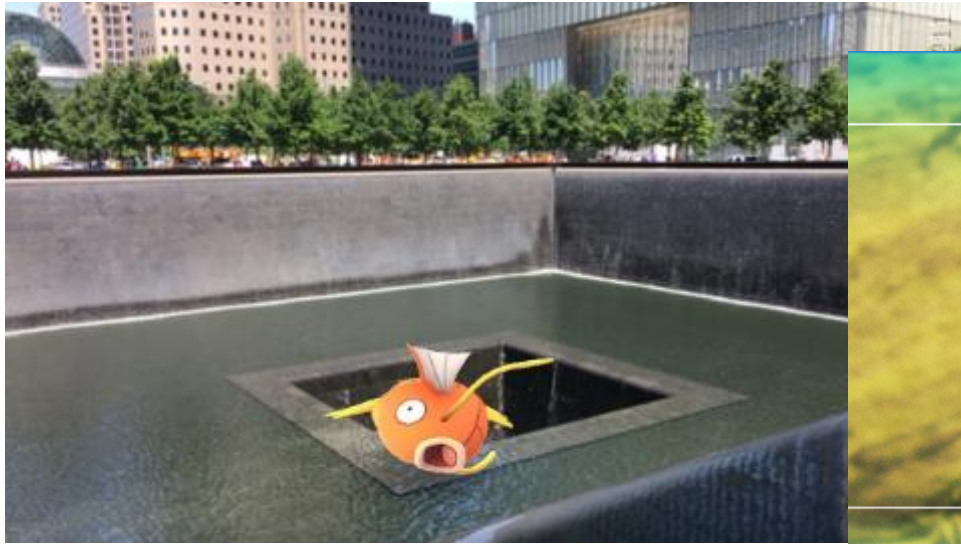
GENDER
of Game Players

- 56% male
- 44% female



Svet 6.7.2016






Pokemon Go is now more popular than porn on the Internet

12 July 2016 7:39 am

Written By Daniel Perez

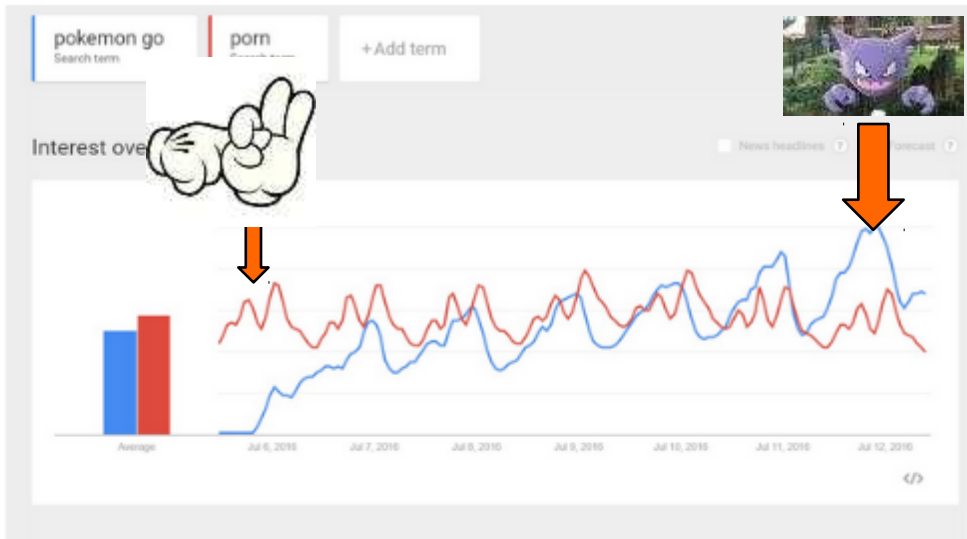
NEWS

What have we done?

CHATTY

It's undeniable Pokemon Go is taking the world by storm, and it's expected to become increasingly popular as Niantic continues to [add new features](#) to the game. But one thing we didn't think the mobile game would be more popular than pornography.

Yes - the Internet is no longer for porn as it turns out Pokemon Go is more popular than pornography, that is according to Google Trends. Video game industry analyst ZhugeEX [made the discovery](#) over the weekend as he researched the Google Trends for both Pokemon Go and "porn" for the past seven days. We were able to replicate his findings, which is way more apparent in the past few days that it was this weekend:



Join the world's largest MMO gaming network.

SIGN UP NOW!

Daniel Perez

Senior Editor

Daniel has worked across a variety of online publications that include 1UP, Ubergizmo and FileFront. He works as an editor at Shacknews.com and reports on the latest news as well as publishing previews, reviews and thought-provoking features. He would also totally kill for a burrito right about now.

Follow him on Twitter to read his ramblings on video games, anime, and technology.

Chatty



Squirtle247

reply @

July 13, 2016 2:47 AM

How about porn and pokemon go the best of both worlds
https://www.reddit.com/r/Pokemon_Go_Porn_NSFW/



Slowtreme

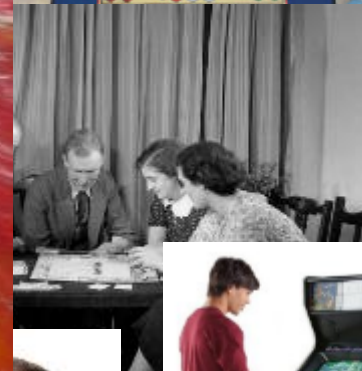
reply @

Čo je to hra?

