



Simulation and Gaming in Higher Education

Amparo García-Carbonell

<http://www.upv.es/diaal>

<http://www.upv.es/gie>

**DIAAL
IEMA**

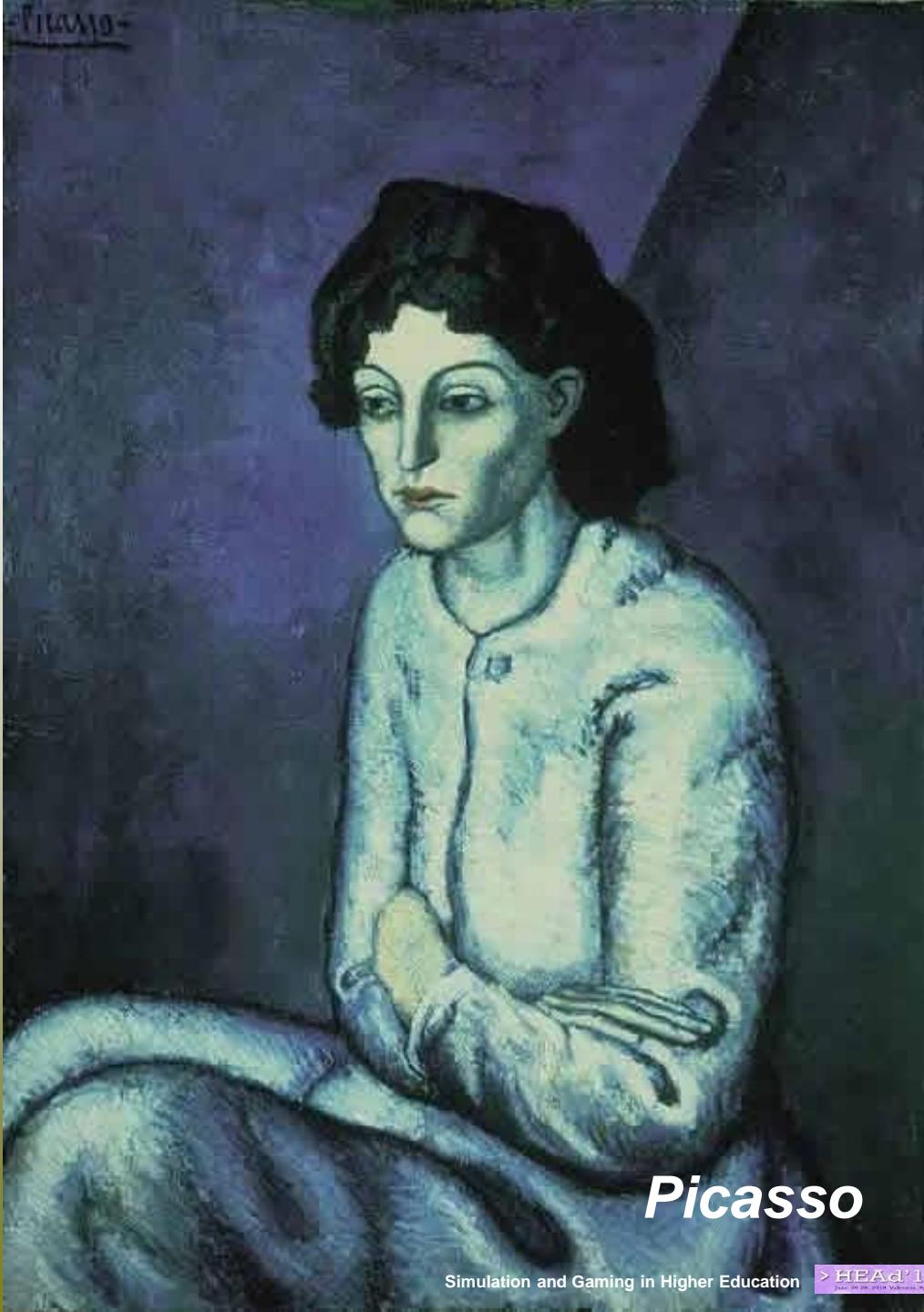




thinking Tools

Linda Booth and Dennis Meadows



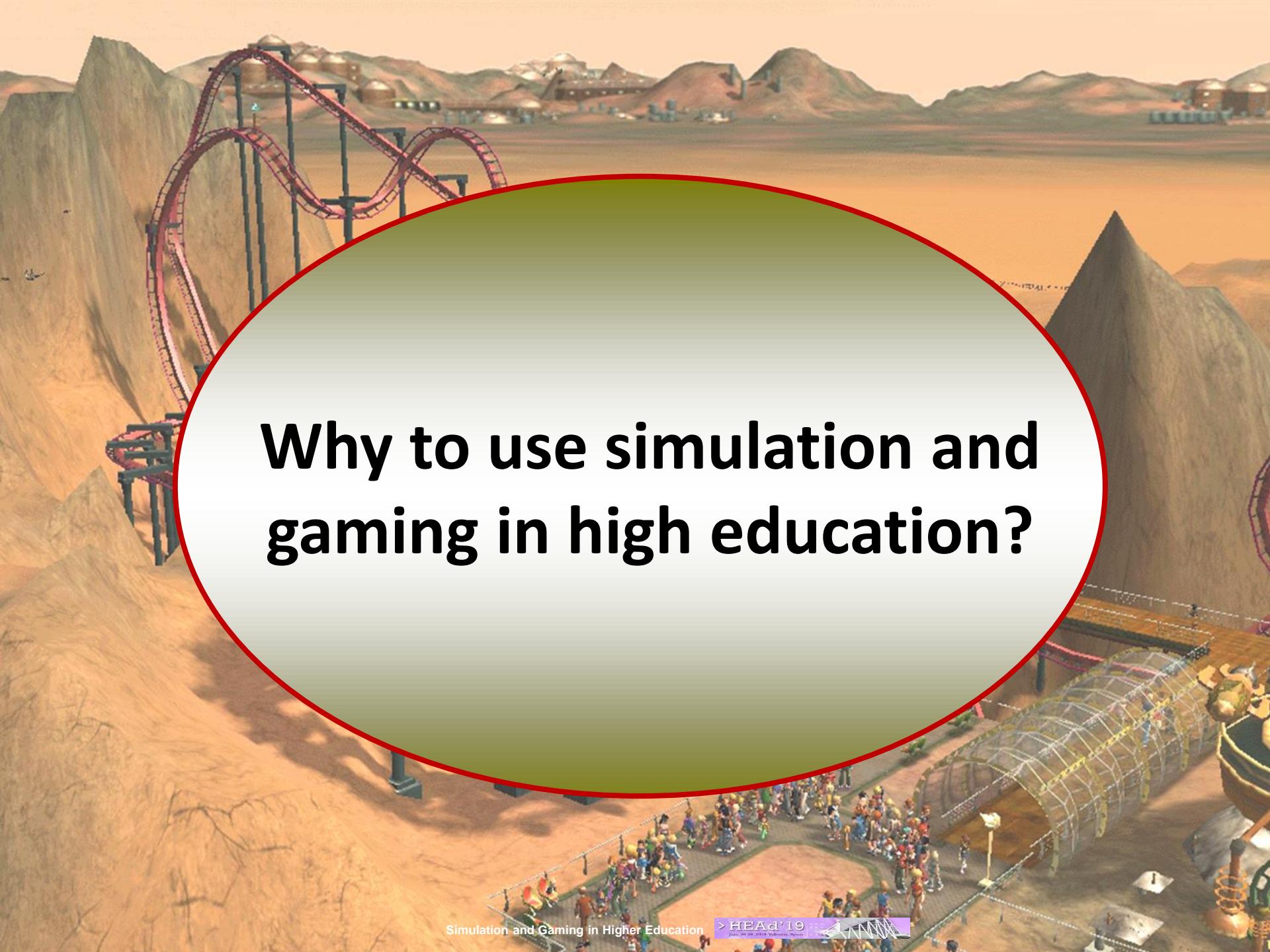


Picasso

ARMS CROSSED

**We often forget
that the process
of changing our
mindset can be
uncomfortable ...**

**When we get used
to a way of acting
we mechanize
procedures.**



Why to use simulation and gaming in high education?

