



CLERMONT
UNIVERSITÉ

Laboratoire de
Recherche sur le
Langage



A study of verbal and nonverbal communication in *Second Life* – the ARCHI21* experience.

Ciara R. Wigham & Thierry Chanier

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*EU Education and Culture Lifelong Learning Programme: KA2 Languages
llp-eacea-KA2-MultProj-ARDNM

Context

- Content and Language Integrated Learning (CLIL)

« CLIL refers to situations where subjects, or parts of subjects, are taught through a foreign language with **dual-focused** aims, namely the learning of content, and the simultaneous learning of a foreign language » (Marsh, 1994)



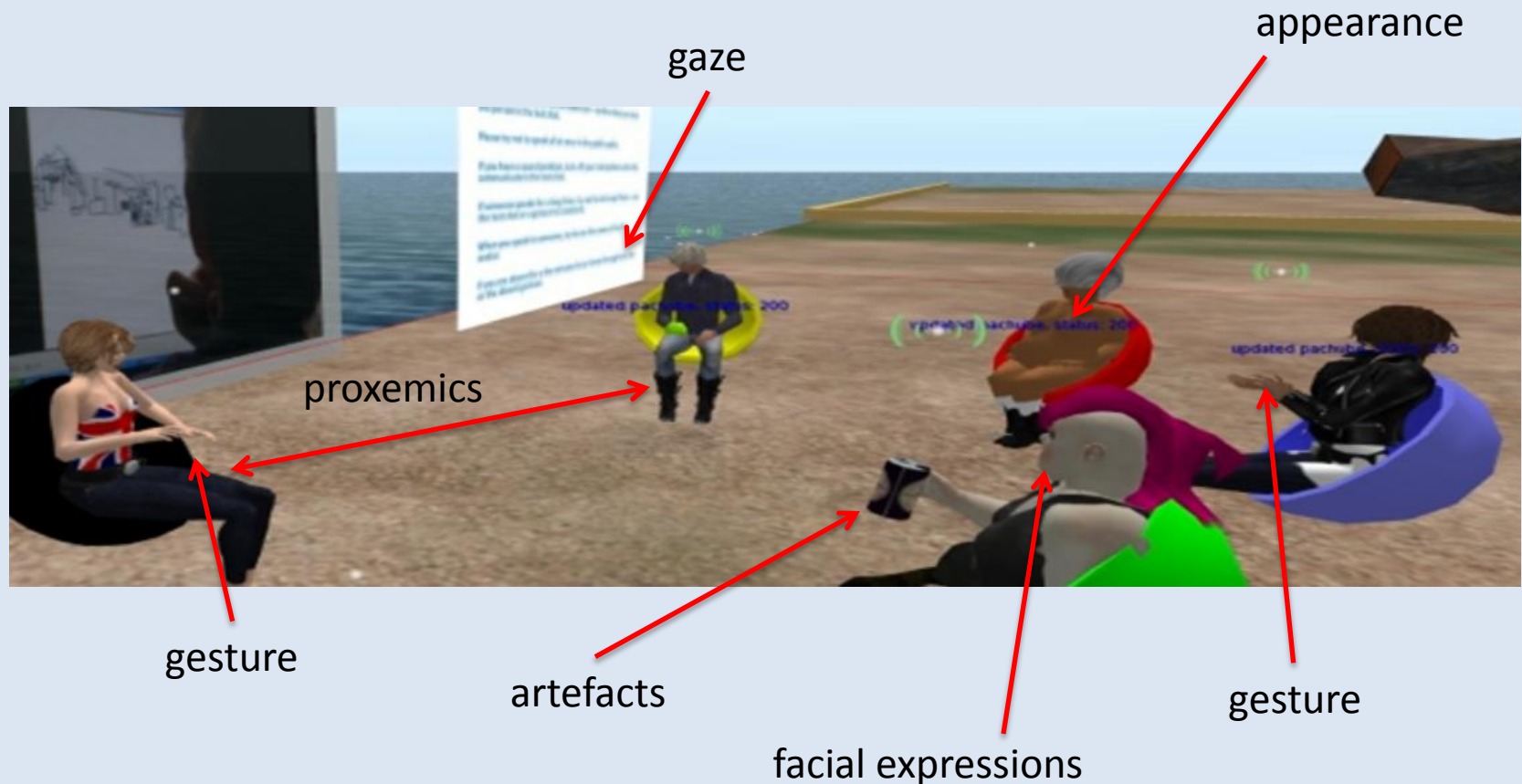
*ARCHI*tectural and Design based Education and Practice through Content and Language Integrated Learning using Immersive Virtual Environments for **21**st Century Skills

- Synthetic worlds, “learning by building” (Lim, 2009)

Research axes

- Better understand how the different modes of communication are used during interactions and what impact the nonverbal mode has on the interaction
- How can a synthetic world facilitate L2 learner collaboration by offering verbal and nonverbal communication modes?

