

**Extending collaborative learning beyond  
the boundaries of the physical classroom  
through virtual environments**

Loureiro, Bettencourt & Santos  
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3d avatar collaborative community context  
environment experience immersive  
interact learning life moodle night  
online real sharing sl social  
students study teacher tools users  
virtualworld

# benefits of social technologies for connecting learners

(McLoughlin & Lee, 2007)  
(Kreijns, Kirschner & Jochems, 2003)

- **Participatory learning:**
  - foster participation in creation/editing of content
- **Collaborative learning** – collaborative knowledge construction
  - information shared by individuals can be recombined to create new forms, concepts, ideas, mash-ups and services
- **Autonomous learning:**
  - share, communicate, and discover information in communities
- **Communication and interaction capabilities**
  - Rich opportunities for networking
- **Life long learning** (join the wisdom of the crowds)
  - develop digital competences & support life long development

# Challenges of social technologies for connecting learners

(McLoughlin & Lee, 2007)  
(Kreijns, Kirschner & Jochems, 2003)

## Motivation to interact:

Taking for granted learners' capabilities and motivation to interact

Social interaction will NOT automatically occur just because technology allows it.

## Learning environment:

Borders of the learning environment become diffused

Transient environments

## Planning and management:

understanding the dynamics of web 2.0

moderation requirement, careful planning

# Challenges of social technologies for connecting learners

(McLoughlin & Lee, 2007)

(Kreijns, Kirschner & Jochems, 2003)

## Instructional Design:

Difficulties in designing the new models of teaching & learning

## Lower media richness:

Constrains direct communication and decision making.

## Communication anxiety:

Higher level of anxiety associated with computer-mediated communication may limit the degree of social interaction

## Relationship building and group dynamics:

Students need to trust each other, feel a sense of belonging, and feel close to each other before they engage in collaboration and sharing - sense of community belonging

# problem (researcher motivation)

- Students with different levels of confidence
- Full-time students and part-time students
- Only meet each class 1xweek

work in groups  
actively participate & collaborate in class activities

How to engage all students?  
How to support all students?

**VW + Web 2.0**

# Challenges (researcher motivation)

## Researcher challenge

to encourage collaboration, sharing and class cohesion 'out of hours' by providing means for students and teacher to interact.

**to evaluate the effectiveness of blended learning as a tool to achieve the teaching goals**

## Teacher challenge

- (i) cover some theoretical subjects as part of the course curriculum in a more creative way;
- (ii) help students to understand the importance of sharing and discussing information in an open manner;
- (iii) provide tutorial support to the part-time class through a virtual environment.

# aim (research)

## question

- To understand if there are best practices orchestrating learning in virtual and immersive environments and if they will enhance blended learning through knowledge sharing