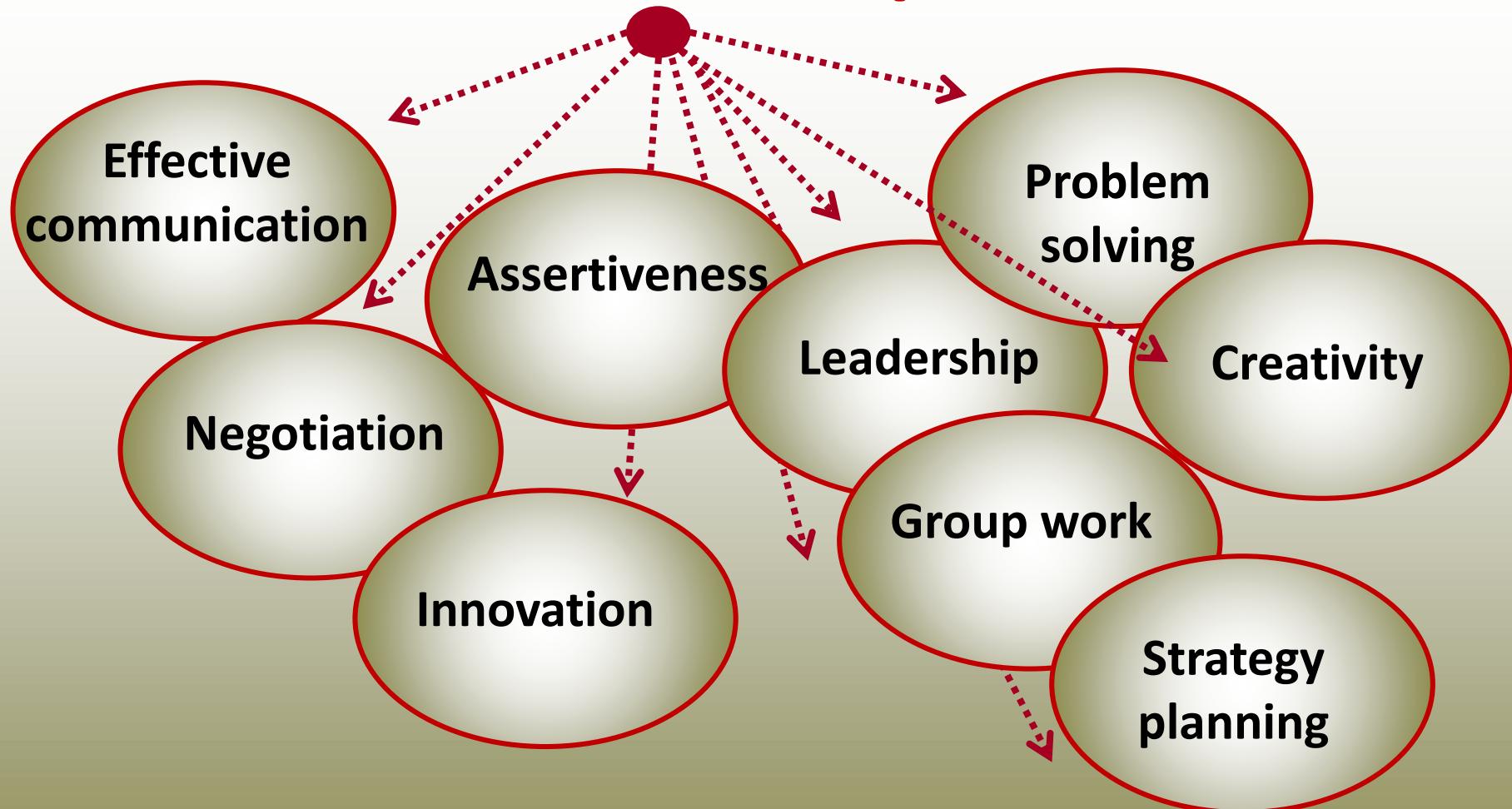
**A comprehensive educational program
has to prepare students for their
profession **not only with specific
competences/contents, but also
professional competences.****



specific competences

professional competences

Professional competences



Generic competences are essential at work place

ABET, the Accreditation Board for Engineering and Technology is a non-governmental organization that accredits post-secondary education programs in "applied science, computing, engineering, and engineering technology".

<http://www.abet.org>



CINTERFOR/ILO The Inter-American Centre for Knowledge Development in Vocational Training (ILO/Cinterfor)

<http://www.oitcinterfor.org>



CINTERFOR

OECD The Organisation for Economic Co-operation and Development

<http://www.oecd.org>

ORGANISATION
FOR ECONOMIC
CO-OPERATION
AND DEVELOPMENT



AHELO the Assessment of Learning Outcomes in Higher Education Learning

ABET Global Impact



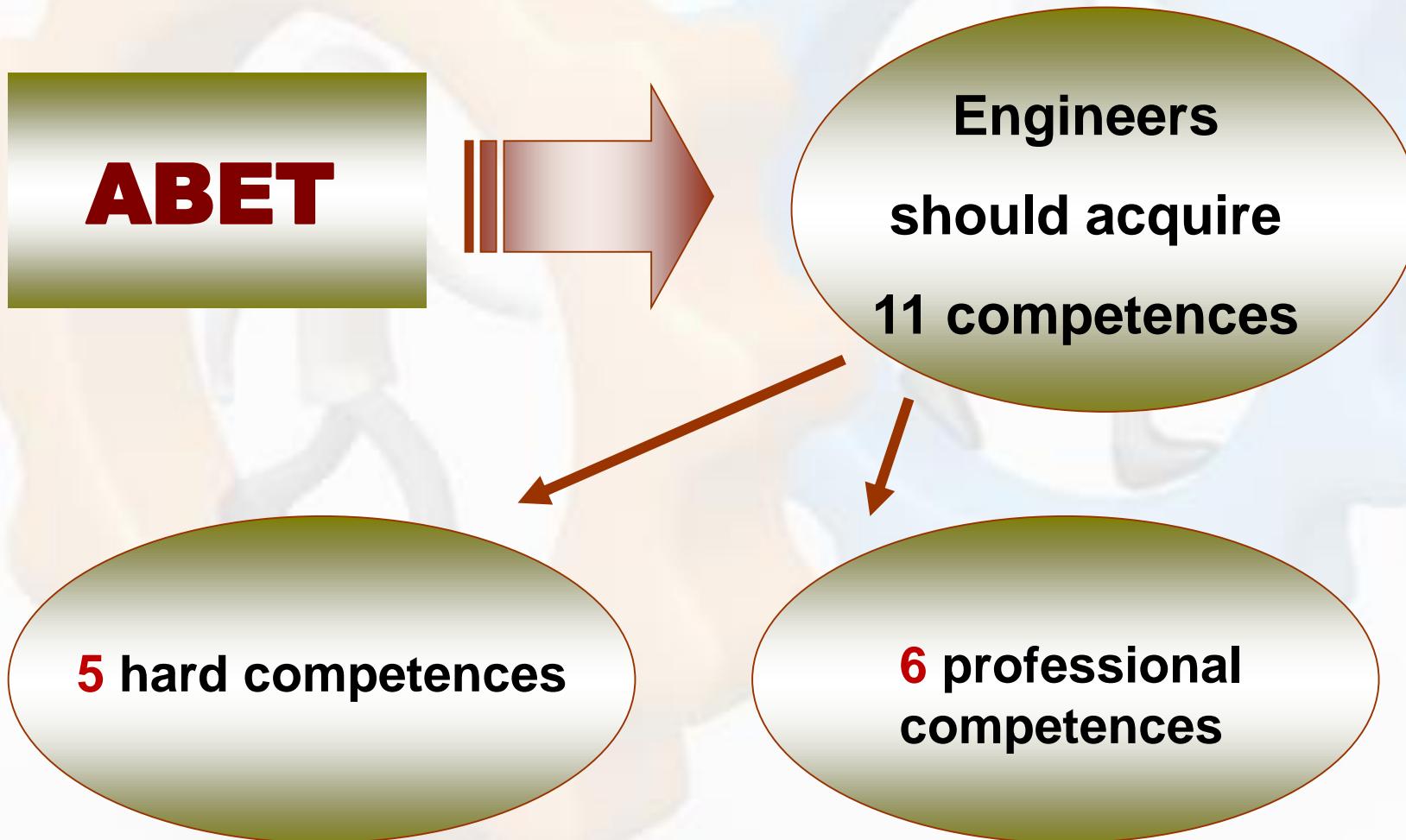
4005
Programs Accredited
Worldwide

793
Institutions with Accredited
Programs

32
Countries with ABET
Accreditation

ABET

Accreditation Board for Engineering and Technology



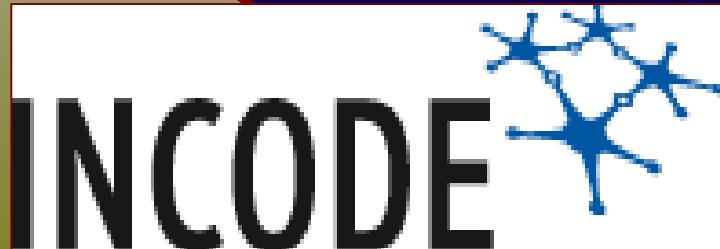
Professional/soft competences

Related to the process

- 1. Ability to function in multidisciplinary teams.**
- 2. Ability to understand professional and ethical responsibility.**
- 3. Ability to communicate effectively.**

Related to consciousness / knowledge

- 4. A broad education to understand the impact of engineering solutions in a global, economic context, environmental and social.**
- 5. Recognize needs and have the ability to permanent learning.**
- 6. Know current issues.**



Innovation Competences Barometer INCODE

http://incode-eu.eu/fileadmin/_migrated/content/uploads/ICB-Barometer.pdf

	INDIVIDUAL
1	I present ideas that are suitable for the task
2	I present creative ideas
3	I present new ways to implement ideas
4	I evaluate the advantages and disadvantages of actions
5	I identify relationships among different components
6	I face the task from different points of view
7	I use available resources ingeniously
8	I foresee how events will develop
9	I show enthusiasm
10	I persistently pursue the goals
11	I take daring yet reasonable risks
12	I orient the task towards the target
	INTERPERSONAL
13	I transmit ideas effectively
14	I listen to teammates
15	I establish constructive group relationships through dialogue
16	I collaborate actively
17	I contribute to group functioning
18	I take initiatives
19	I drive others to act
20	I face conflicts with flexibility to reach agreements
	NETWORKING
21	I apply ethical values
22	I take into account the implications of the task for society
23	I am able to work in multidisciplinary environments
24	I am able to work in multicultural environments
25	I use networking contacts to reach goals