Nonverbal Communication



« ...all of the ways in which communication is effected between persons when in each other's presence, by means other than words » (Kendon, 1981)

Face-to-face Nonverbal Communication and Second Language Acquisition

A research domain which is « coming of age » (Stam, 2008)

- Nonverbal acts part of what a learner can learn in a L2
- Insight into the process of L2 learning
 - How learners handle expressive difficulties (McAfferty & Ahmed, 2000; Stam, 2006)
 - Influence of L1 on L2 production (Gullberg, 1998; Stam, 2006)
- Input to learners (Lazaraton, 2004; Brooks, 2008)

Nonverbal Mode in Computer-Supported Collaborative Work (CSCW)

Research in CSCW

- face-to-face simulations which study the relationship between the verbal and nonverbal modes

Aim: Increase the performance of tools for distance CSCW

Tasks in which people work together to execute a range of actions on concrete objects.

verbal
reference
describe
confirm

nonverbal
deictic gestures
iconic gestures

(Fussell et al, 2004)

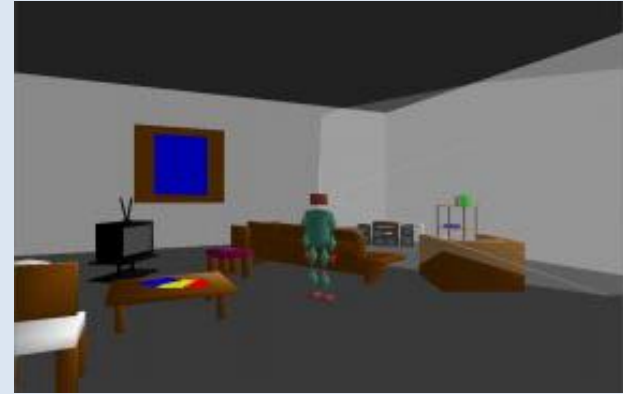
Half of all utterances which made reference to an object were accompanied by a deictic gesture

Study in Dutch of 20 pairs who were working on a task which used *Lego* (Piweck, 2007)



CSCW in Synthetic Worlds

- Study in the synthetic world *Furniture World* (Fraser, 2000)
- Restricted view : difficult to determine if an object was in partner's field of vision and if the partner could see what a deictic gesture referred to or not



→ Use of verbal mode to clarify deictic gestures

T: Th-the door's in front of me.

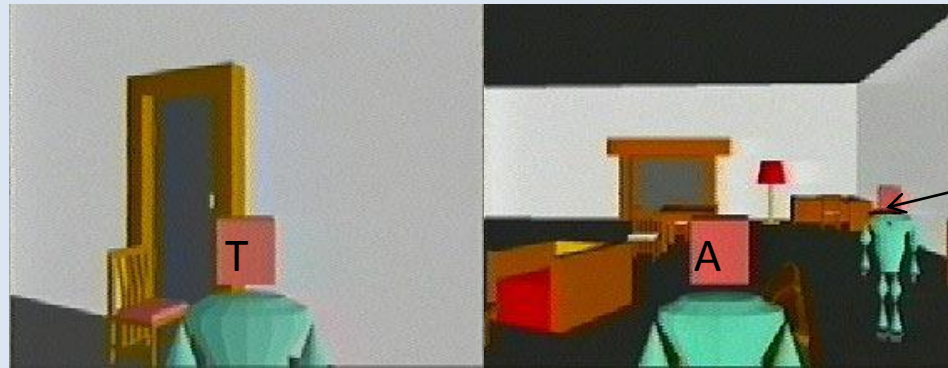
A: Oh right.

T: Over here, can you see that?
((T points towards the door))

A: I'm coming ((A rotates))

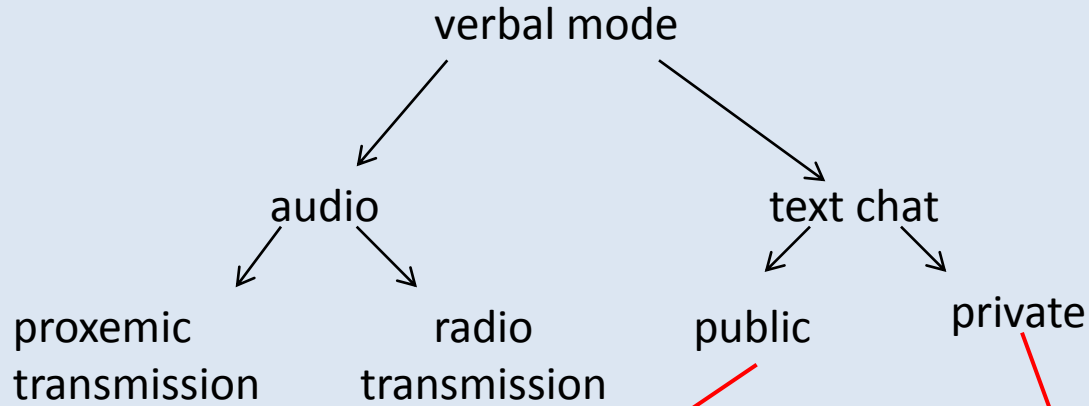
T: Hang on ((T re-positions gesture))

A: Yeah, okay, I got the door.

