TECHNOLOGIES FOR TEACHING TO TEACH: THE T3-TEACHING TO TEACH TECHNOLOGY PROJECT

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Workshop Internazionale
Formazione e Technology Enhanced Learning: il futuro dell'apprendimento nell'università e nell'azienda
Roma, Università del Foro Italico, 30 Sett.2014
Technology for teaching to teach

1. Presentation of Labpsitec

2. ICT and learning

3. T3 project
Labpsitec

- Labpsitec has a wide experience in the use of ICTs, such as Virtual Reality (VR), Augmented Reality (AR) and Internet use in Clinical Psychology.
- Labpsitec is pioneer in the use of VR and AR for the treatment of different mental disorders like claustrophobia, panic disorder and agoraphobia or adaptive disorders.
- The team is also pioneer in the design and testing of VR mood induction procedures (VR-MIP’s).
- One of the main lines of research is the use of Internet-based treatments for emotional disorders and chronic pain.
Key people

- Dr. Cristina Botella Arbona
- Dr. Rosa María Baños Rivera
- Dr. Azucena García-Palacios
- Dr. Soledad Quero
- Dr. Juani Bretón
- Dr. Ausias Cebolla

More than 30 researchers
RESEARCH EXPERIENCE

• More than 35 research projects funded by national and European institutions.

• Main research lines: ICT (VR, AR, Internet, mobile devices, serious games...):
  – Assessment and treatment of psychological disorders.
  – Health promotion in different context: clinical, academic.
ICT Technologies and Clinical Psychology

Computers
- PDA
- Web sites
- Videogames
- Mobile phone
- Smart environments
- Virtual reality
- Physical games

Persuasion
- Motivation
- Attitude change
- Point of view changes
- Behavior modification

Persuasive Technologies
Trajectory using ICT’s technologies

1995
VR: Phobias and Eating Disorders

2001
Telepsychology “Talk to Me”, “Without Fear”
VR: Agoraphobia

2003
VR: EMMA Adaptive Display
VR: MIP’s

2005
AR: Phobias
AR: Mobile devices

2007
e-Therapy Intelligent System

2009-
e-TI-II Systems
Virtual Reality: phobias

Claustrophobia  Acrophobia  Fear of flying


VR: Panic Agoraphobia


VR: Body image in eating disorders


**VR: Pathological gambling**


An Open and Flexible VR System

“EMMA’s World”


The “Emotional Parks”

The VR-Mood Induction Procedures can promote Psychological and Physical well-being.

Can promote positive mood in clinical populations (emotional disorders, chronic pain).


Augmented Reality: Small animal phobia


Augmented Reality + Serious Games

Experience in treatments applied via the Internet
“Talk to” Me and “Without Fear”


Smiling is Fun

- Smiling is Fun for the prevention and treatment of depression.
  - This program was tested in a controlled study and was found that without support by the therapist was as effective than with support by the therapist (2 minutes brief weekly support call) and, the two intervention groups were more effective than the waiting list control group.

Furthermore ....
We had developed:

- **Butler System** for reduce the technological gap that separates the elderly people from the computerized world where we live nowadays.
  - Tries to encourage their curiosity, satisfaction and decrease their feeling of isolation. The system has as its main objective to work in a primary intervention level and to improve the quality of life of the elderly population.

- **ETIOBE System** a computer program for the treatment of obesity in children and adolescents.
Internet-based programs: Chronic pain

We had developed:

– We are testing it in chronic back pain in a randomized controlled trial.

We had developed:

- An ecological momentary assessment (EMA) system, for the assessment of key variables in chronic pain using smartphones.

- We are developing an EMA platform to support other internet-based programs.

Telepsychology: emotional disorders

- Transdiagnostic perspective for different disorders:
  https://www.psicologiaytecnologia.com/cambiook.aspx

“Transversal” modules:

- T1. Emotional disorders and emotional regulation
- T2. Motivation for the change
- T3. Understanding the emotional experiences
- T4. Accepting the emotional experiences
- T5. Practicing the acceptance
- T6. Learning to be flexible
- T7. Cognitive flexibility
- T8. Emotional avoidance
- T9. Behaviors driven by emotions
- T10. Facing internal experiences
- T11. To dare to do something
- T12. Learning to start up
- T13. Learning to enjoy
- T14. Learning to live
- T15. Living and learning
- T16. And now what...
Information and Communication technologies in learning
¿What do we have?