INDIVIDUAL

INTERPERSONAL

NETWORKING

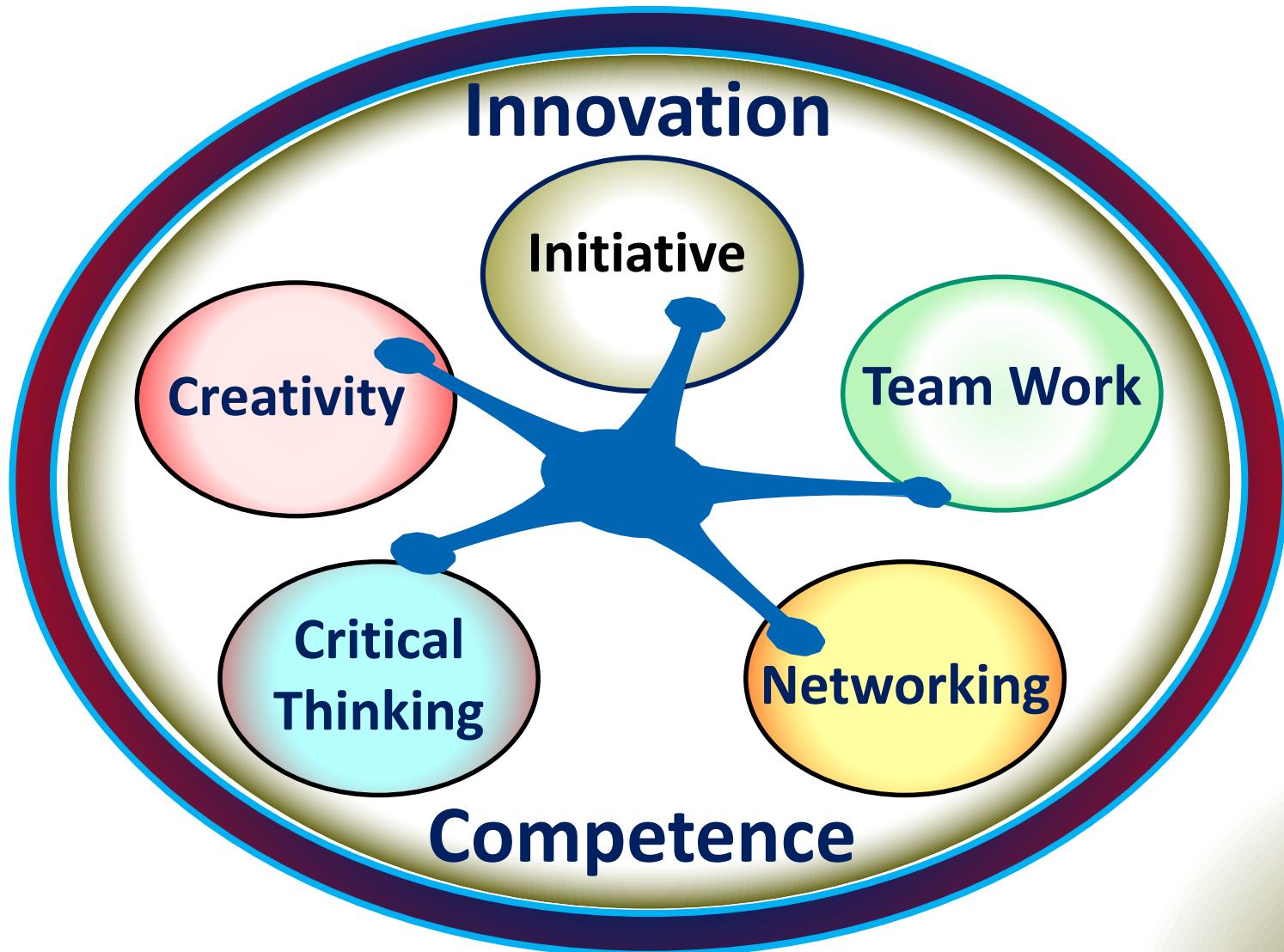


Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and Committee of the Regions

A renewed EU agenda for higher education (COM 247-2017)



FINCODA Innovation Barometer Assessment Tool



© FINCODA UPV-SEE-CSP team (2017). *Innovation Competence Model*

Why to use...

Games



Learning community



Simulations



Experiential learning



A photograph of a wooden board game. The board is light green with blue paths and icons. Yellow circular tokens are scattered on the board. Several cards are visible, including one with a yellow border labeled 'SOURCES' and another with a green border labeled 'INDUSTRY'. A red-bordered oval shape covers the central text area.

Types of games and simulations

thinking Tools

Linda Booth and Dennis Meadows





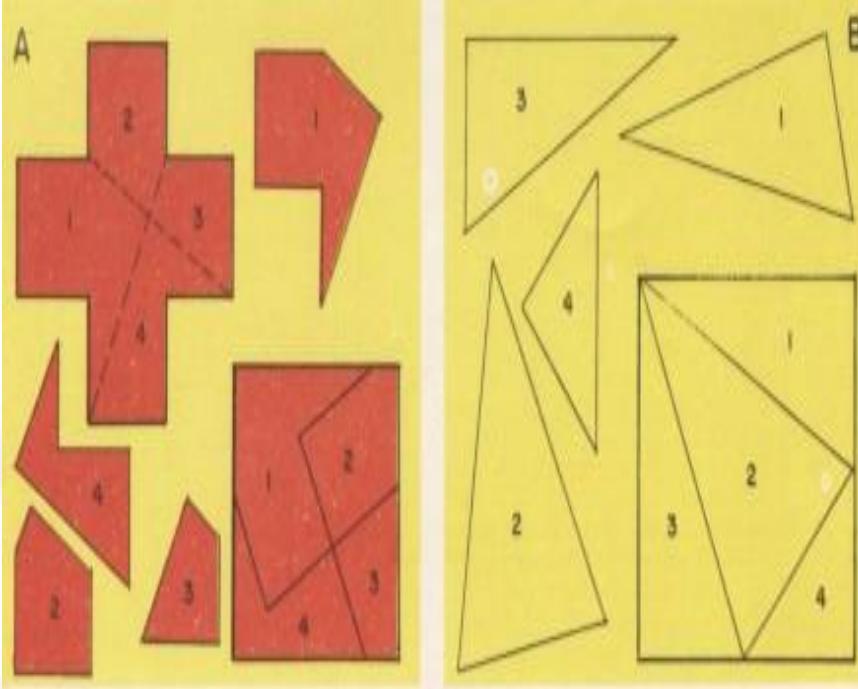
Jules Olitski 1960

CIRCLES IN the AIR

**Our view depends
on where we are
positioned.**

**If we change our
mental/physical
point of view, we
may discover new
insights and
approaches.**





FIVE EASY PIECES

Group work

**solutions can be
taken collectively**

**the individual
approach may be
poorer and cost
more time.**

**the tendency to
individualism can
create barriers and
inhibit
troubleshooting.**





Ulla Sandersen 2003

SQUARING THE CIRCLE

**Communication
and strategy in
the group is
essential**



SQUARING THE CIRCLE





SQUARING
THE CIRCLE

Ulla Sandersen 2003

Designation and Meaning in the Professional Computer Response

5

0322

Hannover, DE, Germany

10

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00

00



WEB OF LIFE

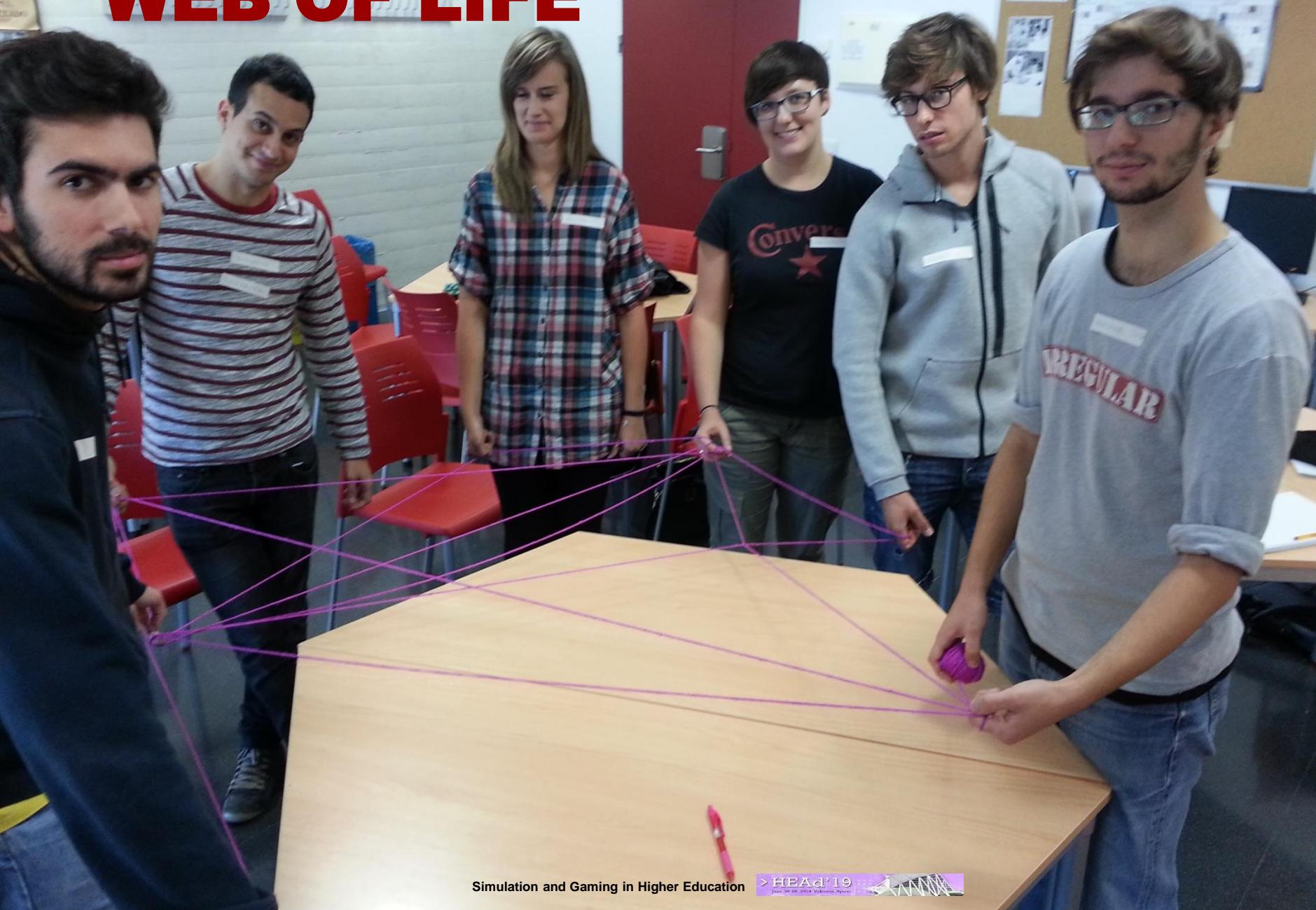
**variables of any topic
and their connection**