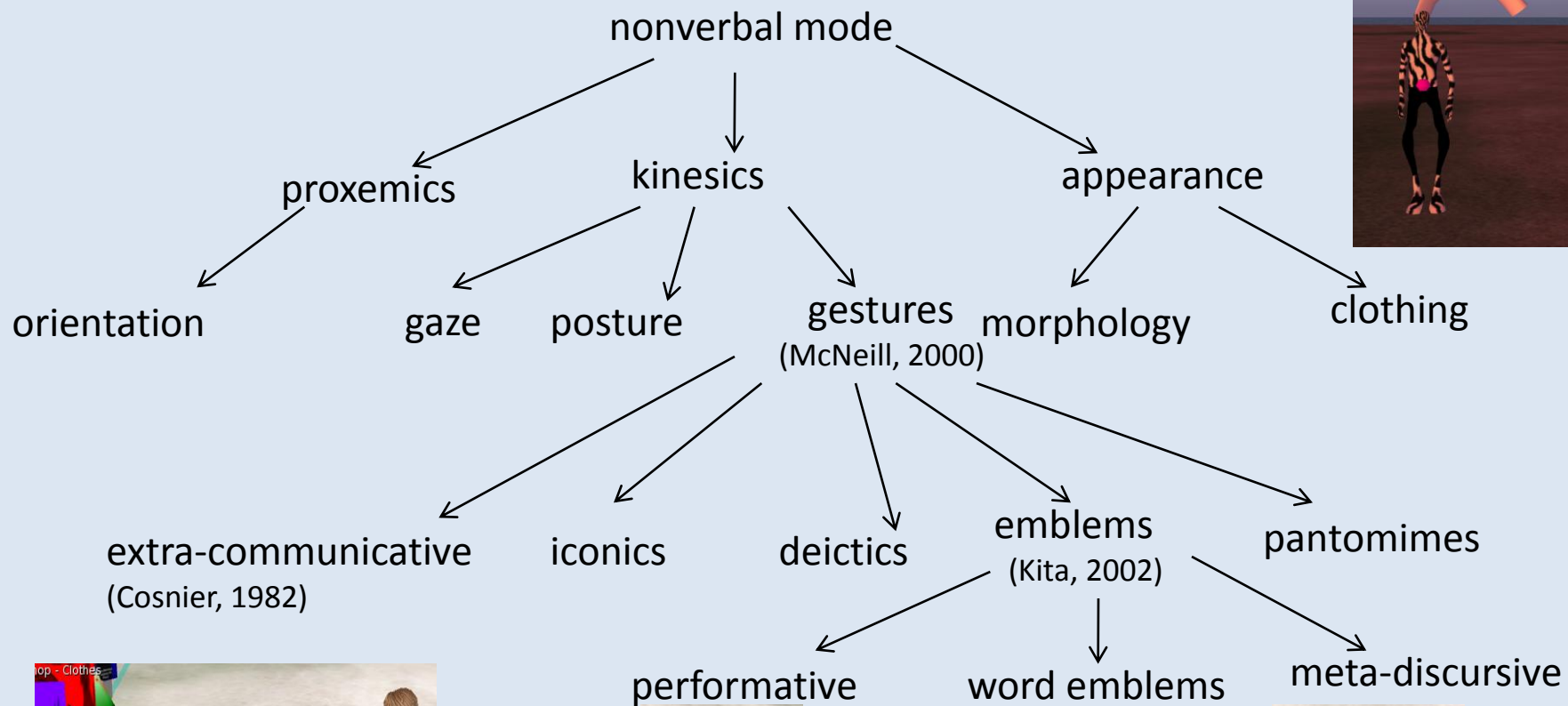


T

Verbal Mode in Second Life (SL)



Nonverbal Mode in SL



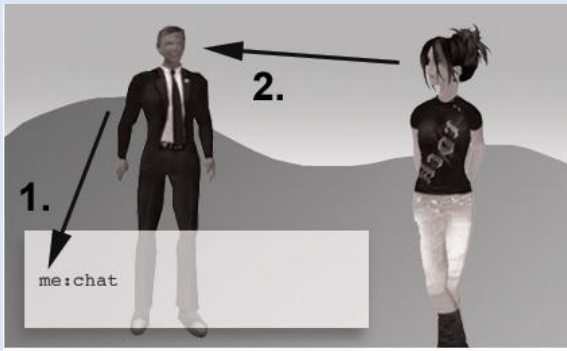
Links between Verbal and Nonverbal Modes

- Proxemics

- verbal mode : proxemic transmission

- Kinesics

- gaze (Ventrella, 2011)

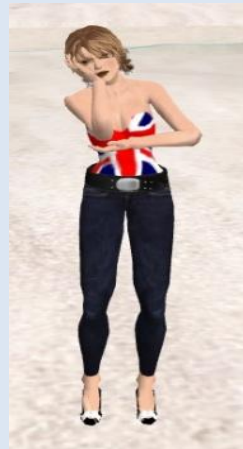


- extra-communicative gestures

- posture



- iconic gestures



Research Environment

- Intensive design workshop 'Building Fragile Spaces' (Feb. 2011)
- 4 workgroups - two French L2 (GA, GL) & two English L2 (GE, GS)
- SL for their architecture work

