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Teachers and ICT as mediators of the students’ knowledge construction in a face-to-face environment

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From a socioconstructivist perspective of teaching and learning processes, our research stresses on:

- Learning as a process of Knowledge construction of the students, and teaching as a process of helping and mediating the process of learning

- The relevance of joint activity for learning: the forms of relationships among teacher-content/tasks - students
Theoretical background

- ICT as mediating tool of the teacher’s and students’ joint activity: the relationships among teacher-content/tasks -students

Aims

- To identify and describe the uses of ICT in a face-to-face (F2F) instructional sequence (IS)

- To identify some of the characteristics of the teacher’s educational intervention
Questions

- How is ICT specifically used in a F2F ICT-supported environment? What is the “participation structure” in relation to ICT: Who uses ICT? When? How? With what purpose is it used? With whom and in respect to what is it used?

- What are the kinds of guidance that the teacher offers the students?
Methodology

- Observational approach, qualitative analysis, case study methodology

- The instructional sequence (IS):
  - 6th grade class of primary public school (12-y-olds)
    - “Project: Edumet. Climate and weather “
  - 20 sessions along 4 instructional phases (4 months):
    - Presentation of participating schools
    - Joint construction of a meteorological data base
    - Investigation
    - Conclusions exchange

www.edebedigital.com/proyectos/228/
Methodology

- Collected data:
  - Audio and video classroom recording. Narrative notes
  - Electronic interactions recording
  - Interviews with teachers and students
  - Instructional planning documents and other didactic materials and products

- Data analysis:
  - Analysis of joint activity segments (JAS) in IS, activity segments mapping: using the model of analysis of joint activity
  - Analysis of ICT uses during the development of the joint activity segments of instructional sequence
Results

- ICT as mediators of the knowledge construction
- Teacher as mediator of the knowledge construction
Results. ICT as mediators

- The different uses of ICT in different forms of joint activity during the IS

[Table of type of JAS and type of uses of ICT]

- This different uses of ICT imply different forms of mediation of relationships among teachers-content/task/students
Results. ICT as mediators

1. ICT as mediator of relationships among teachers-content/tasks-students in the classroom

- ICT as instruments of presentation information about content/task and ICT as instrument of regulation of the activity of students during teaching and learning process (errors, misunderstandings...)
  - ICT to define the working space/procedure
  - ICT as learning content
  - ICT as an amplifying instrument of the teaching action
Results. ICT as mediators

2. ICT as mediator of relationships among teachers-content/tasks-students in the web Edumet

- ICT as instruments for to share information and knowledge with other participants from different schools
  - ICT as communicative tool (to publish)
Results. ICT as mediators

3. ICT as mediators of relationships between students and learning contents/tasks in the classroom

- ICT as instrument to perform tasks
  - ICT as cognitive tools
  - ICT with instrumental use
4. ICT as mediator of relationship between students in the web Edumet

- ICT as instrument for the communicative exchanges among students from different schools and the collaborative work
  - ICT as communicative tool
  - ICT as collaborative tool
Results. Teacher as mediator

- The different forms and moments to assist the students in a F2F environment are related to the instructional function of the ICT assisted activity
  - Providing the students with information about meteorological contents and contents about ICT
  - Promoting collaboration among students (to construct a data base or writing a text)
  - Promoting communicative exchanges between students
Results. Teacher as mediator

- The different forms and moments to assist the students in a F2F environment depend on the relationship and the articulation between the ICT-supported activities and the tasks without ICT

[Map of the evolution of JAS and uses of ICT in IS]
In order to understand how teacher and ICT mediate the students’ knowledge construction we need to consider different perspectives of analysis.

- **Instruccional planning of ICT**: The planned uses of technology for particular instructional purposes do constrain but do not determine the actual use in educative practices.

- **Actual uses of ICT** during the development of teaching and learning processes: We need to analyse the uses of ICT in joint activity.
Discussion-Conclusions

- To understand the actual uses of ICT during the joint activity requires a typology of ICT uses in teaching-learning processes.

- The different uses of ICT that have been identified can contribute to improve this typology in relation to a face-to-face environment.
Discussion-Conclusions

- ICT as technological tool is not a mediational tool by itself, but can it be used as mediating tools of knowledge construction depending on the actual use by teacher and students during the development of joint activity.

- Effective teaching in effective learning environments that integrate ICT must offer assistance at the time it is needed and in the manner it is needed for the knowledge construction.
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Thank you very much!
Map 2 of the evolution of JAS and uses of ICT in IS

Map 3 of the evolution of JAS and uses of ICT in IS