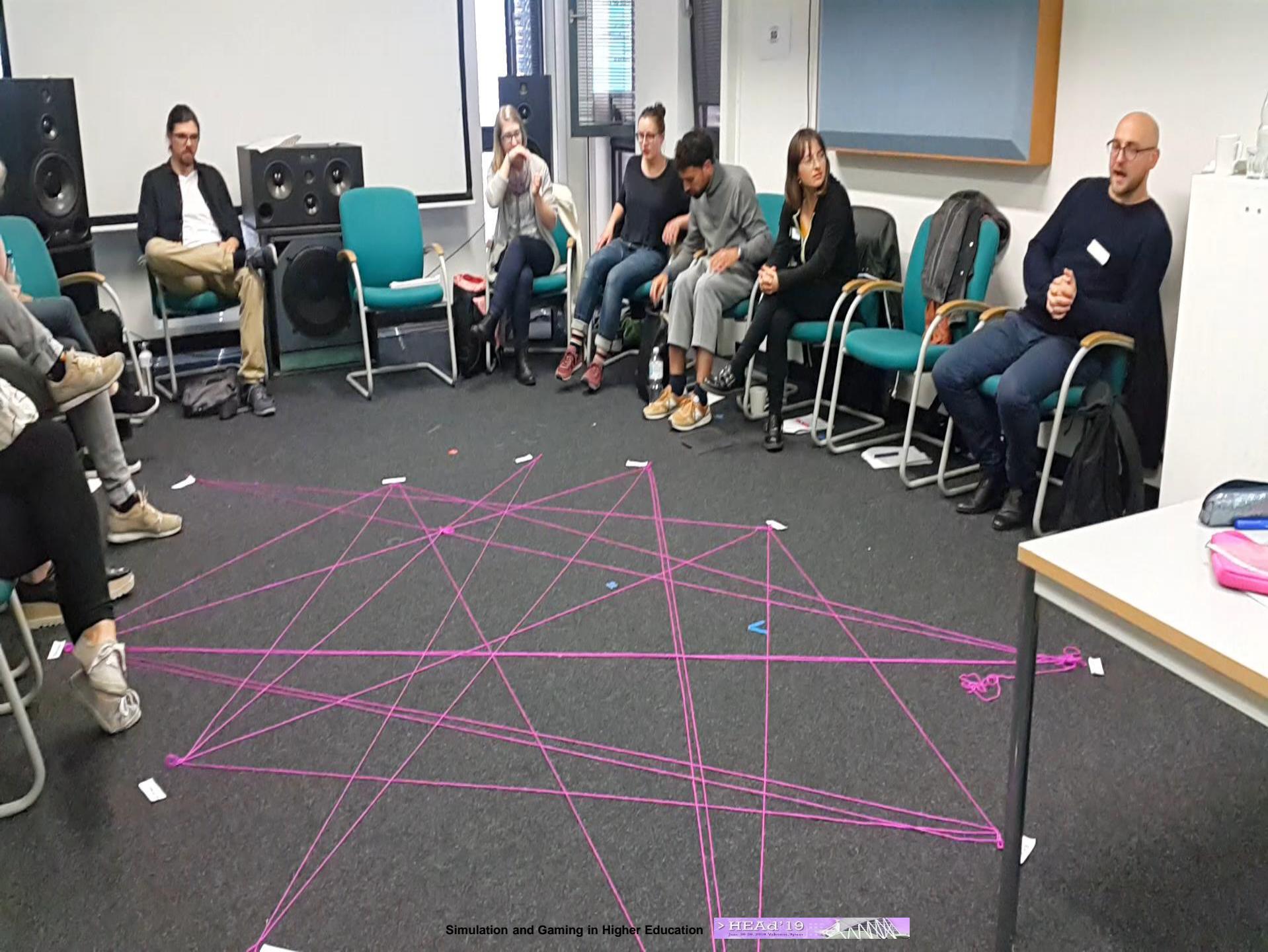


WEB OF LIFE



WEB OF LIFE





Simulations

**Situational
simulations**

**Computer
simulations**



classroom
**Without
multimedia
resources**

Computer based
Computer assisted

Project HELMET: Job interview

<https://www.youtube.com/watch?v=LhqQgYNCzQo>

<https://www.youtube.com/watch?v=scF2YHcMqxw>



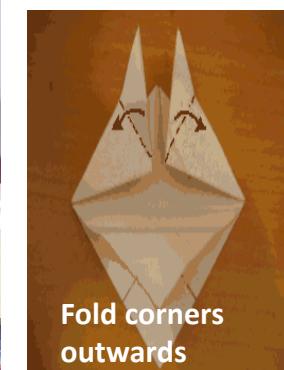
Fold in half



Fold down both corners



Fold in half



Fold corners outwards



Fold top layer up



Fold up



Insert flap into the helmet



Finished



Origami Helmet Project

<https://www.youtube.com/watch?v=scF2YHcMqxw>



New enterprise

New working group

New product

New client

New corporate identity

Planning

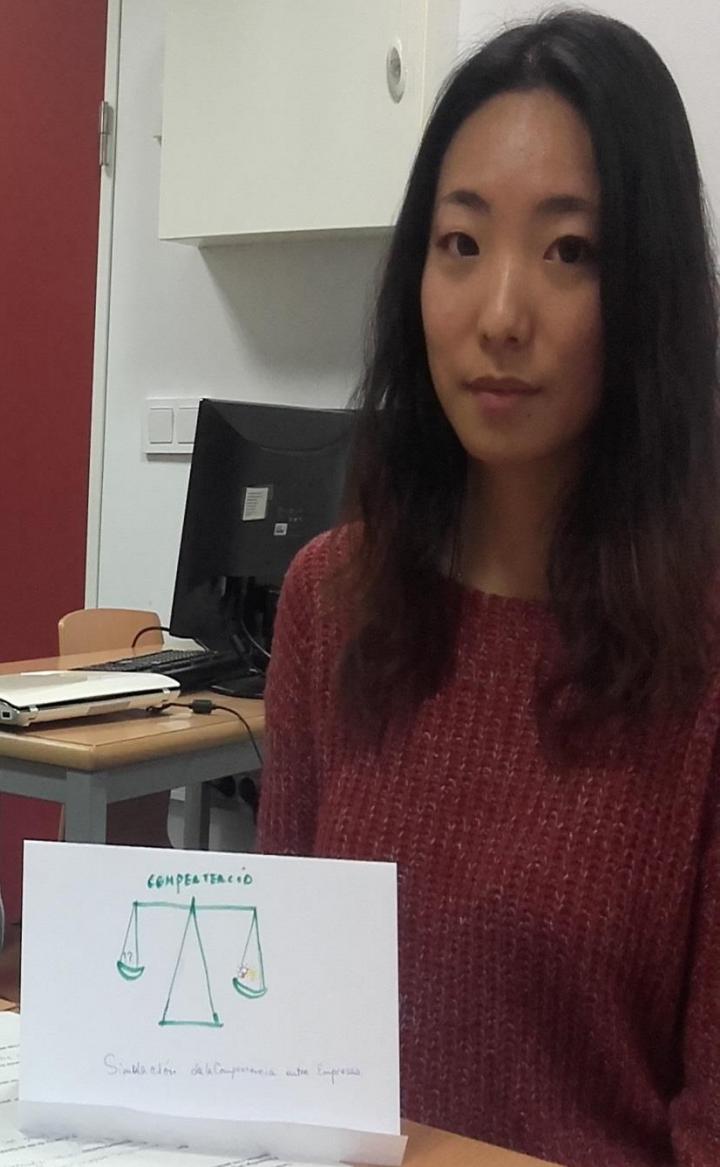
Teamwork

Attention

Quality control

Problem Solving

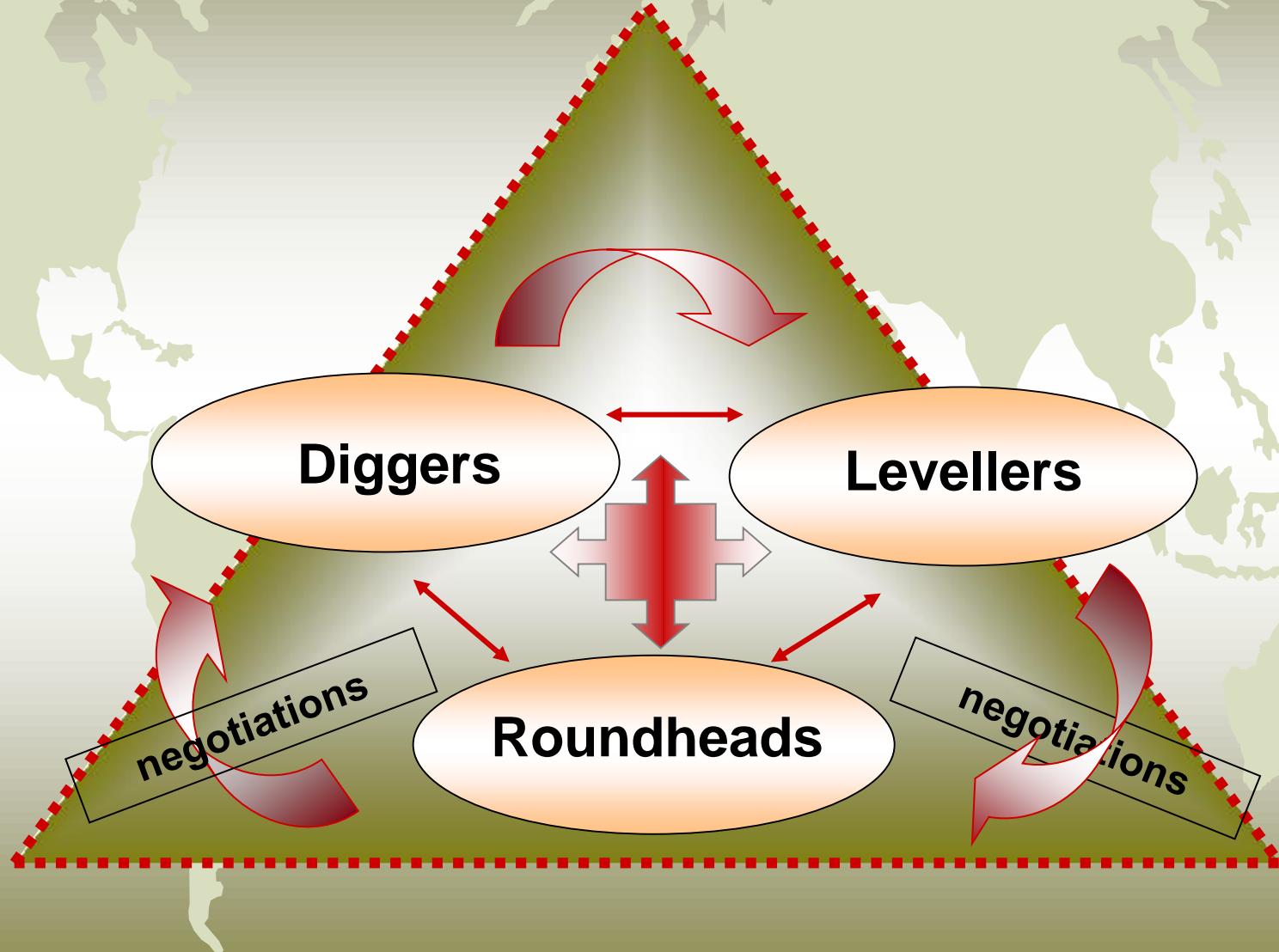