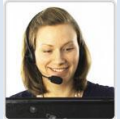
- **Actors**



17 students

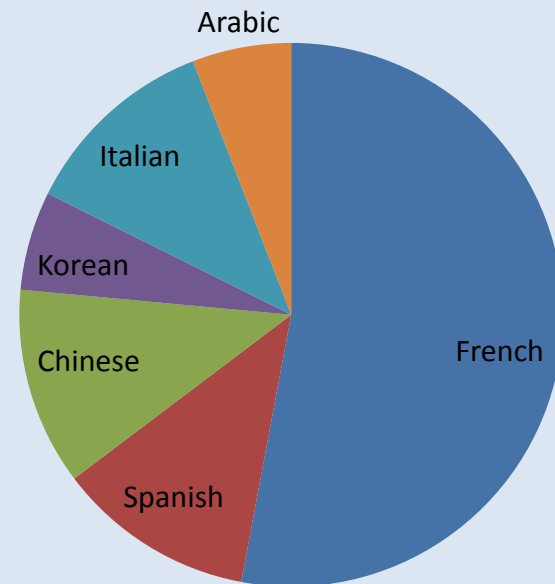


2 architecture tutors (face to face)



2 language tutors (distance)

Mother tongue of students



Course Environments

face-to-face

distance

Paris Malaquais

ENSAPM Architecture teachers

The diagram illustrates the Paris Malaquais course environment. At the top, 'ENSAPM Architecture teachers' are shown with an icon of a meeting. Three arrows point downwards to three distinct student interaction scenarios: 1) A face-to-face meeting with four people around a table. 2) A computer lab setting with students at desks, accompanied by three stylized human icons (orange, green, blue). 3) A student wearing a headset, with a single blue stylized human icon next to them.

Presentation environment

ENSAPM Architecture teachers

The presentation environment is depicted with an icon of a meeting and the text 'ENSAPM Architecture teachers'. Below this, four groups of three stylized human icons (orange, green, blue) are arranged in two rows of two, representing '4 workgroups GA, GE, GL, GS'.

VoiceForum

UBP Language tutor

The VoiceForum environment shows a 'UBP Language tutor' (with a photo of a woman) interacting with a single blue stylized human icon representing a student. Below this, a photo shows a student at a computer workstation with a headset, engaged in a virtual conversation.

Second Life

UBP Language tutor

The Second Life environment features a 'UBP Language tutor' (with a photo of a woman) interacting with three stylized human icons (orange, green, blue) representing students. Below, a screenshot of the virtual world shows a 3D avatar of the tutor and several student avatars in a virtual classroom setting.

UBP Language tutors

A photo shows two students in a virtual environment, each with a computer monitor and headset. Below the photo, the text 'UBP Language tutors' is displayed next to a small photo of the UBP Language tutor.

Distance Language Activities

Voice Forum




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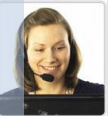


| | | | | |
|--|-----------------|-----------------|-----------------|-----------------|
| | Self reflection | Self reflection | Self reflection | Self reflection |
|--|-----------------|-----------------|-----------------|-----------------|

Second Life



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| | | | | |
|---------------|------------------|------------------|------------------|--|
| | Building Jigsaw | | | |
| Socialisation | Group Reflection | Group Reflection | Group Reflection | |

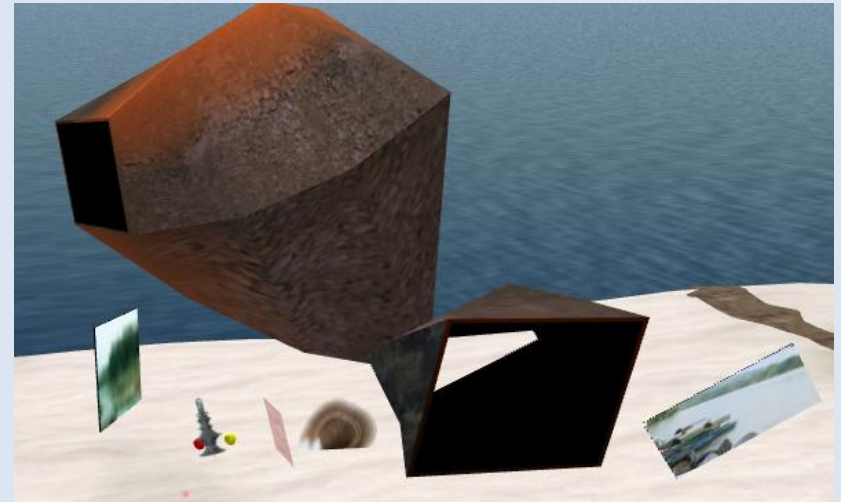
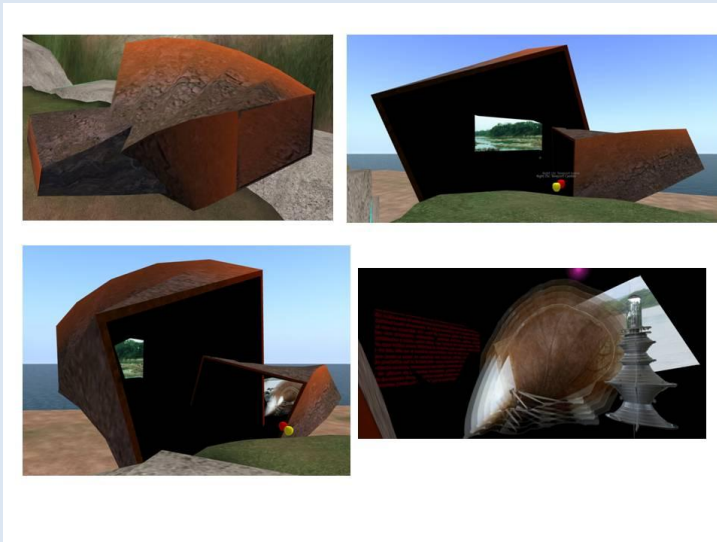
Day 1 Day 2 Day 3 Day 4 Day 5