- Akákoľvek **súťaž** medzi **hráčmi**, používajúca **pravidlá**, za účelom dosiahnutia **cieľa** (výhra, víťazstvo).
- Stolná, analógová, počítačová, virtuálna ...
- Hranie je zábavné a návykové
- Vzdelávanie a hra
 - výučbový proces premeniť na hru → zábavné a návykové štúdium



Prečo sa ľudia hrajú? Lebo hra má:



Prečo sa ľudia hrajú? Lebo hra má:

- Príbeh a pravidlá
- Náročný cieľ ako výzvu (level)
- Odmeny, body, výhody, výhry
- Zaujatie, motiváciu, spätnú väzbu
- Angažovanosť
- Interakciu
- Emócie (zvedavosť, frustrácia, radosť...)
- Priebeh pod kontrolou hráča
- Sociálne prvky



Hry

learning



- Potešenie je odmena tela mozgu že sme sa niečo naučili
- Uspokojenie z dosiahnutia cieľa
- Uvoľňuje sa dopamín, testosterón, endorfíny
- Náš mozog je dokonca schopný rásť



Čo je to digitálna hra? (video, počítačová)

- Elektronická hra, ktorá zahŕňa
 - aktivitu hráča
 - cez rozhranie (kontrolér, joystick, klávesnica, myš, konzola...)
 - na vytvorenie vizuálnej spätnej väzby na 2D/3D videu.
- Herne: automaty (arcade games)
- Doma:
 - počítač, tablet, smartfón
 - herné konzoly (8. gen) - Playstation 4; Xbox One, WiiU
 - Okuliare na virtuálnu realitu, reproduktory, vibrácie

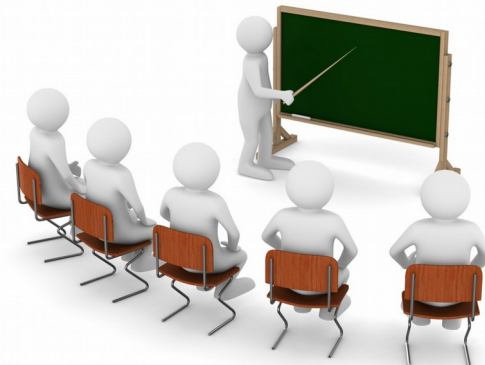


Prototyp videohry – Pong (1972)



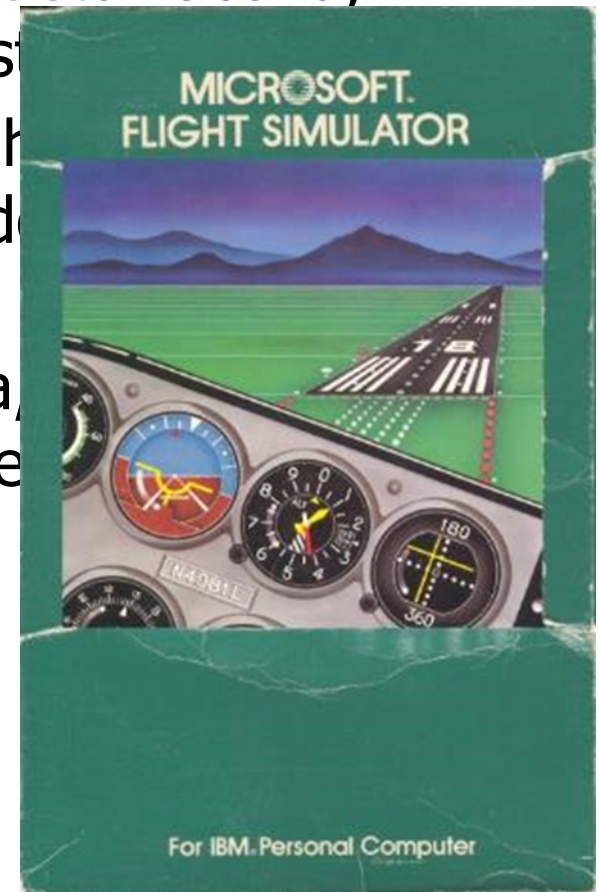
Čo je to seriózna (aplikovaná) hra?

- Hra určená **primárne na iný účel ako čistú zábavu**, napr. na vzdelávanie. Prvok **zábavy** ostáva.
- Ideálne prostredie na *zaangažovanie* hráča do simulovaných komplexných rozhodovacích procesov - podobne ako v diagnostike a liečbe
- Využitie: armáda, **vzdelávanie**, veda, zdravie, urgentný manažment, plánovanie mesta, inžinierstvo, náboženstvo, politika ...
- Inovatívny prístup



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- Inovatívny prístup
- Microsoft Flight simulator 1982



Vzdelávanie hrou

- Zamerané na hráča – študenta
- *Študent* kontroluje hru - učenie
- Experimentovanie; pokus – omyl
- Hráč pri zlyhaní veľa nestráca
- Rôzne identity a *role*
 - nesmelý tínedžer sa stáva lídrom
- Súťaživosť
- Prvky hry: príbeh, cieľ, výzva, zaujatie, angažovanosť, emócie, motivácia, odmeny, výhra,... > lepšia fixácia zážitkov





Je to ako
videohra.
Ty sa snažíš
zlepšovať a my
ti sledujeme
skóre

Seriózne počítačové hry

- Vedomosti, zručnosti, komplexné rozhodovanie, povedomie o situácii
- Interaktívne, zaujatie
- Okamžitá spätná väzba
- Samostatne alebo s facilitátorom
- Jeden / viacerí
- Neobmedzený počet študentov
- Kedykoľvek, všade
- Na obnovovanie kompetencií
- Identifikácia nedostatkov (analýza)
- Individualizovaný tréning (stupne obtiažnosti)