Product and process evaluation







A Fictitious Election





Know-it-all linguists

<http://beatrizolalde.blogspot.com.es/p/dedos.html>

Telematic Simulation



*Human
Rights
in
Eutropia*

Intercultural Dynamics in European
Education through On-Line
Simulation

<http://www.ideels.uni-bremen.de>

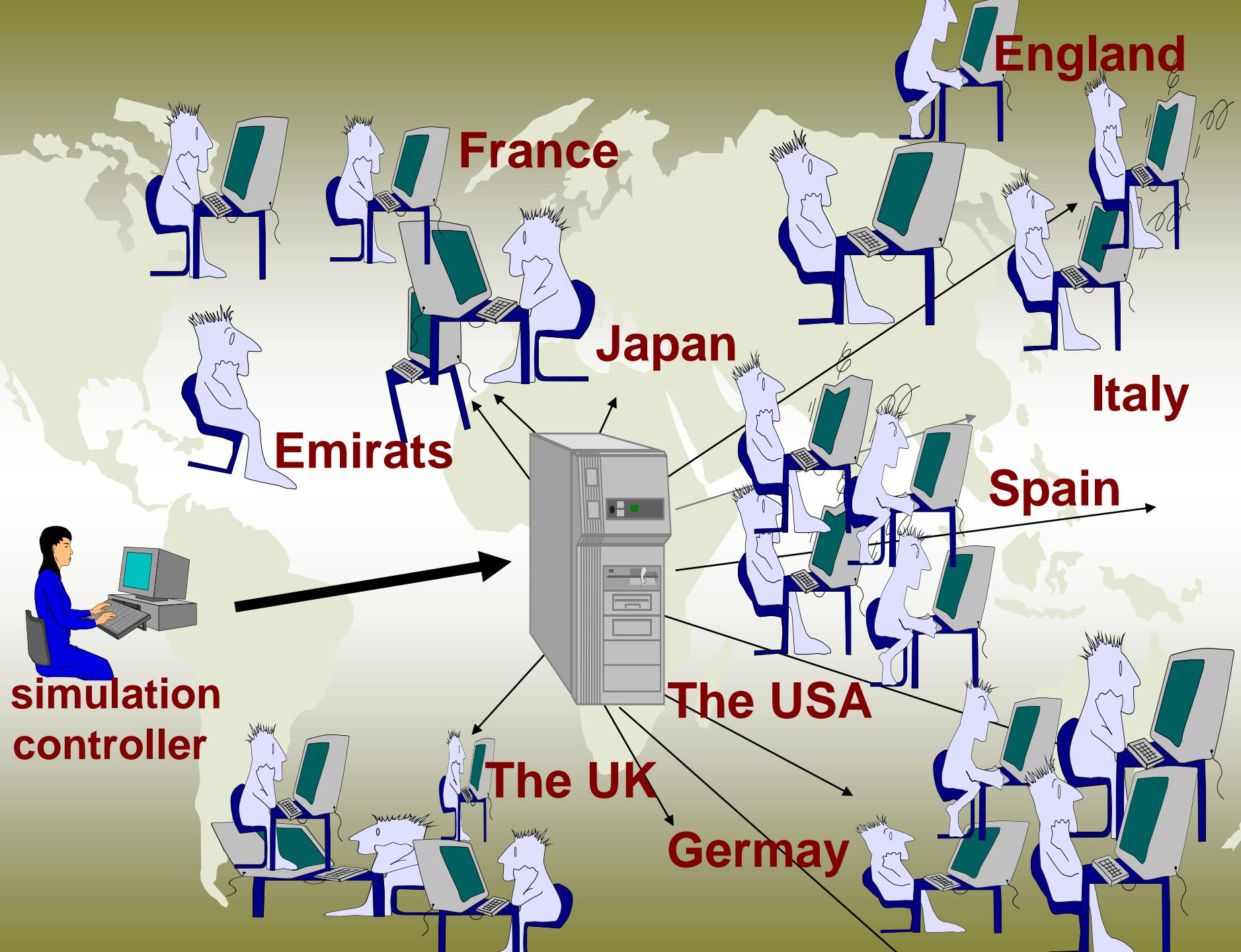
Telematic Simulation



*International
System*

International **Communication** and
Negotiation Simulation

<http://www.icons.edu>



Rol games



LEGO Serious Game



Serious computer games

Pacific: Leadership and team management

<https://www.youtube.com/watch?v=YopbkCYSIEU>

Trailer Merchants: Negotiation and Conflict Resolution

https://www.youtube.com/watch?v=YPKjax-V_GU

Triskelion: Time Management and Personal Productivity

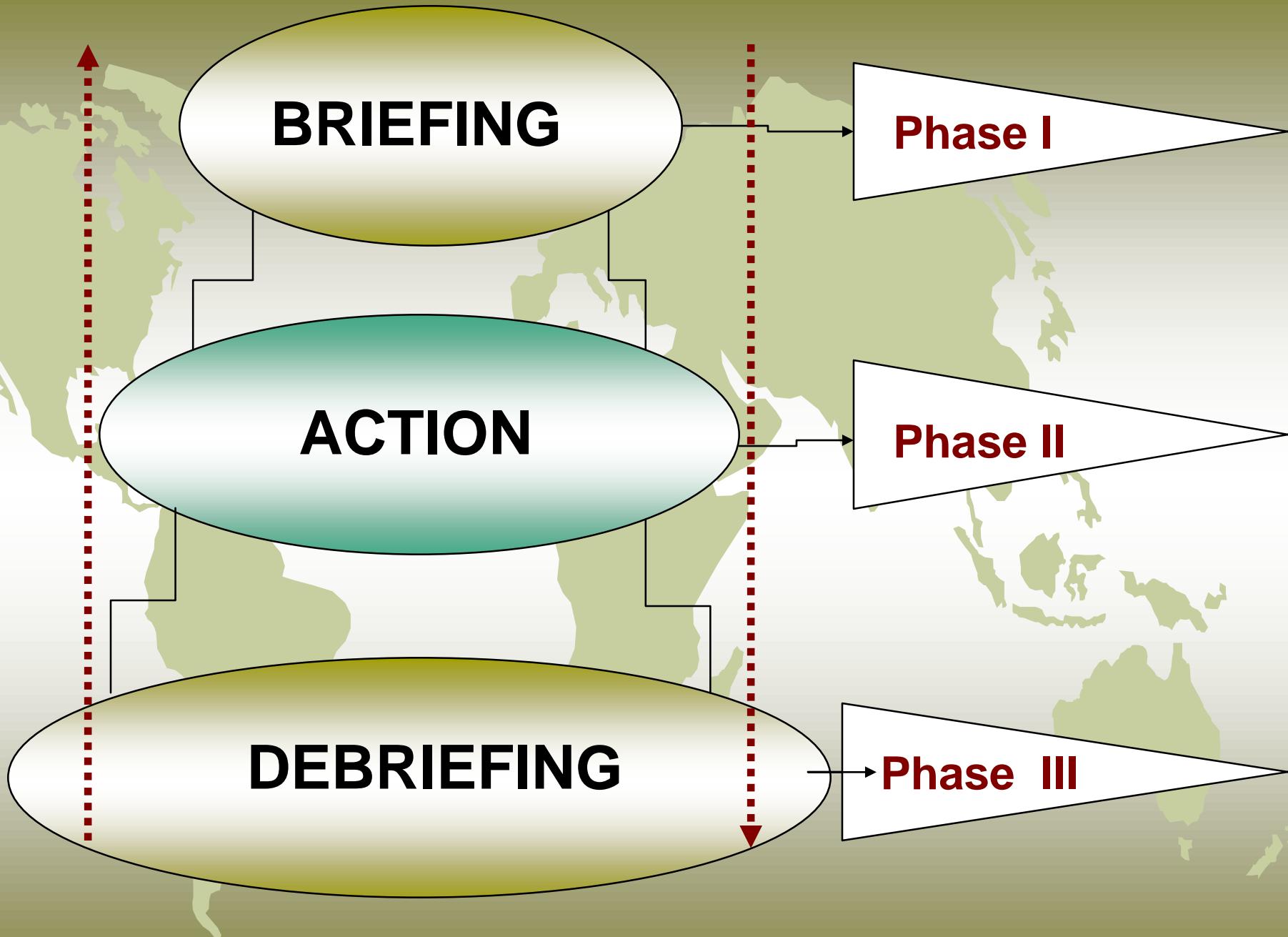
<https://www.youtube.com/watch?v=BUtp1oyZyCo>