Structure of the Building Jigsaw Activity

- Language objectives
 - Help students to develop communication techniques concerning procedural instructions
- 'Conditions'
 - « physical collaborative task »
 - different roles in student pairs
 - worker = manipulate objects
 - helper = give instructions
- Input
 - notecard describing the student's role (worker or helper)
 - photos (finished objects for the helper / different components of objects for both students in pair)

Structure of the Building Jigsaw (2)

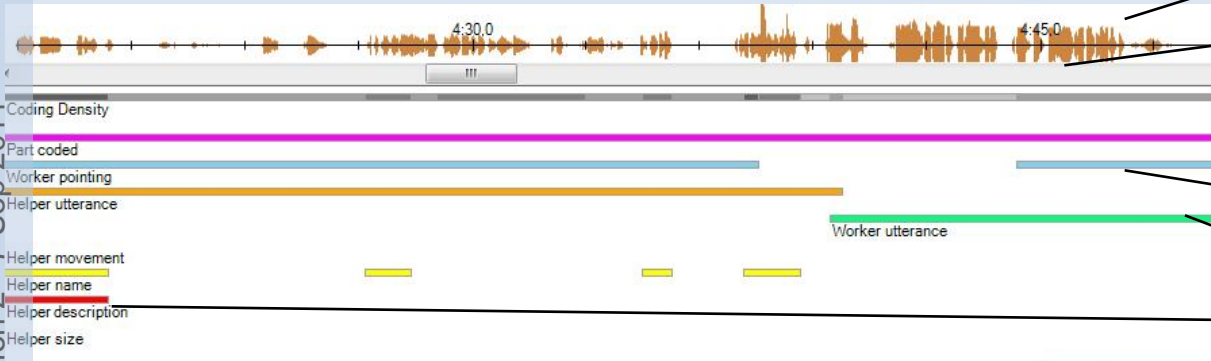
- Procedure
 - In pairs, in L2, information exchange, 1 hour (25 minutes)
- Output
 - Object put together from instructions



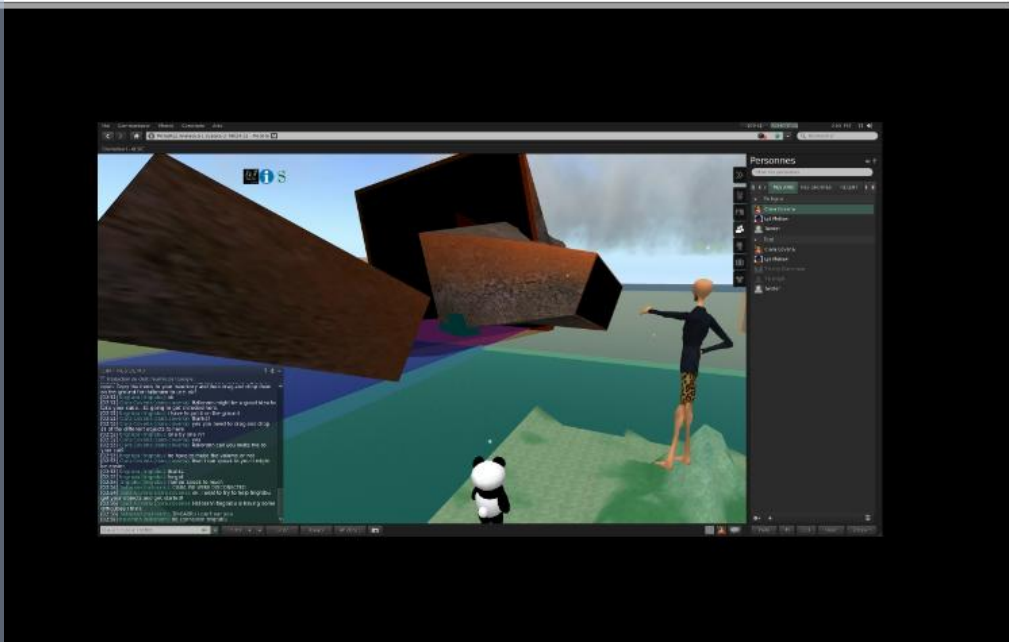
Research Questions

- How do the students use the verbal and nonverbal modes during the building activity?
- What verbal and nonverbal strategies are used by the students to reference the objects being used in the task?