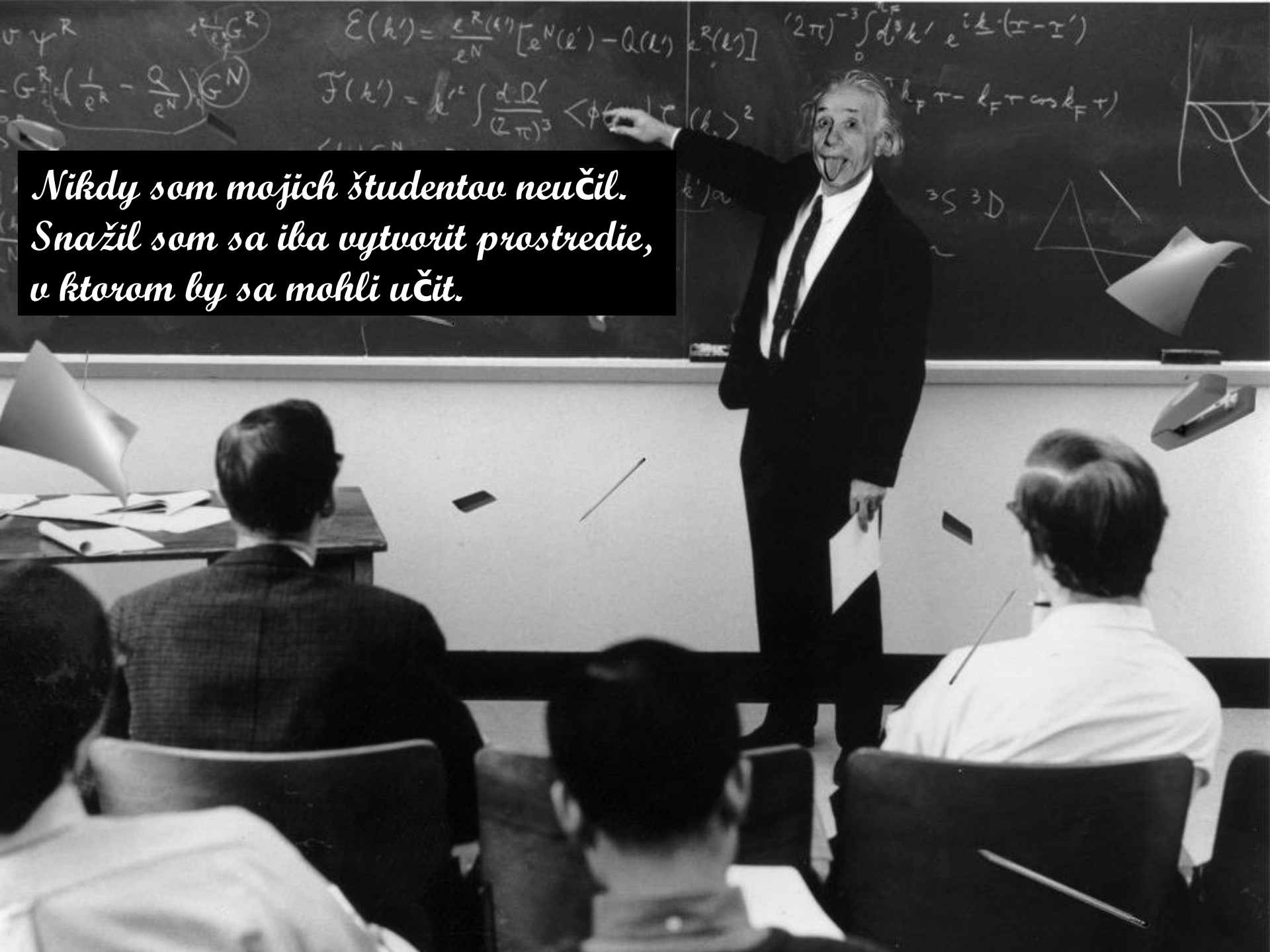
Obrázok nahradí 1 000 slov,
seriózna hra nahradí 1 000 obrázkov