<https://www.youtube.com/watch?v=38ZxlbVQsY0>

International communication

<https://www.youtube.com/watch?v=PYX60ZbfLqo>





Gamification

Take the strategy or parameters that work in games and transfer them to the academic context/real life

<https://www.youtube.com/watch?v=OVKKosjPRsY>

<https://www.youtube.com/watch?v=Hb-IPCdF5Ew>

<https://www.youtube.com/watch?v=BqyvUvxOx0M>

<https://www.youtube.com/watch?v=6okR9Fj3P30>

Gamification

Convert the **program/project** into a **HISTORY**

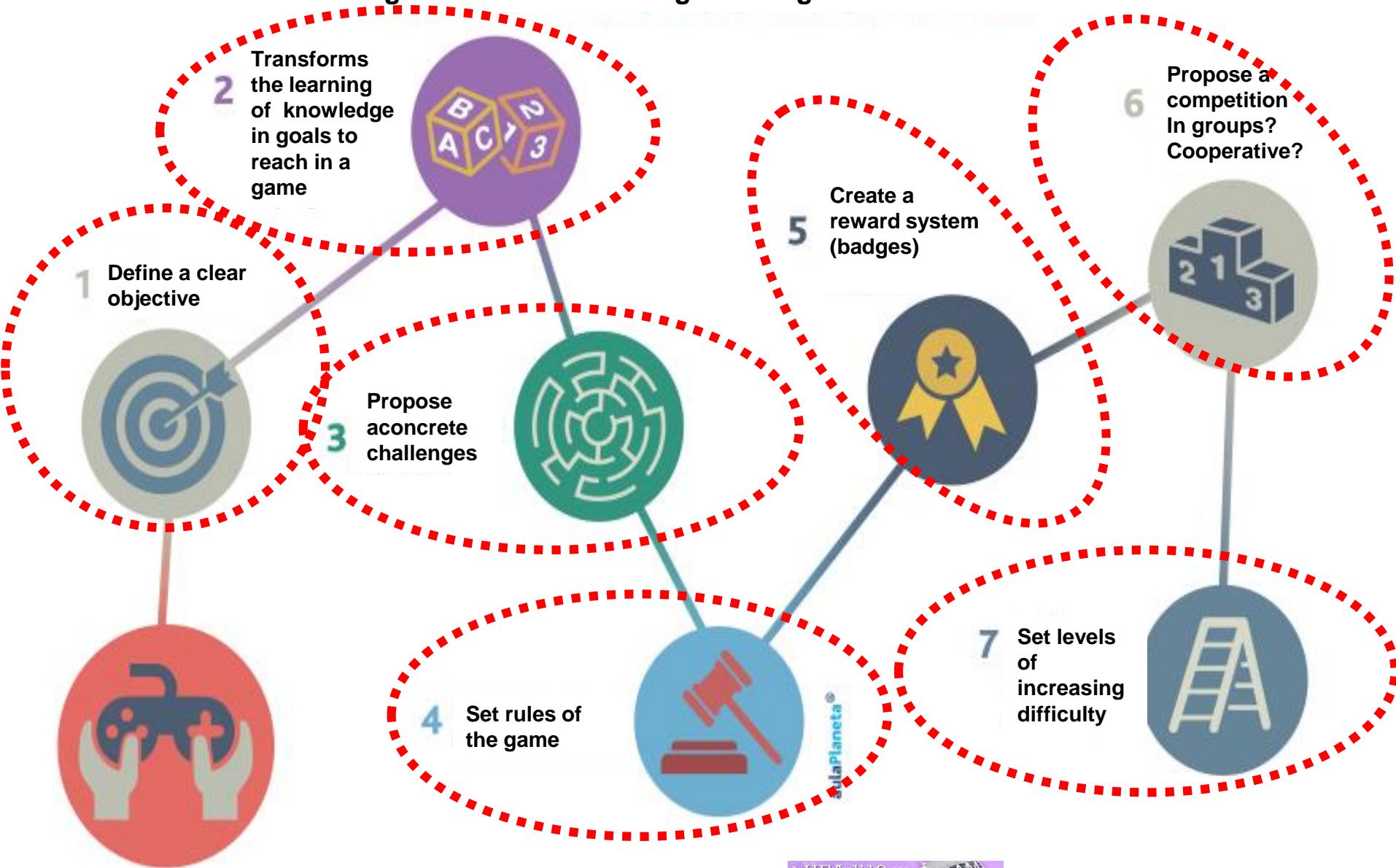
Change the word **subject, unit o phases of a project** by **LEVEL**.

The level is an indicator that provides recognition once certain objectives have been met. The levels are one of the strongest motivations for players ..

The **objectives or tasks** will be the **CHALLENGES**.
A game is composed of the sum of challenges through which skills and knowledge are acquired and progress is made.

How to apply game-based learning in the classroom

The application of gamification in the classroom should serve to motivate students and give them control over their learning. It is essential to integrate the game into the course schedule