Analysis using Qualitative Data Analysis Software



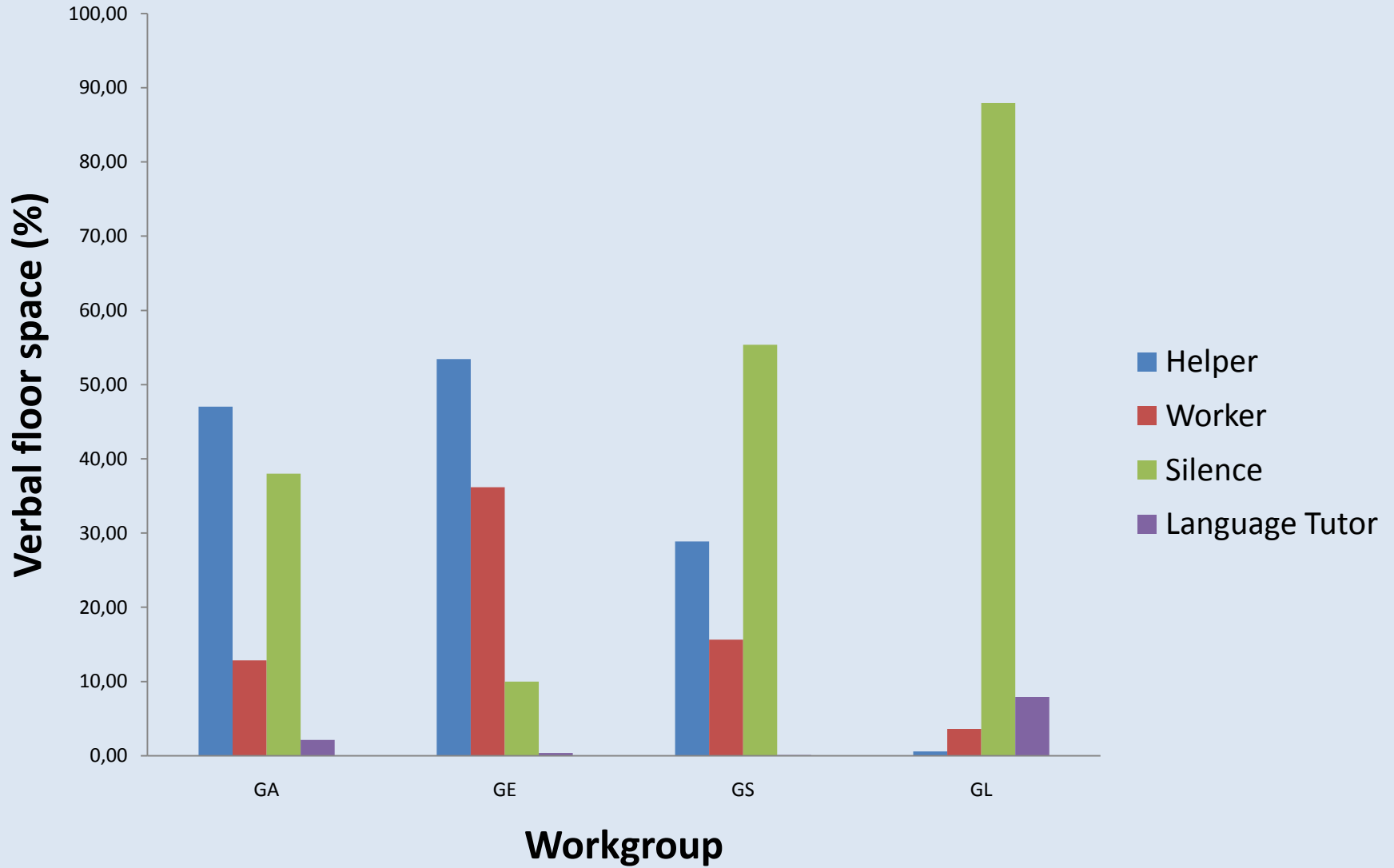
- audio
- density of coded acts
- nonverbal act
- verbal act
- verbal reference to an object coded by type