Richard R. Duke

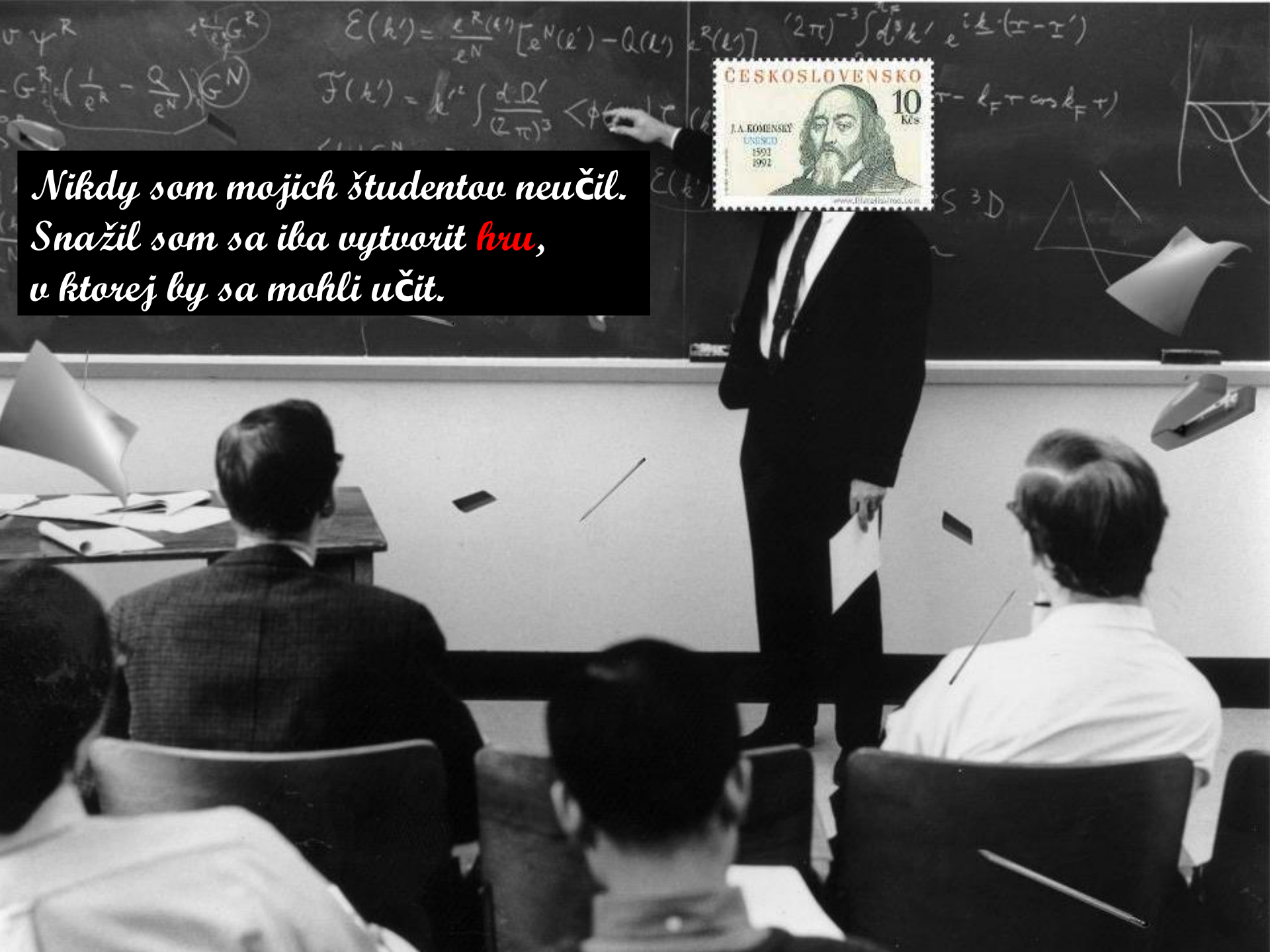


Basic Life Support

*Nikdy som mojich študentou neučil.
Snažil som sa iba vytvoriť prostredie,
v ktorom by sa mohli učiť.*



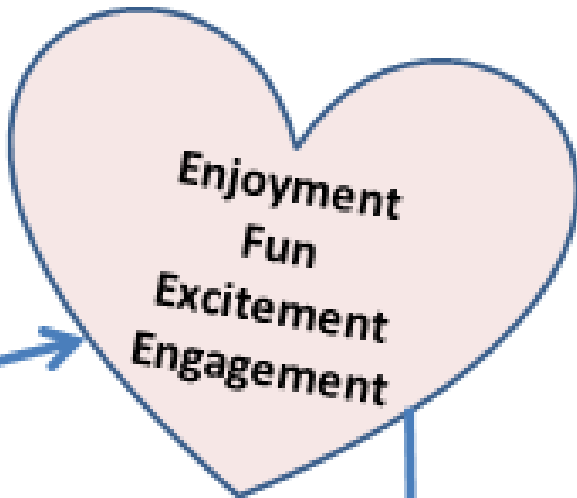
*Nikdy som mojich študentou neučil.
Snažil som sa iba vytvoriť **hru**,
v ktorej by sa mohli učiť.*