LEARNING MODEL



PROFESSIONAL PROFILE

TASKS

TASKS

TASKS

TASKS

ACTIVE
METHODOLOGY

S

S

S

S

KNOW-HOW

U

U

U

U

B

B

B

B

J

J

J

J

E

E

E

E

C

C

C

C

T

T

T

T

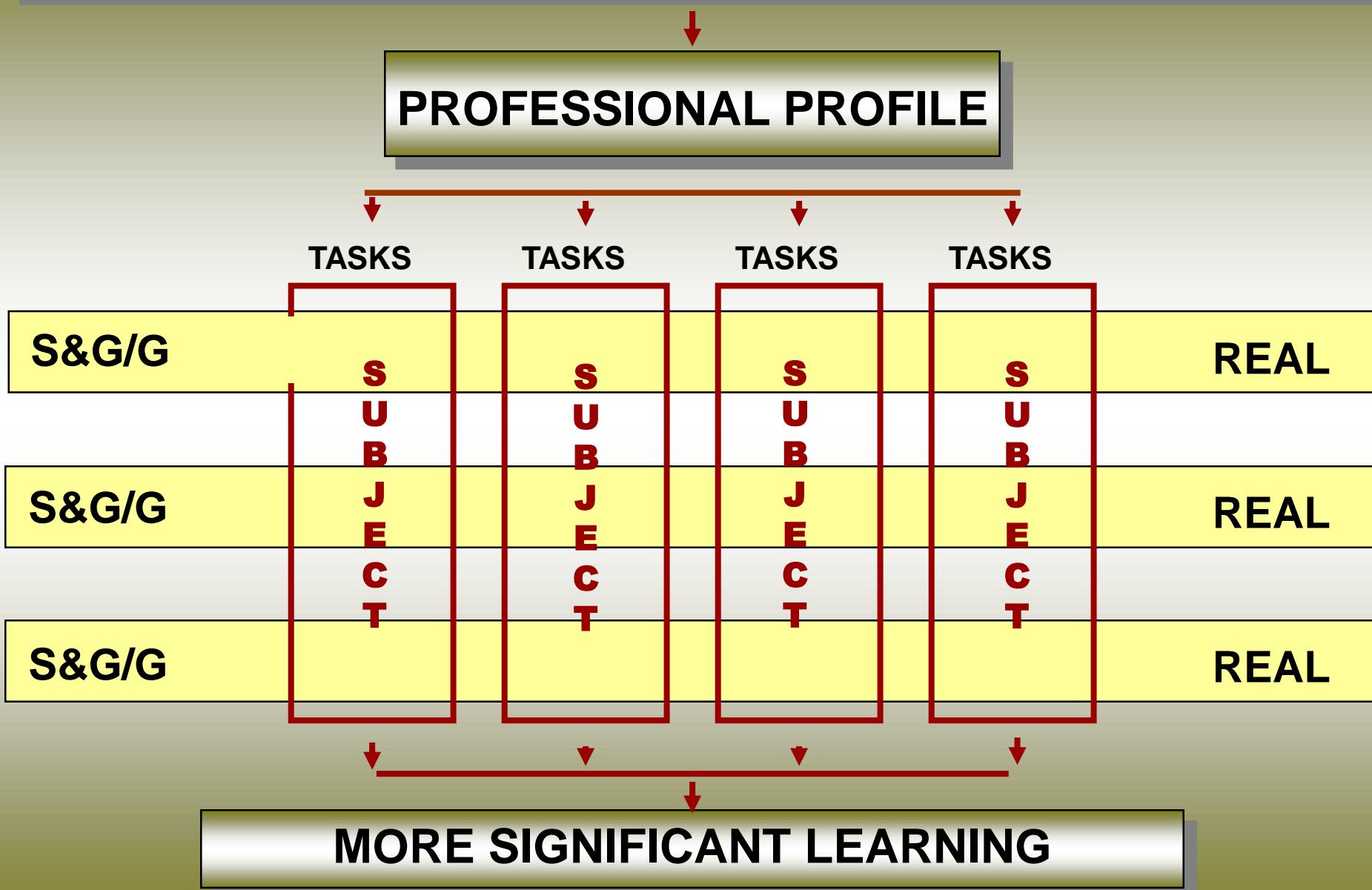
ACTIVE
METHODOLOGY

KNOW-HOW

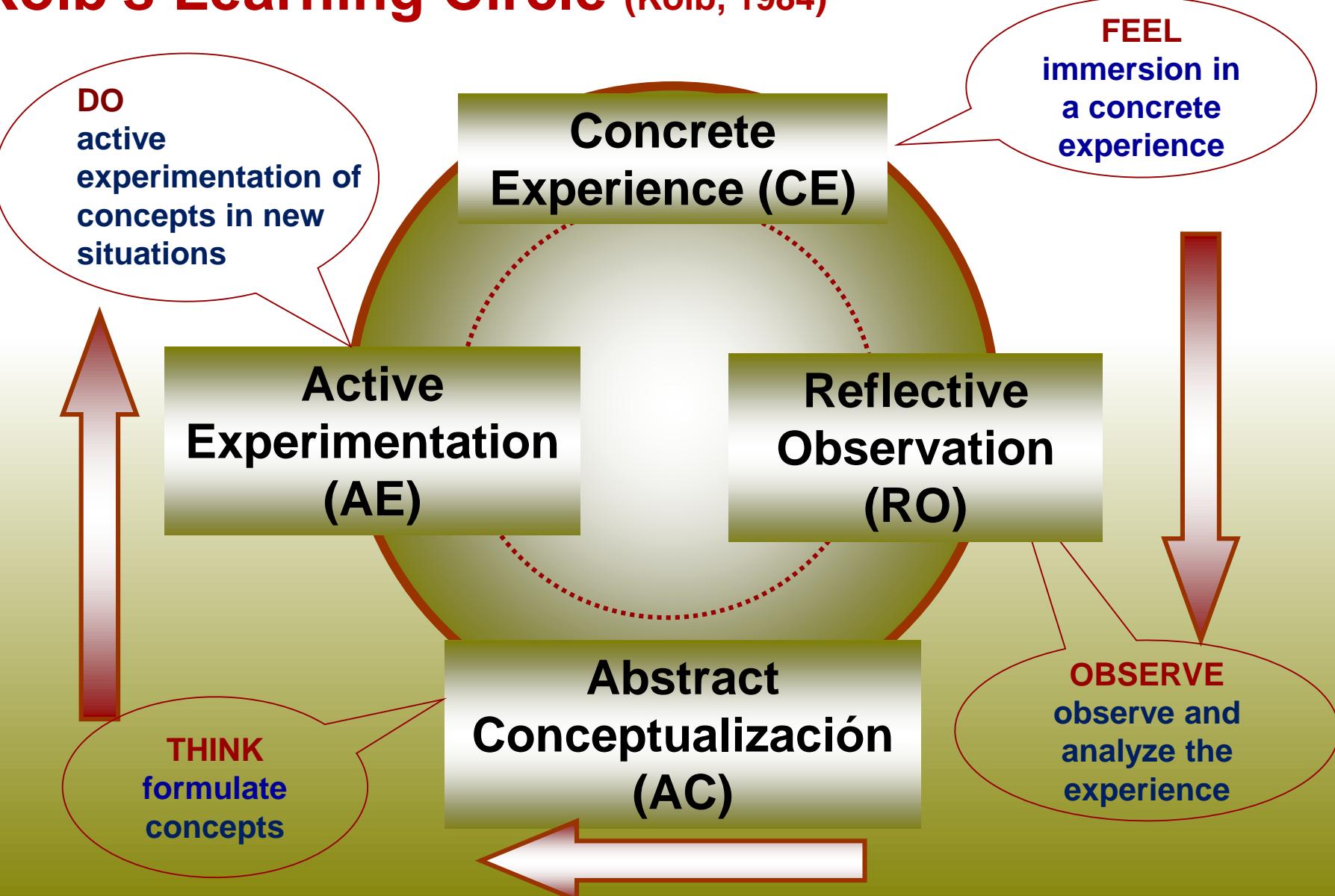


MORE SIGNIFICANT LEARNING

LEARNING MODEL BASED ON EXPERIENCE



Simulation and Gaming Methodology and Kolb's Learning Circle (Kolb, 1984)



GLOBAL EXPERIENCING FOR EDUCATION AND TRAINING

Intercultural

Informative

Innovative

Product Oriented

Learner Centered

Professional Training

Interdisciplinary

Current

Motivating

ICONS

SIMULATION

Process Oriented

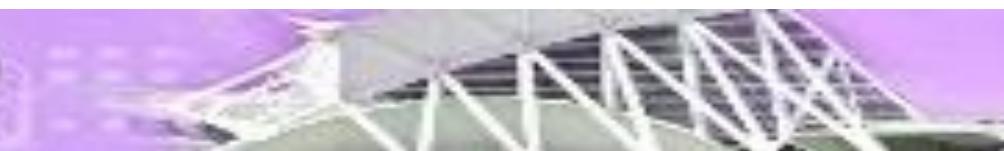
Communicative

Experience Based



Gamification

OPEN THE CLASSROOM TO THE WORLD



Simulation & Gaming in Higher Education

Amparo García-Carbonell

UNIVERSITAT POLITÈCNICA DE VALENCIA

- Andreu-Andrés, M. Ángeles / García Casas, Miguel / Mollar García, Miguel 2005. La simulación y juego en la enseñanza-aprendizaje de lengua extranjera. In Cuadernos Cervantes. XI/55, 34-38.
- Armstrong, R. (1994). Gaming-Simulation in Perspective. En Simulation and Gaming across Disciplines and Cultures, 213-229. Thousand Oaks: Sage Publications.
- Crookall, D. y Wilkenfeld, J (1985). ICONS: Communication Technologies and International Relations. System. Simulation Applications in L2 Education and Research, 13(3): 253-258.
- Crookall, D. y Saunders, D. (1989). Towards an integration of communication and simulation. En Crookall, D. y Saunders, D. (Eds). Communication and Simulation: From the Two Fields to One Theme, 3-29. Clevelon: Multilingual Matters .
- Crookall, D. (1992). Debriefing. En Simulation and Gaming, 23(2): 141.
- Crookall, D. y Landis, P. (1992). Global Network Simulation: An Environment for Global Awareness. En Global Interdependence. 106-111. Tokyo: Springer-Verlag.
- Duke, R. D. (1974). Gaming: the future's language. New York: Sage Publications.
- Duke, R. Dick / Geurts, Jac L.A. 2004. Policy Games for Strategic Management: Pathways into the Unknown. Amsterdam: Dutch University Press
- García-Carbonell, et al. (2001). Simulation-gaming and the adquisition of communicative competence in another language. En Simulation and Gaming, 32(4): 481.
- Gredler, M. (1992). Designing and Evaluating Games and Simulations. A Process Approach. London: Kogan Page.
- Greenblat, C. S. y Duke, R. D. (1975). Gaming-Simulation: Rationale, Desing and Applications. New York: Sage Publications.
- Greenblat, C. S. y Duke, R. D. (1981). Principles and Practises of Gaming-Simulation. Newbury Park: Sage Publications.
- Greenblat, C. S. (1988). Designing Games and Simulations. An Illustrated Handbook. Newbury Park: Sage Publications.
- Jones, K. (1982). Simulations in Language Teaching. Cambridge: Cambridge University Press.
- Jones, K. (1995b, 3^a edición). Simulations. A handbook for teachers and trainers. London: Kogan Page.
- Klabbers, Jan 2006. The Magic Circle: Principles of Simulation & Gaming. Rotterdam/Taipei: Sense Publishers.
- Kolb, D. A. (1984). Experiential Learning: Experience as the source of learning. Englewood Cliffs: Prentice-Hall.
- Lederman, L. C. (1984). Debriefing: A critical re-examination of the post-experience analytic process with implications for its effective use. En Simualtion and Games. 15, 415-431.
- Lederman, Linda 1992. Debriefing: Towards a Systematic Assessment of Theory and Practice. In Simulation & Gaming: An International Journal of Theory, Practice and Research. 23/2, 145-160.
- Lederman, L. C. (1994). Debriefing the Debriefing Process: A New Look. En Simulation and Gaming across Disciplines and Cultures. Thousand Oaks: Sage Publications.
- Peters, Vincent / Vissers, Geert 2004. A Simple Classification Model for Debriefing Simulation Games. In Simulation & Gaming 35/1, 70-84.
- Sharrock, W. W. y Watson, D. R. (1987). "Power" and "realism" in simulation and gaming: Some pedagogic and analytic observations. En Crookall, D.; Greenblat, C. S.; Coote, A.; Klabbers, J. H. G. y Watson, D. R. (eds.). Simulation-Gaming in the Late 1980s. (35-42) .Oxford: Pergamon.