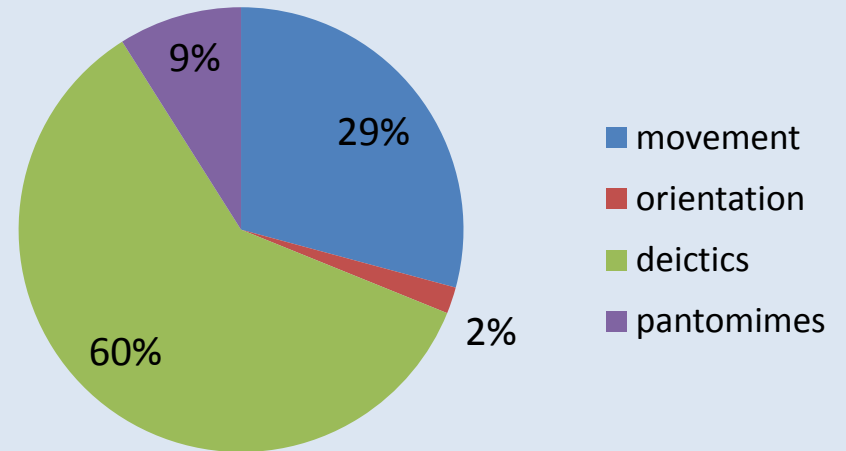
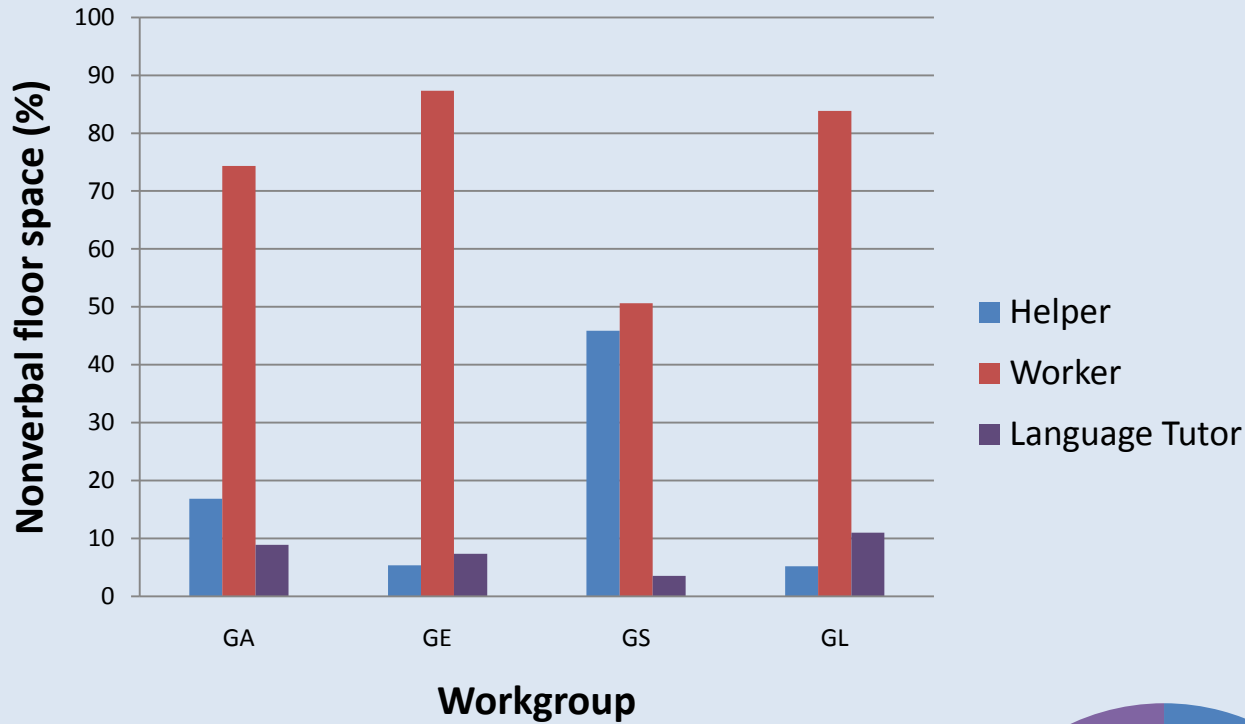
video

