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Exploration of the pupils' representations regarding new technologies

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Rationale

Research in pedagogy and cognitive sciences has led to a new understanding of the nature of students' learning. At this time, it is widely accepted that learners progressively build themselves their "proper view of the world" from their observations and experiences. In this process, an important issue is tied to the way learners reorganise systems of prior representations of a given situation, when taking into account new experience.

In the light of this perspective, this research (named *Représentation*) aims at the development of a cartography of pupils (K 10-12) representations on ICT (both declarative and procedural). The goal here is to study pupils' representations in terms of cognitive and socio-cultural factors and the focus is on primary education level. It is based on a three-axis assumption embedded both in theory and practice:

- ✓ the tools and applications of recent technological developments, as these are integrated in our teaching/learning practices, require investigation in terms of the representations these articulate in our perceptions

- ✓ teaching for or with ITC requires a differentiated conceptual framework of the learning processes and teaching practices (both in terms of acquisition and transfer of knowledge) and

- ✓ learning and cost effectiveness in learning material development is achieved when these are developed with the appropriate to the media methods and tools and take into account the new modes of representations and transmission.

Methodological approach

The research approach calls for an in-depth review of the state of the art, design of the research methodology, formation of teachers network and the corresponding training, tools development and installation, collection and analysis of evidence, pedagogic audit and dissemination actions.

The main objectives (scheme 1) come to address the issue of representation through a bottom-up approach namely that of case studies. It calls for a multilevel investigation of students' representations with feedback and quality control assurance mechanisms built into its design. Representations of new technologies, their capabilities and the relevant perception being formulated are being studied with the utilisation of tools that are being developed/integrated in the frame of this project. These tools (concept mapping software) include exploratory and open software and Multimedia-based applications available on the Internet.
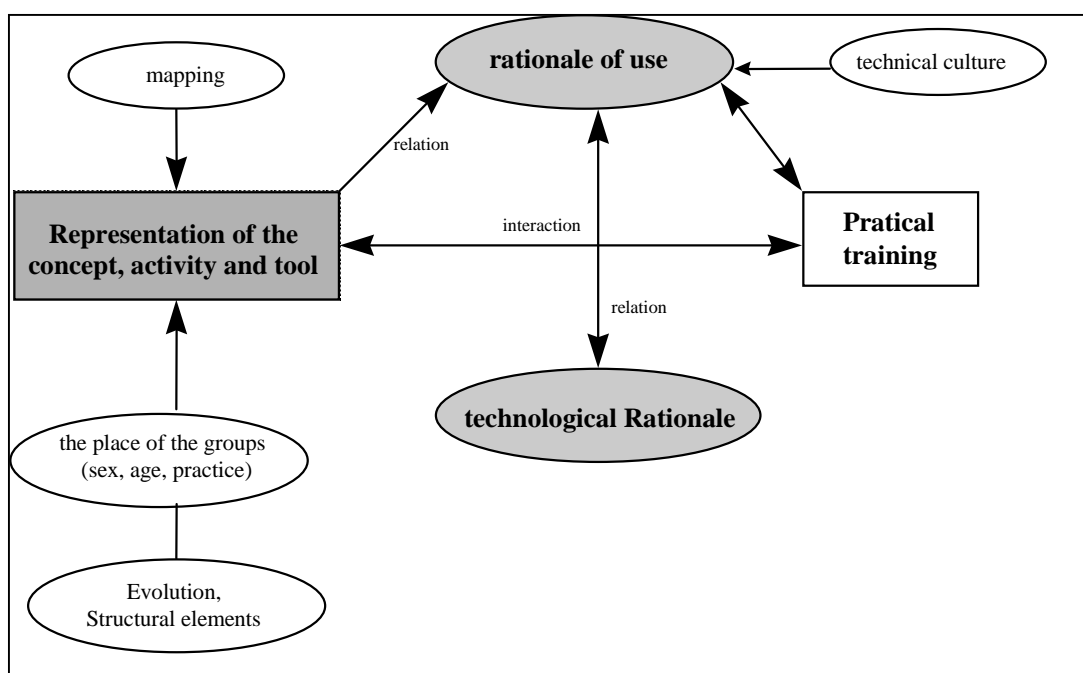
Scheme 1: objectives of Representation project

The set of tools to be utilised in conjunction with pedagogical practices, learning arrangements and classroom observation is to bring forth the representative structures and their evolution processes in/of pupils as these learn from/with the assistance of ICT. Research is to be conducted in diverse learning and cultural environments

throughout Europe. Existing school networks constitute the project's research sites and from those validation sites will be identified.

Current work - discussion

The review of literature undertaken point to the direction that "context" is a decisive factor in the emergence and evolution of ICT representations. In light of that regulatory and contextual frameworks were reviewed for the six countries (Denmark, Greece, France, the Netherlands, Spain, United Kingdom) participated in the research.

This review revealed that while there is comparability, between the six countries, at the level of intention, diversification exists at the meso level (institutional approaches and organization of ICT usages), and that a great many similarities exist at the micro level (pedagogic orientation / arrangements).

Central to the review is the fact that the concept of "curriculum" is not uniformly perceived in the educational structures of the different countries. The variation in meaning the term curriculum takes can easily be traced into the structures of the educational system itself, which in essence reflects on the nature of the societal and organisational structure of the country.

Likewise, the type of curricular approach embedded in the philosophy of the educational system appears to have an impact on the nature and scope of ICT usage in the learning process.

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