## components

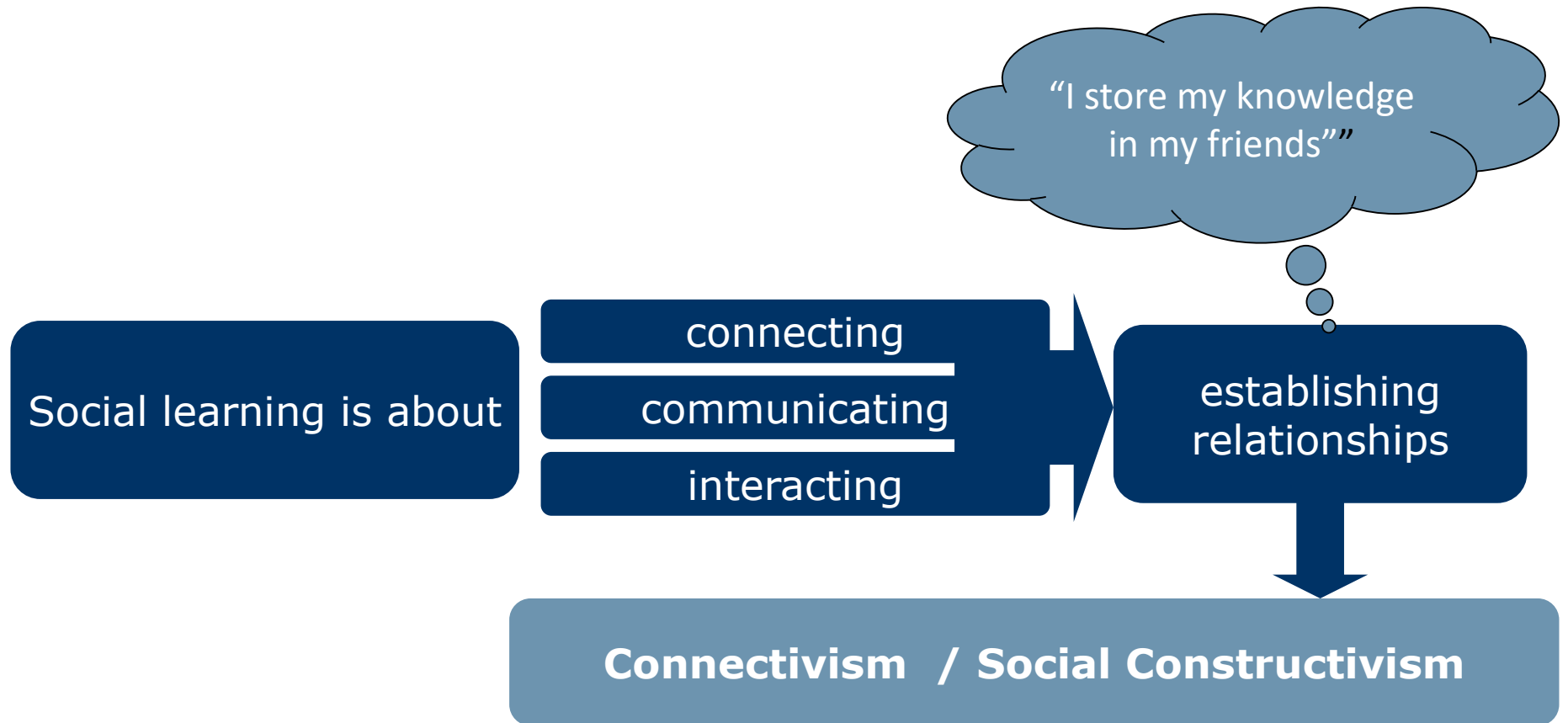
- (i) Construction and knowledge sharing
- (ii) Interpersonal relationships
- (iii) Collaborative virtual environments  
(CVE)

**socialization**  
> key factor for **collaborative learning**

situation where two or more persons learn or try to learn something together  
(Dillenbourg, 1999)



# learning theories (research)



# methodology (research)

- participants - portuguese HE students (school of education)
  - regular day class & mature night class (ages>23) = 80 students
  - non probabilistic sample (by convenience)
- qualitative study, with an inductive and exploratory nature
- researcher : participant observer
- data collecting: observation, questionnaire, electronic records
- data analysis: quantitative analysis over qualitative data, content analysis

# Methodology – pilot study (research)

- How students engage with Web 2.0 tools?
- How students engage with a virtual world?
- Whether the tools show improvement in collaboration?
- How well the tools promote knowledge sharing and class cohesion

blended learning

# goals (research)

- (i) identify the variables that might influence knowledge sharing
- (ii) contribute for richer learning contexts through the use of online tools (Diigo, Facebook) and virtual worlds (Second Life®)
- (iii) provide tutorial support to night class through a virtual world
- (iv) encourage collaboration 'out of hours' by providing means for students and teacher to interact
- (v) learn what advantages we can find in an online tutorial implemented using an immersive virtual world
- (vi) understand how and which students engage with an immersive 3D world and how effective it is as a proxy for face-to-face interaction
- (vii) understand how well online tools and virtual worlds promote knowledge sharing and enhance socialization in order to contribute for classroom cohesion
- (viii) provide some insights for better online teaching strategies

# tools (research)

- (i) Moodle (official LMS)
- (ii) Diigo (prescribed by teacher)
- (iii) SL (“selected” by students)
- (iv) FB (on students request)

## learning orchestration in an extended classroom

physical space  
(spatial and temporal  
constraints, specific  
group/class)

virtual space  
(no physical or spatial constraints,  
whole group of students)