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Use of the Verbal Mode

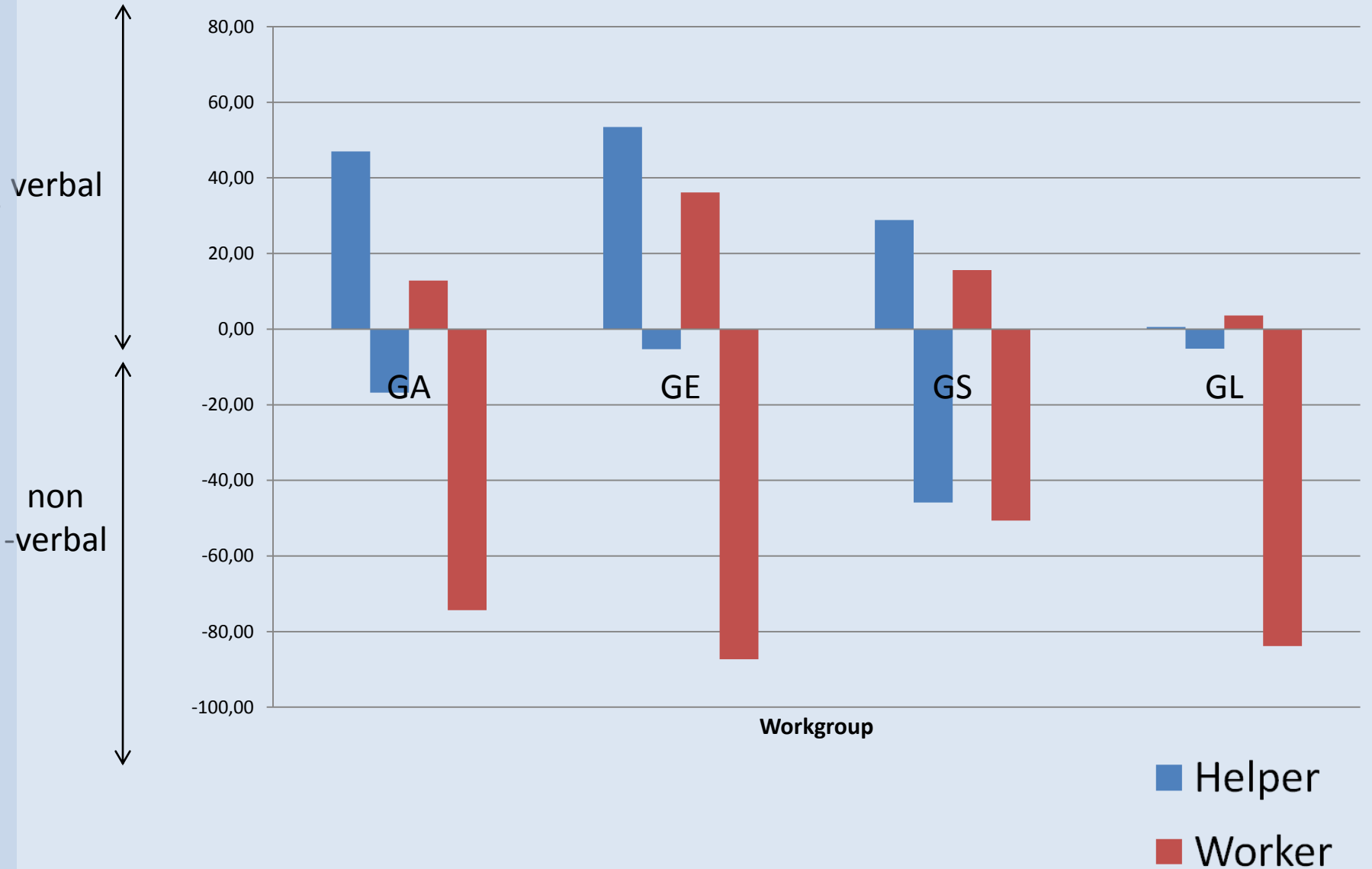


Use of the Nonverbal Mode



Links between the Modes

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Links between Modes



[tpa, tfrez2, 1:14-1:29] Please can you just come and stand in a circle around me so perhaps Hallorrann you can just yep + Hallorann can you turn around so you are facing me + great and Romeorez a little bit forward please



- organisation of proxemic positioning of students
- building activity success – architecture and linguistic objectives

Verbal Acts Referring to an Object

- More acts made by helpers (247 compared to 99 for workers)
- 10 different types of verbal referencing acts

| Reference type | Example of act | Percentage of acts by helpers | Percentage of acts by workers |
|----------------|--|-------------------------------|-------------------------------|
| name | the first <u>dome</u> + don't touch don't touch | 19.22% | 4.39% |
| size | <u>the big</u> the hole is in front of uS: okay <u>the big</u> is good | 13.64% | 3.06% |
| description | <u>it seems like two squares+ two twisted squares</u> | 10.10% | 3.03% |

Nonverbal Acts Referring to an Object

- use of avatar position to contextualise verbal acts of reference
[tpa, romeorez, 1:19-1:30]: do you know I'm going to take my avatar and put me where you have to put things
- after a unsuccessful verbal act
[tpa, crispis, 14:14-1:17]: okay you're going to move this object
[tpa, prevally, 14:18-14:19]: which one
[tpa, crispis, 14:19-1:21]: ah I'll go over to it
- after a verbal exchange about the difficulty of the task
[tpa, quentinrez, 0:41-1:04]: okay so you confused yourself and I'm just paying for your mistakes very fine + you really want us to do that in a lot of time and a lot of pain

[intv, quentinrez, 26:08-27:20]: *In fact it's because + I'd say directions and rotations because we have a very poor vocabulary when we're speaking in French as in English and try to describe a position or a direction or something to do with orientation in fact ... that is the specific area where we are really missing lexis + orientation"*

Future Perspectives

- In a CLIL approach need for scaffolding concerning L2 expressions to describe directions, rotations and orientation
- Need to make students aware of the importance of their proxemic behaviour during introduction to Second Life activities
- Analysis of successful and non-successful verbal acts referring to objects – what strategies were not successful? What work on expression is needed if a ‘learning by building’ approach is to be adopted?
- Use of verbal and nonverbal modes in reflective activities?

Thank you!

ARCHI21 Consortium partners:

Ecole Nationale Supérieure d'Architecture de Paris-Malaquais

Blaise Pascal University

The Open University

The University of Ljubljana

Aalborg University

The University of Southampton

Contact : ciara.wigham@univ-bpclermont.fr

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