Links of interest

Sivasailam Thiagaragan (Thiagi)

<http://www.thiagi.com/>

Mª Ángeles Andreu_Ardrés

<http://www.upv.es/jugaryaprender/ingles/>

<http://www.upv.es/jugaryaprender/espanol/>

Miguel García Casas

<http://www.upv.es/jugaryaprender/cienciasnaturales/>

Juego de matemáticas en línea

<http://pbskids.org/cyberchase/math-games/lucky-star/>

Otros ejemplos de juegos en línea

<http://pbskids.org/cyberchase/math-games/>

Geografía, Ramo Game

<http://pbskids.org/cyberchase/math-games/>

Voices for youth (INICEF)

<http://www.voicesofyouth.org/>

Juegos educativos y lúdicos para niños

<http://funschool.kaboose.com/>

Project IDEEL (Intercultural Dynamics in European Education through onLine Simulation)

<http://www.ideels.uni-bremen.de/>

Project ICONS (International Communication and Negotiation Simulations

<http://www.icons.umd.edu/>

Grupo de Investigación DI-AAL (Dimensión Intercultural y Aprendizaje Activo de Lenguas)

<http://www.upv.es/diaal/index.htm>

Associations

ISAGA International Simulation and Gaming Association

<http://www.isaga.info/>

[NASAGA - North American Simulation and Gaming Association](#)

[INDsaga - Indian Simulation and Gaming Association](#)

[JASAG - Japan Association of Simulation and Gaming](#)

[SAGANET - Simulation and Gaming Association - The Netherlands](#)

[SAGSAGA - Swiss Austrian German Simulation and Gaming Association](#)

[SSAGSg - Society of Simulation and Gaming of Singapore](#)

[ThaiSim - Thai Simulation and Learning Association](#)

[SAGSET - Society for the Advancement of Simulation and Gaming in Education and Training](#)

ABSEL Association for Business Simulation and Experiential Learning

<http://absel2011.wordpress.com/gaming-packages-by-abselites/>

DIGRA Digital Games Research Association

<http://www.digra.org/>

[IGDA - International Game Developers Association](#)

[Gamasutra - the art & business of making games](#)

[Gamedev.net - online community for game developers of all levels](#)

[GDSE - Game Development Search Engine](#)

Additional bibliography

Simulation and Gaming (SAGE)

<http://sag.sagepub.com/content/by/year>

Lecturas sobre Juegos

http://opencontent.org/wiki/index.php?title=Games_ Readings

Shimizu Institute of Technology (Japón)

http://www.shimz.co.jp/corporate_information/sit/english/facilities/index.html

Blanco, A. (2009). *Desarrollo y Evaluación de Competencias en Educación Superior*. Narcea: Madrid.

<http://books.google.es/books?id=8Mm5NosYaccC&pg=PA18&lpg=PA18&dq=La+competencia+laboral+no+es+una+probabilidad+de+en%C3%A9xito+en+la+ejecuci%C3%B3n+del+trabajo,+es+una+capacidad+real+y+demostrada.&source=bl&ots=a5PTdP8FQm&sig=ejFoj3mPDQob8C0smtOL1evqqTA&hl=en&sa=X&ei=ssPhT-fHH6aH0AWM2ZHKAw&ved=0CFEQ6AEwAQ>

GIIMA Grupo de innovación e investigación en metodologías activas

Libro: *Metodologías Activas*

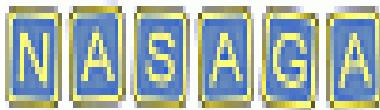
http://www.upv.es/pls/oalu/sic_miweb2.MicroWeb?P_IDIOMA=c&P_VISTA=&P_IDWEB=772512&P_ID=773287&P_VER=NORMAL&P_CACHE=&P_ID_NAVEGA_INI=773287

IEMA Grupo de Innovación en la Evaluación para la Mejora del Aprendizaje Activo. *La evaluación compartida: investigación multidisciplinar*
[descargar libro.pdf](#)

<http://www.isaga.info/>



Instituto Universitario de Simulación y Juego Valencia



**North
American
Simulation
And Gaming
Association**

SAGANET

**Simulation And
Gaming
Association -
The Netherlands**

JASAG

**Japan
Association of
Simulation and
Gaming**



**Swiss Austrian
German Simulation
and Gaming
Association**



**Society for the
Advancement of
Simulation and
Gaming in
Education and
Training**



**Digital
Games
Research
Association**



**Society of
Simulation and
Gaming of
Singapore**



**Thai Simulation
and Learning
Association**

INDsaga (India)

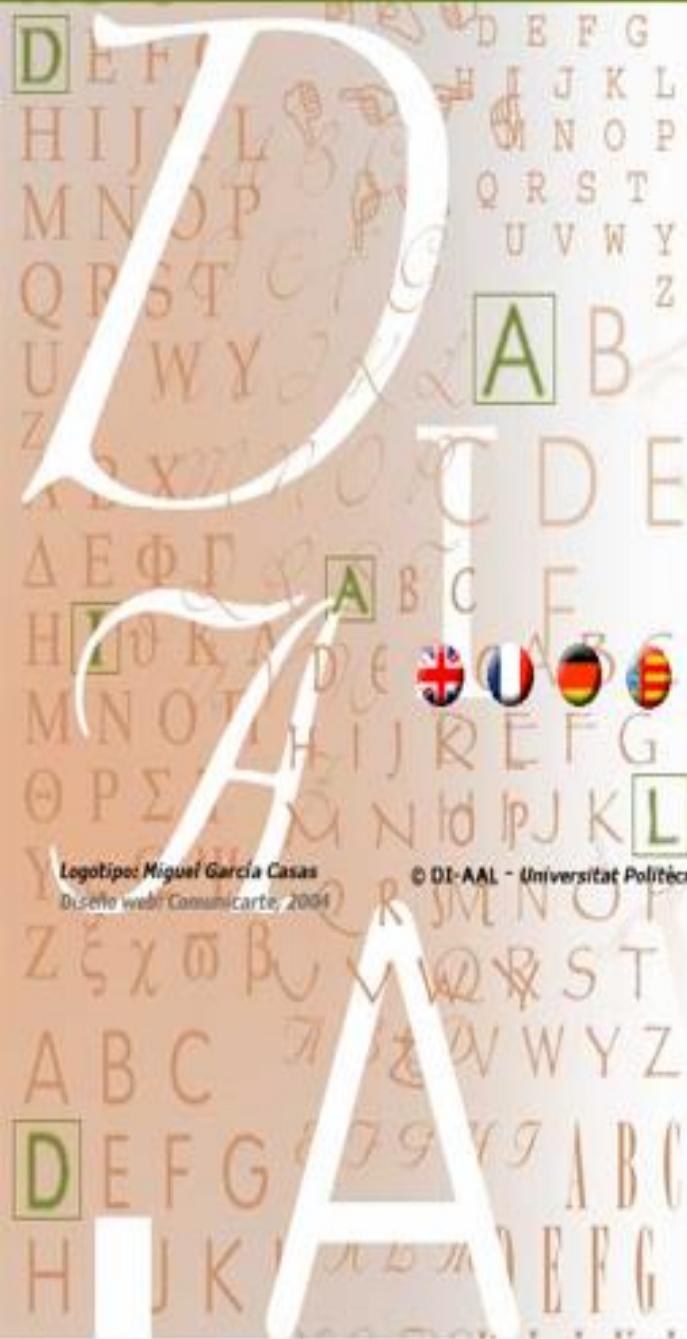
Simulación y juego como estrategia docente y de investigación © AGC-FW

OzSAGA (Australia)



Universidad Católica de Valencia, 5-7-8 febrero 2013

SIGIS (Italia)



Dimensión
Intercultural y
Aprendizaje
Activo de
lenguas



Universidad
Politécnica
de Valencia

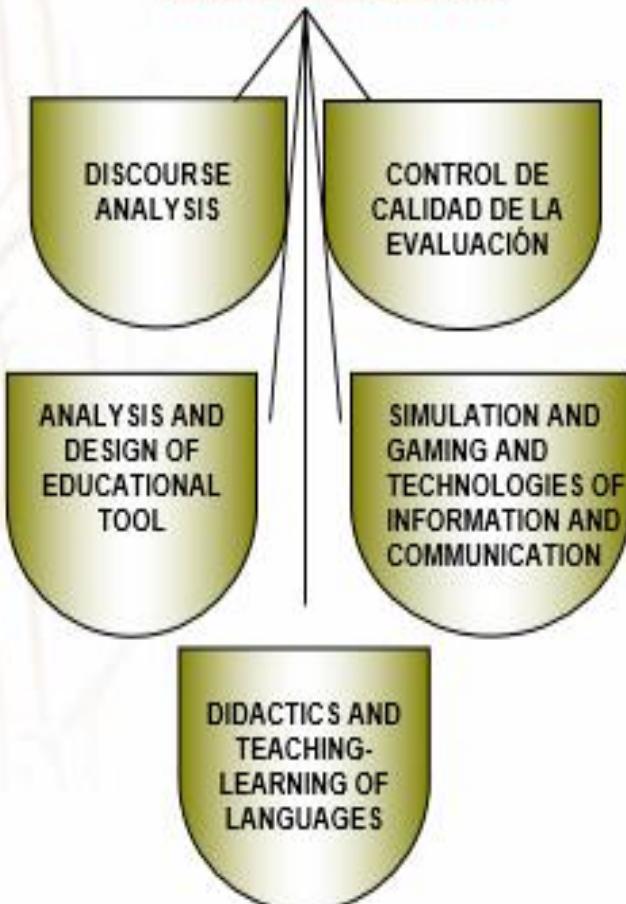


Logotipo: Miguel García Casas

Diseño web: Comunicarte, 2004

© DI-AAL - Universitat Politècnica de València, 2004 - grupodial@upvnet.upv.es

Research



<http://www.upv.es/diaal>