I ❤️ GAMES

Game

Game Rules
Challenge
Game Score

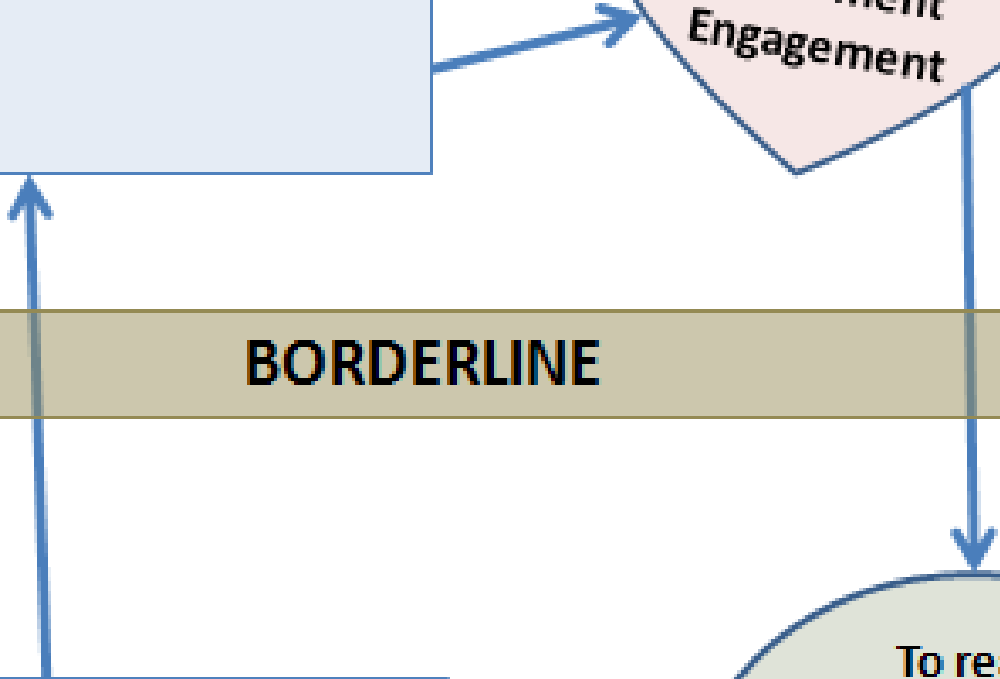


BORDERLINE

Simulation

Repetition
Feedback
Interaction
User Control and Decision Making
System Rules

AIM





GAMES FOR HEALTH

Exploring the Intersection of videogames + health



ABOUT COMMUNITY HUB IN THE NEWS RESOURCES CONFERENCES TWITTER FACEBOOK YOUTUBE SLIDESHARE OCTOBER 5, 2016

Personal Connected Health Alliance, HIMSS and Games For Health Announce Strategic Partnership

JUNE 16, 2015 BY GAMESFORHEALTHBLOG LEAVE A COMMENT

FOR IMMEDIATE RELEASE

CONTACT: Gina Cella
Cella Communications
857 239-9198
gcella@pchalliance.org

Search this website... Search

NEXT EVENTS...

Games for Health 2014

June 18-20
Boston, MA
Call for content here
Registration is now open!!!

PERSO

education arcade

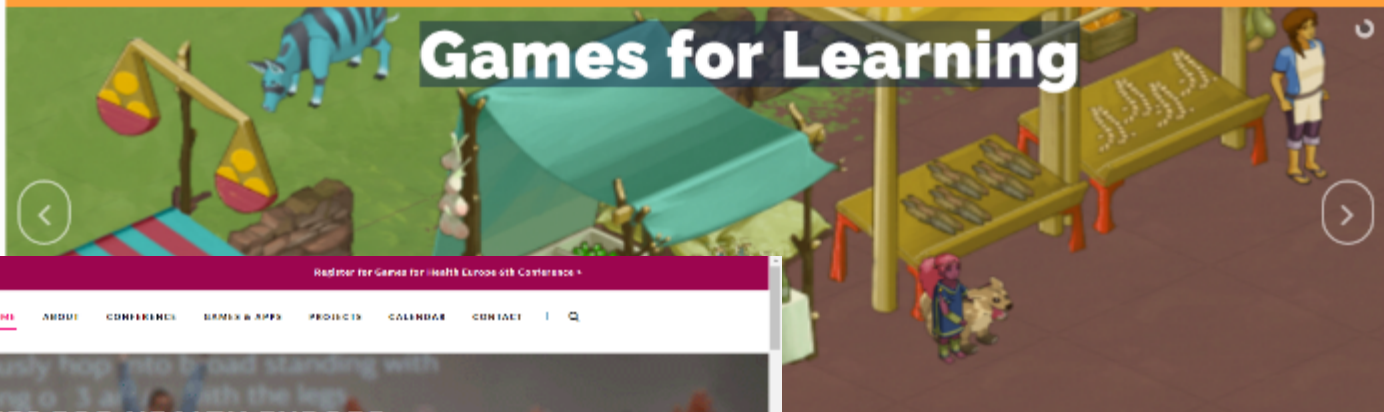
Scheller Teacher Education Program

ABOUT ACADEMICS PROJECTS PUBLICATIONS NEWS+EVENTS

Games f

Arlington, Games for resources are focus!

Games for Learning



Redeem for Games for Health Europe 6th Conference >



HOME ABOUT CONFERENCES GAMES & APPS PROJECTS CALENDAR CONTACT

GAMES FOR HEALTH EUROPE

CONFERENCE 2016 OVERVIEW >

6TH ANNUAL CONFERENCE | 31 OCT & 1 NOV 2016 | UTRECHT NL

25

DAYS

11

HOURS

10

MIN

42

SECS

erful Learning

ossible ways to explore science skills. The games, ator in mind. They use e community.



SIGN-UP FOR EMAIL UPDATES:

SUBSCRIBE

ements:



Events:

There are no upcoming events

ERC Reykjavik 30.9.2016



Algoritmus BLS

Resuscitátori sa hrajú



Safe Surgery Trainer (SST)

- Seriózna hra pre bezpečnosť pacienta
- Perioperačný priebeh, personál op. sály
- Za 30 min dosiahnuť zmenu postojov
- Efektívna komunikácia, perioperačný scenár
- Okamžitá spätná väzba, skórovanie



Spolupráca v tíme

Netechnické zručnosti



A Digital Revolution: Games, Simulations, and Virtual Worlds in Nursing Education