FB

Diigo

SL®

information sharing  
discussion  
practical class work  
knowledge consolidation

communication &  
socialization

information search &  
knowledge sharing

tutorial sessions of  
collaborative discussion  
& learning | socialization



knowledge sharing & socialization

# Learning styles (applied within SL)

(Lim, 2009)

- **Learning by exploring:** by visiting and explore buildings, landscapes, communities that are simulated and modelled.
- **Learning by collaborating:** work in teams, collaboratively and in real-time on common projects or on problem-solving tasks
- **Learning by being:** immerse in role-playing and performance activities, explore the self and experiment different identities through avatar customization and by creating different characters.
- **Learning by building:** build any kind of objects or environments and experiencing in real-time the results.
- **Learning by championing:** get involved into activities and causes related and with an impact in real-life (such as cancer campaign, earthquake victims support).
- **Learning by expressing:** show and present their in-world activities to out-side world audience, by authoring blogs, machinimas, papers, posters or by participating in conferences and meetings.

# activities

<https://www.facebook.com/media/set/?set=a.1796210672379.99972.1453105485&l=b557b42485>

[https://www.facebook.com/accloureiro#!/home.php?sk=group\\_192074517482164](https://www.facebook.com/accloureiro#!/home.php?sk=group_192074517482164)

[http://groups.diigo.com/group/lah\\_ecm2011](http://groups.diigo.com/group/lah_ecm2011)

<http://groups.diigo.com/group/lah2010>

SL:

Portucalis <http://slurl.com/secondlife/Portucalis/204/168/22>

Second.UA

SLESES

Educação & Inovação



# preliminary findings

- initial set up cost of starting SL® is high (time)
- students engaged in-world beyond tutorial hours
- tutorial sessions were considered as a success for the mature night class
- students didn't use the support hours available at school (physical space)
- night students shared more information at Diigo
- day students created a Facebook page for a more direct communication
- night students elected email as primary way for communication
- students posted more information than teacher, with relevance for night students
- the quality of shared information was high (relevant) – development of search competences

# preliminary findings

- posts were moderated (by teacher and students) - development of critical analysis and reflexion skills
- students prefer in-world sessions out of official school islands – informal places not perceived as an extension to the ‘bricks and mortar’ university
- night (mature) students are more independent as learners
- night students have less time and more desire to learn in the most effective way
- night students are more motivated since they have stronger reasons to study in their spare time
- day students are taking full advantage of the social side of university
- virtual spaces support the work patterns of mature students in particular.

# reflexions

- online tutorial sessions though immersive 3D worlds take the distance out of distance learning (*e-learning/b-learning*)
- virtual worlds might provide the best ambiance for informal and natural learning contexts at a distance
- in virtual environments students seem to attend training sessions because they want to learn (Bettencourt & Abade, 2008)
- online tutorials can be set at a time and in a space (virtual) free of restrictions – that can be adapted, allowing a better participation from a larger number of students
- in a virtual space there are no physical barriers or borders. Information flows, people build and share content, relationships are set up, the net of connections extends and knowledge is built and shared

the contrast of behavior between day and night students is a function of:

- (i) maturity level,**
- (ii) level of independence as learners,**
- (iii) intrinsic motivation.**

# recommendations...

## **Motivate:**

Do not take participation in Computer-Supported Collaborative Learning (CSCL) for granted, ignite it.

Prompt / remind students about their roles.

Embrace autonomy

Provide incentives

## **Improve interactivity** (two-way connection between distributed students):

Organise social interaction, otherwise it is unlikely to occur or be meaningful.

Foster a sense of community and develop social presence

# Instructional design

Do not replicate traditional classrooms in online environments, it is pointless if what only changes is the place/space (I mean there is no point having students sit in rows listening to lecturers in a virtual environment for instance)

Employ designs that focus on collaborative, networked communication and interaction which seems to be what students expect nowadays – without losing the informality (I think)

Adopt less hierarchical form of learning, based on small teams (maybe this way we can engage students in a better way – but always with guidance)

It is crucial to Focus more on the actors and their needs rather than the technology (its all about people after all)

# for further contact...

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