- Students over-stimulated by new media
- Very prepared in digital communication systems
- Technological Tsunami: Annual technological revolutions

But, contents still closely related to written books.
¿What do we have?

- Very high dropout rates
- European target June 2010 - 10% reduction, **15% in Spain!**
¿What do we have?

- The school leaving has huge costs:

<table>
<thead>
<tr>
<th>INDIVIDUAL</th>
<th>SOCIAL</th>
<th>TAXES</th>
</tr>
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<tbody>
<tr>
<td>More unemployment</td>
<td>Greater crime rates</td>
<td>Less taxes incomes</td>
</tr>
<tr>
<td>Lower quality of life</td>
<td>Lower economic growth</td>
<td>Unemployed increased cost</td>
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<tr>
<td>Lower risk control</td>
<td>Lower social cohesion</td>
<td>Increased costs in health care and social services</td>
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<tr>
<td>Lower life satisfaction</td>
<td>Less intergenerational effect</td>
<td>Increased police costs</td>
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Technological Detachment at school

(Students in USA 2007)

Students digitally disconnected at school
Are ICTs the solution?

They are not the panacea

- This is a complex problem solutions:
  - Political
  - Social
  - Economic
  - Philosophical
  - Technology

They can be part of the solution: Rational integration of technologies in education

Technology by itself does not improve learning. It depends on how it is designed and implemented and how we support teachers to use it.
Cooperation vs. Collaboration

EDUCATION NEEDS COLLABORATION MORE THAN COOPERATION

- Education paradigms are shifting to include more online learning, blended and hybrid learning, and collaborative models.

- Students already spend much of their time on the Internet, learning and exchanging new information.
Cooperation vs. Collaboration

- **Cooperation**: partners split the work, solve sub-tasks individually and then assemble the partial results into the final product.

- **Collaboration**: Participants perform work jointly
Cooperation vs. Collaboration

The 1x1 mode (1 x 1 student laptop) so really enhance activities of individual character or activities most cooperative, collaborative never

Scientific evidence exist of improved learning through collaboration not only in education (engineering, radiology, etc. ..)

New most collaborative interfaces

- It is necessary to use ICTs to promote collaboration
- Possible solution:
  - Natural user Interfaces (NUI)
  - Immersive Interfaces

- Virtual Reality
- Augmented Reality
- Multi-touch Interfaces
- Gestural Interfaces
The Horizon 2011 report, developed by "The New Media Consortium" and Educause U.S. considers these ICT technologies:

**Consumer Technologies**
- 3D Video
- Electronic Publishing
- Mobile Apps
- Quantified Self
- Tablet Computing
- Telepresence
- Wearable Technology

**Learning Technologies**
- Badges/Microcredit
- Learning Analytics
- Massive Open Online Courses
- Mobile Learning
- Online Learning
- Open Content
- Open Licensing
- Personal Learning Environments
- Virtual and Remote Laboratories

**Visualization Technologies**
- 3D Printing/Rapid Prototyping
- Augmented Reality
- Information Visualization
- Visual Data Analysis
- Volumetric and Holographic Displays

**Digital Strategies**
- BYOD
- Flipped Classroom
- Games and Gamification
- Location Intelligence
- Makerspaces
- Preservation/Conservation Tech.

**Internet Technologies**
- Cloud Computing
- The Internet of Things
- Real-Time Translation
- Semantic Applications
- Single Sign-On
- Syndication Tools

**Social Media Technologies**
- Collaborative Environments
- Collective Intelligence
- Crowdfunding
- Crowdsourcing
- Digital Identity
- Social Networks
- Tacit Intelligence

**Enabling Technologies**
- Affective Computing
- Cellular Networks
- Electrovibration
- Flexible Displays
- Geolocation
- Location-Based Services
- Machine Learning
- Mobile Broadband
- Natural User Interfaces
- Near Field Communication
- Next-Generation Batteries
- Open Hardware
- Speech-to-Speech Translation
- Statistical Machine Translation
- Virtual Assistants
- Wireless Power

There is a growing interest in using new sources of data for personalizing the learning experience and for performance measurement.