Laura A. Stokowski, RN, MS | March 15, 2013

I'll Be Your Avatar Today





Anaesthetist

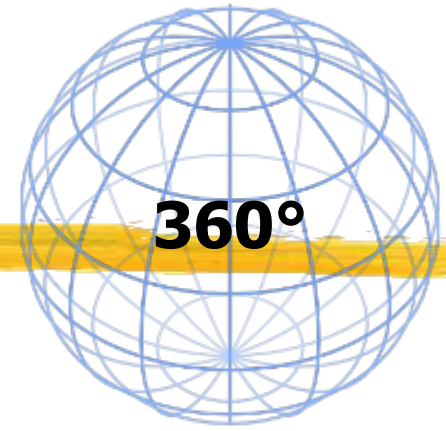
E.D. Nurse

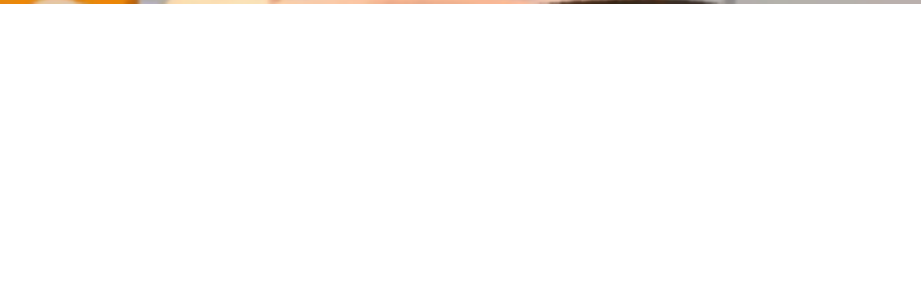
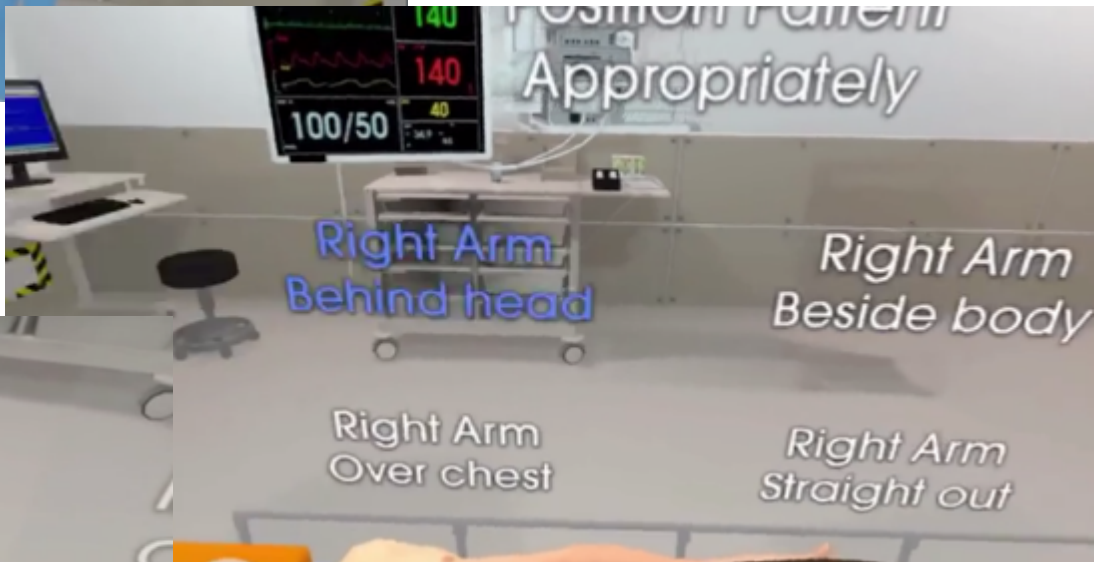


RCSI

Medical Training Simulator







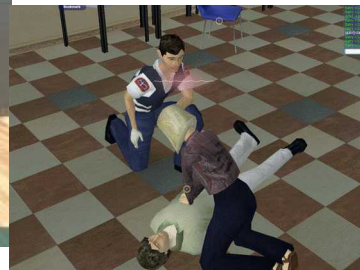
Hromadné nešťastia



Aplikácie na nácvik KPR

No.	Name	Year	Platform	Interaction tool	Interface	Connectivity	Purpose
1	JUST	2003	PC	Mouse	3D	Online	Learning
2	CPR simulator	2006	Handheld	Mouse	2D	Offline	Testing
3	M-AID	2007	Handheld	Mobile Button	2D	-	Testing
4	iCPR	2009	Handheld	Accelerometer	2D	Online	Testing
5	iResus	2010	Handheld	Touch Screen	2D	Online	Testing
6	AED Challenge	2011	PC	Mouse	2D	Online	Learning
7	CPR & Choking	2011	Handheld	Touch Screen	Video	-	Learning
8	Staying alive	2011	PC	Mouse	3D	Online	Testing
9	CPR Game	2012	Handheld	Touch Screen	2D	Online	Testing
10	MicroSim-Prehospital	2012	PC	Mouse	2D, Video	Offline	Learning, Testing
11	Mini-VREM	2012	PC	Kinect	2D	Offline	Testing
12	Save-A-Life Simulator	2012	PC	Mouse	Video	Online	Learning
13	LISSA	2013	Multi	Mouse, Kinect	3D	Online	Learning, Testing

Table 1: Comparison of CPR applications
 (-) represents that this feature is not mentioned in the reference





<http://lissa.udg.edu/en.html>

HOME

WHY LISSA?