As learners participate in online activities, they leave an increasingly clear trail of analytics data that can be mined for insights.

Learning analytics experiments and demonstration projects are currently examining ways to use that data to modify learning strategies and processes.

So that student progress can be monitored in real time.

As the field of learning analytics matures, the hope is that this information will enable continual improvement of learning outcomes.
Key aspect: Learning Analytics (LA)

As learners participate in online and other activities, they leave an increasingly clear trail of analytics data that can be mined for insights.
Key aspect: Learning Analytics (LA)

- Intelligent analysis of data about students and their context in order to understand and optimize the learning process and the context in which they occur
- Multidisciplinary:
  - Statistics
  - Artificial Intelligence and Data Mining
  - Web analytics
  - Social Network Analysis
  - Viewing information
  - Artificial Vision
- Key to adaptive systems that personalize learning strategy
- Vital source of information for teachers
Digital Footprints

- A great deal of information about users’ activities and states can be inferred from the various digital traces that individuals leave in their day-to-day lives.
- Calendars, e-mail, and the use of social-networking applications such as Facebook are all sources of potentially useful information for modeling health-related behavior.
- Monitoring of such systems can help us determine individuals’ social interactions, patterns of free time and business throughout the day, and potentially even individuals’ energy level variations.

(Emmelkamp et al., 2014; Heckler et al., 2013; Nilsen et al., 2013; Saranummi et al., 2013)
SOCIAL MEDIA FOR LEARNING

Relationships are ultimately the lifeblood of social media.
Shift from Students as Consumers to Students as Creators

- A shift is taking place in the focus of pedagogical practice all over the world as students are learning by making and creating rather than from the simple consumption of content.

- Creativity, as illustrated by the growth of user-generated videos, maker communities, and crowd-funded projects is increasingly the means for active, hands-on learning.

- Courses and degree plans across all disciplines are in the process of changing to reflect the importance of media creation, design, and entrepreneurship.
The integration of online, hybrid, and collaborative learning in face-to-face instruction is already impacting the way courses are structured.

Ohio State University has created a “HyFlex” model of learning that leverages a variety of online technologies.

The use of interactive polling, recording and synchronous communication during class time has enabled students to engage with the material in ways that suit how they learn best.
In the Faculty Thought Leadership Series, developed by the University of Hawaii Professional Assembly, convened to re-envision the future of the higher education teaching profession, with social media as a major component. Recordings of the meetings were broadcast on YouTube and anyone could join the real-time discussions through Twitter
Conclusions

- Worrying data: A change in education sector is necessary
- ICT technologies: a promising partial solution
- Using non-intrusive technologies adapted to the classroom and not vice versa
- The Future: Interactive Interface Environment
- Collaboration vs. cooperation
- Using gestural interfaces, RA, multi-touch, mixed realities
- Developments driven by the users (students and teachers)
Teaching to teach (T3) project
T3 GOAL

• The strategic goal of T3 has been to develop and validate an innovative teaching program to promote the use of advanced learning technology by:

  (i) University teaching staff in SPAIN
  (ii) Secondary school teachers in UNITED KINGDOM
  (ii) Company trainers in ITALY

• With this purpose three trials to train in e-learning technologies have been carried out.
Our contribution to T3 project

• UJI’s main contribution to the project has been coordinating the trials made by all three countries.
• UJI has contributed with its knowledge of the Spanish market to the Needs Analysis.
• Like the other partners, UJI has participated in the rest of WPs of the T3 project.
• Regarding the exploitation and sustainability plan, UJI has worked and will work to make sure the T3 teaching program to train teaching staff is used at the University and it will be offered to the University’s customers in the Valencia area of Spain.
SPANISH methodology of the trials: Trainees

• Trainees.

- We contacted the participants by email, sending information about the workshop for the training in new technologies and e-learning.
- Initially, 22 people were registered for the seminar.
- Finally, the group was composed by 16 (10 women, 6 men) with a mean age of 32 (S.D.= 4.4).