NEWS

ABOUT LISSA

CONTACT US



Multiplatform



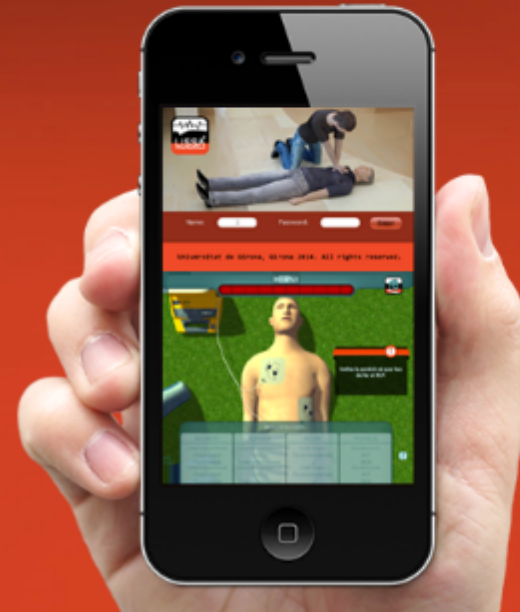
Desktop version



Mobile version



Tablet version



LISSA, a serious game

to learn and refresh CPR and AED use



CPR

Early CPR (rescue breathing and external chest compressions) increases by 10% chance of survival



AED

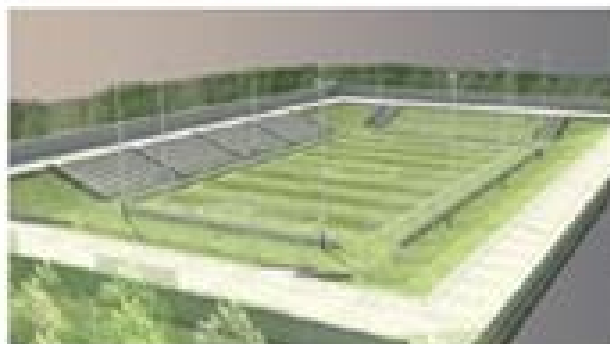
Early defibrillation (an electric shock to restart the heart) increases by 75% chance of survival



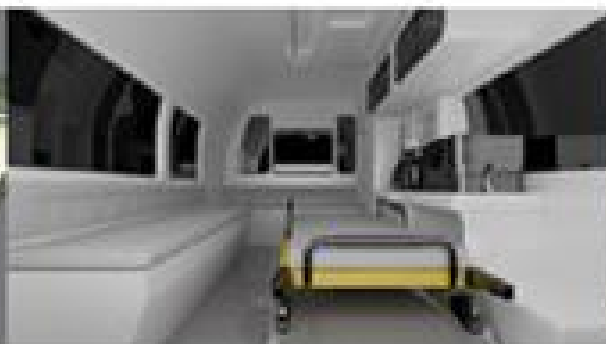
DEMO

LISSA provides the easiest way to learn CPR and AED use. **Ask for a free demo**

LISSA: Seriózna hra na nácvik KPR



(a) Football field



(b) Ambulance



(c) Hospital



(d) Helper and Patient



(e) Equipments

LIFE Support Simulation Activities



(a) Patient on the floor



It is a perfect method to refresh and disseminate CPR knowledge and also a good complement for courses.



(b) Check Response



(c) Emergency Call



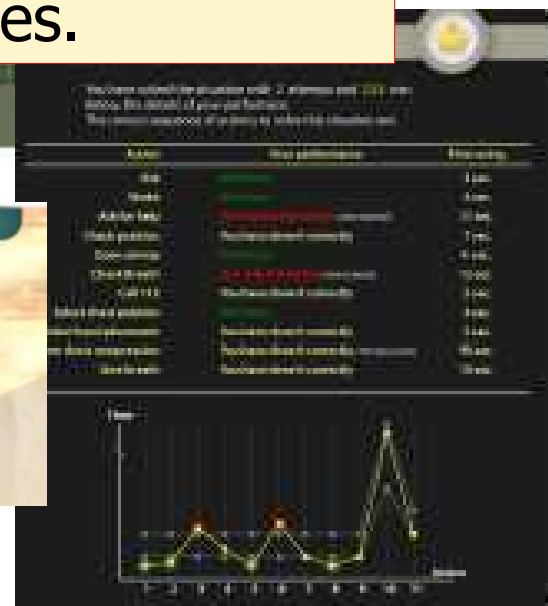
(d) Open Airway



(e) CPR (30:2)



(b) Problem Scenario



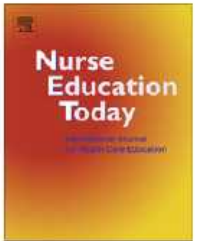
(c) Performance Report



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Enjoyable learning: The role of **humour, games, and fun** activities in nursing and midwifery education

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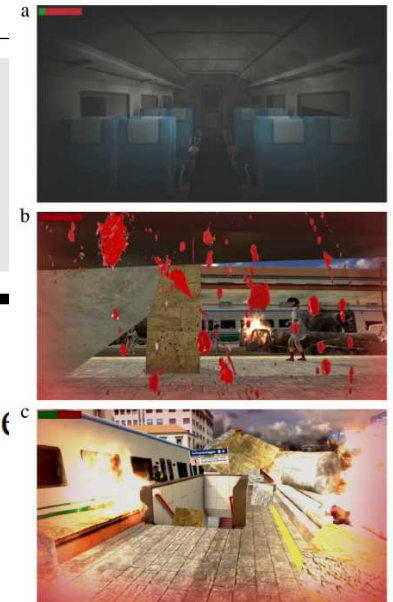
Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Serious games for emergency preparedness: Evaluation of an interactive vs. a non-interactive simulation of a terror attack

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ORIGINAL RESEARCH

Open Access

Effects of pre-training using serious game technology on CPR performance – an exploratory quasi-experimental transfer study

With increasing computer literacy the use of computer gaming technology for learning and training, i.e. serious games, has been reported in several areas including medicine [9-17]. Theoretical benefits with this technology include the availability in remote settings and at free hours, but also inherent positive properties of the

Conclusions: This study supports the beneficial effects of MVW-CPR team training with avatars as a method for pre-training, or repetitive training, on CPR-skills among medical students.

...ology in itself, e.g. the opportunity to match peoples' level of knowledge and skills. Further, this technology enables experiential learning often with ample feed-back, creates a high level of engagement among participants, and carries the ability to switch context in order to support transfer [18-20].

Systematic review of serious games for medical education and surgical skills training

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Table 1 Validity types for games relevant to education of medical professionals^{12,13}

	Description	Criteria for achievement
Content validity	The degree to which game content adequately covers the dimensions of the medical construct it aims to educate (or is associated with)	Uniform and positive evaluation of game content and associated testing parameters by expert medical specialist panel
Face validity	Degree of resemblance between medical constructs featured in game play and in reality, as assessed by novices (trainees) and experts (referents)	Uniform and positive evaluation of the game as a valuable learning environment among novice and expert medical specialists
Construct validity	Inherent difference in outcome of experts and novices on game play outcome parameters	Outcome differences considered to be of significance between players of different medical specialist level of skill
Concurrent validity	Concordance of study results using a concept instrument (e.g. game) and study results on an established instrument or method, believed to measure the same medical theoretical construct	Outcome parameters show correlation considered to be significant between game and an alternative, established training method
Predictive validity	The degree of concordance of a concept instrument (e.g. game) outcome and task performance in reality, based on a validated scoring system	Metrics show correlation considered to be significant between outcome parameters of a game and performance results on the medical construct featured in the game in real life after performers have been trained using the game

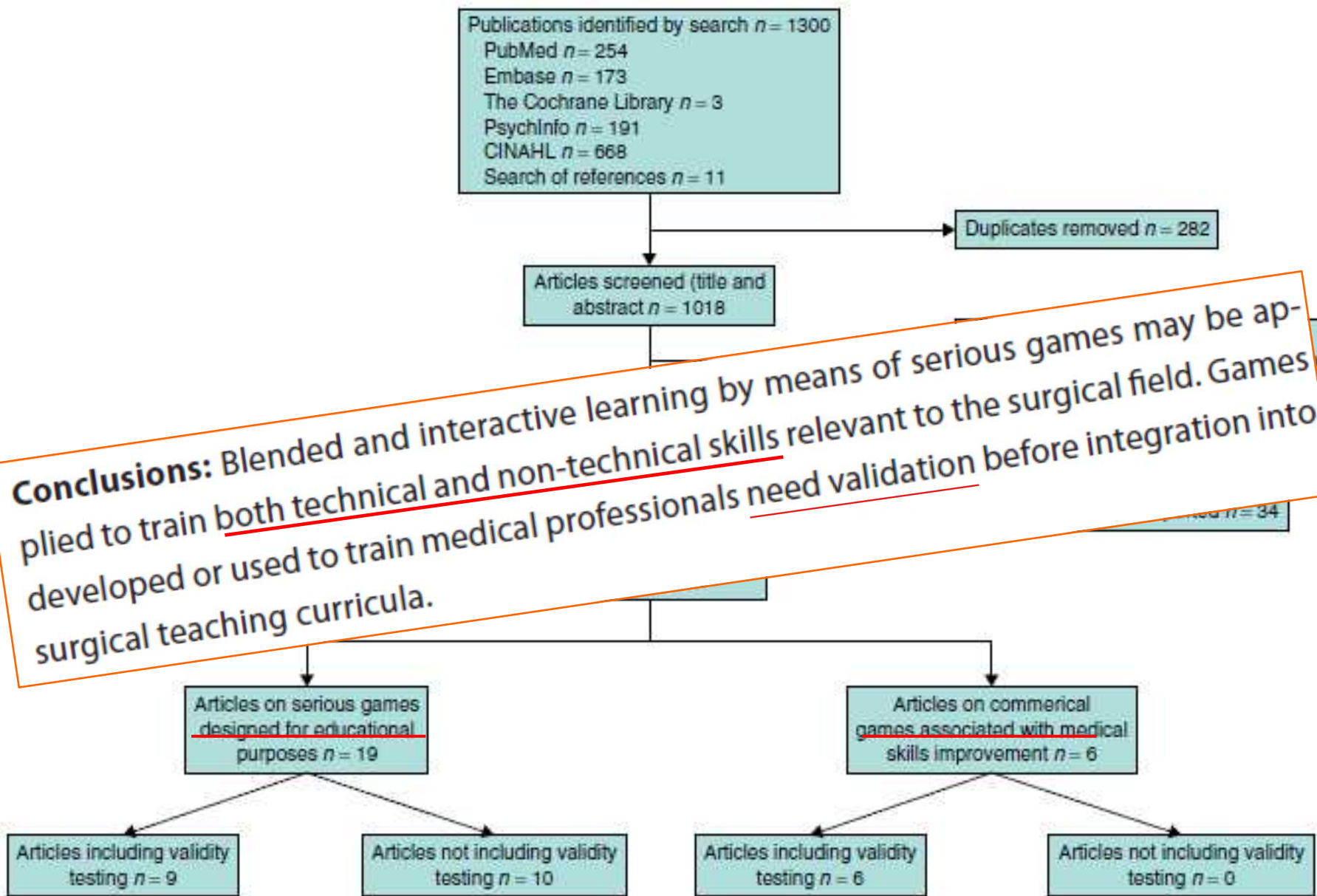


Fig. 1 Search strategy for literature on serious games used in education of medical professionals. CINAHL, Cumulative Index to Nursing and Allied Health Literature

Ďakujem za pozornosť



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