• All the participants were teachers at UJI, but with different characteristics (see next three figures).
Figure 1 - Academic backgrounds
Figure 2 - Types of contracts
Figure 3 - Teaching experience
SPANISH methodology of the trials: Trainers

- Trainers

  The seminar was taught by two members from the research group Labpsitec specialized in the field.
  Both specialists graduated in Psychology, with master degree and at the present moment they are PhD students in their teaching phase.
  They have been trained and had more than 2 years of experience in the use of new technologies in psychology.
SPANISH methodology of the trials: Trainers

• Trainers

Rocío Herrero

Luis Farfallini
SPANISH methodology of the trials: Design

- Frequency of use with New Technologies Questionnaire

WORKSHOP TRAINING
6 8-HOUR SESSIONS

- Technology Satisfaction Questionnaire
- Training Course Evaluation Questionnaire
SPANISH methodology of the trials: Evaluation

Questionnaires were developed as a result of a review of the relevant literature of the topic and expert meeting about new technologies and training:

• **Frequency of use with New Technologies Questionnaire.** It was designed to assess the previous experience of the users with ICTs in their workplace. It was applied before the training course started and it’s composed of 23 items with a scale of response ranging from 1 “Never” to 5 “Very often”. The items correspond to the different technologies that the trainees could have used in their educational contexts.

• **Technology Satisfaction Questionnaire and Training Course Evaluation Questionnaire.** These were designed to assess the users’ satisfaction with ICTs and with the training course they received. Both were applied after the training course had finished. These questionnaires are composed of 13 and 11 items, respectively, with a scale of responses ranging from 1 "Strongly disagree" to 5 "Strongly agree".
SPANISH methodology of the trials: Selected Technologies

- In order to select the technologies for the workshop, a classification of the learning technologies was carried out.
- The resulting categories were based on the new trends of educational psychology and taking into account two variables: type of technology (based on instructions or a more constructivist one) and type of teaching (experimenting, experiencing soft skills or exploring).
We considered that “soft skills” would be a relevant topic as aim of the workshop developed in a University context.
**SPANISH methodology of the trials: Selected Technologies**

- Soft Skills are behavioral competencies. Also known as Interpersonal Skills or people skills, they include:
  - communication skills
  - conflict resolution and negotiation
  - personal effectiveness
  - creative problem solving
  - strategic thinking
  - team building
  - influencing skills
  - selling skills and more...

- Three technologies were selected as more adequate to achieve our goals and to train soft skills: e-Adventure, Eutopia, and Palma systems to train soft skills
The e-Adventure platform is the result of a research project aimed to facilitate the integration of educational games and game-like simulations in educational processes. It is being developed by the e-learning research group at Universidad Complutense de Madrid (e-UCM).

http://e-adventure.e-ucm.es/
Eutopia is a platform designed to support distance learning. It is a useful platform to create and organize Educational Multiplayer On-Line Role Playing Games (EMORPG). This approach allows a small group of people to give a theatrical performance for educational or psychological purposes.

http://www.nac.unina.it/eutopia/download.htm
PalMa is a serious game conceived as a software tool with a specific learning outcome. PalMa is suitable to develop high managerial skills like: leadership, negotiation, effective communication skills, speech and persuasiveness, co-workers’ management, customers’ management, personal incisiveness and commercial skills.

http://www.entropykn.net/edugames/Pagine/Palma.htm
# WORKSHOP STRUCTURE

| Session 1 | - Application of the pre-evaluation protocol: Sociodemographic data, academic backgrounds and technology profile (questionnaire 1).
|           | - Recollection of information about the teachers’ experience in their training, evaluation and use of the new technologies.
|           | - Presentation of the T3 Programme (new technologies and education)
|           | - Introduction about tools |
| Session 2 | -- Theoretical introduction about “Soft Skills”.
|           | -- Introduction to PalMa’s tool.
|           | -- Practical session with the tool. Participants experiments about the use of PalMa with an example. Trainees constructed their own schema for a game.
|           | - Discussion about the experience after the practical session and the conclusions regarding its use with the students, in the future. |
| Session 3 | - Introduce to Eutopia’s tool.
|           | - Practical session with the tool. Participants design in a group of a scenario. Their assign different roles and play the game.
|           | - Discussion about the experience after the practical session and the conclusions regarding its use with the students, in the future. |
| Session 4 | - Introduce to e-Adventure’s tool.
|           | - Practical session with the tool. Each participant constructed a game following a guideline.
|           | - Discussion about the experience after the practical session and the conclusions regarding its use with the students, in the future. |
| Session 5 | - Define the skills each teacher is going to exploit.
|           | - Selection of a tool that each teacher is going to include in his / her practice.
|           | - Practical session to design the scenarios for each teacher. |
| Session 6 | - Practical session to design the scenarios for each teacher.
|           | - Application post-evaluation protocol and collect teachers’ opinion about the tools (questionnaire 2 and 3). |
Some pictures
Some pictures
Some pictures
Main Results: Frequency of use of technologies

The tools that scored between 5 and 4, with a high frequency of use, are:

- Generic software tools (e.g., PowerPoint, graphics, audio and video editing, data handling, word processing and publishing).
- Conventional desktop or laptop computers.
- Communication tools (e.g., Skype, e-mail, chat)
- The internet (Web 1) as a data and information resource.
Main Results: Frequency of use of technologies

The tools that scored between 2 and 4, with a medium frequency of use, are:

- Virtual environments / Virtual learning environments (VLEs)
- Web 2.0 technology (wikis, social networking software etc.) for collaborative learning
- Sharing information tools (e.g., glossary, repository, social tagging)
- Computer modeling
- Teamwork tools
- Digital cameras, audio recorders and video cameras
- Construction of knowledge tools (e.g., Wiki, Social Networking, Blog),
- Digital audio / video editing / production
- Individual authoring tools (e.g., personal blog, portfolio)
- Simulations (e.g., biological/physical, inter-social processes)
- Serious games
- e-Assessment
- Managed learning environments (MLEs, e.g., Fronter)
- Games for educational purposes, average = 2.
Main Results: Frequency of use of technologies

- The tools that scored between 1 and 2, with a low frequency of use, are:

  - Commercial video games
  - e-Portfolios
  - Immersive technology
  - Hand-held technologies
  - The use of robots or other computer-controlled devices
Main Results: Technology Satisfaction

Figure 6 – Tool Opinion by the teachers
Main Results: Training course

Figure 6 – Workshop Opinion by the teachers
Participation certificate

Dra. Juana Bretón López, Dña. Rocio Herrero Camarano y Don Luis Farfallini, certifican que:

D/Dña.

como una acción del Proyecto Teaching to Teach with Technology, ha participado en el curso de la Unidad de Suporte Educativa, de la Universidad Jaume I de Castellón, España.

(Leonardo, Ref. 505169-LLP-1-2009-1-IT-KA3-KA3MP).

El Uso de las Nuevas Tecnologías de la Información y la Comunicación para la Mejora de la Docencia

con una duración de 36 horas presenciales, durante los meses de Febrero a Junio de 2011.

Fdo.: Dña. Rocio Herrero Camarano Docente

Fdo.: Dra. María Juana Bretón López Coordinadora

Fdo.: Don Luis Farfallini Docente
Conclusions

• The objective of the workshop is to show a series of tools designed to highlight the possibilities that the new technologies can offer as powerful tools to empower learning within a university environment.

• The participants evaluated the technologies used as appropriate and easy to use.

• All systems had a score above 50% of the scale. However, an application stands out above the others two: e-Adventure. This is probably because this tool is more versatile and easier to adapt to a specific teaching context.
Conclusions

• The initiative for this project is to add current and widely distributed tools to elementary teaching processes in different areas and backgrounds.

• A future line of research in this project is the possibility to evaluate the effectiveness of these tools to improve education or increase students’ motivation.

• Finally, the data are interesting because we directly asked the teachers about their satisfaction regarding the tools and specifically about their teaching experience.

• This methodology involves novel data with regard to previous initiatives.
CONTACTs and INFO

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Thanks for your attention!!