ICT IN CATALAN SCHOOLS: A LOOK TO ITS FOUNDATIONS AND EARLY DEVELOPMENTS

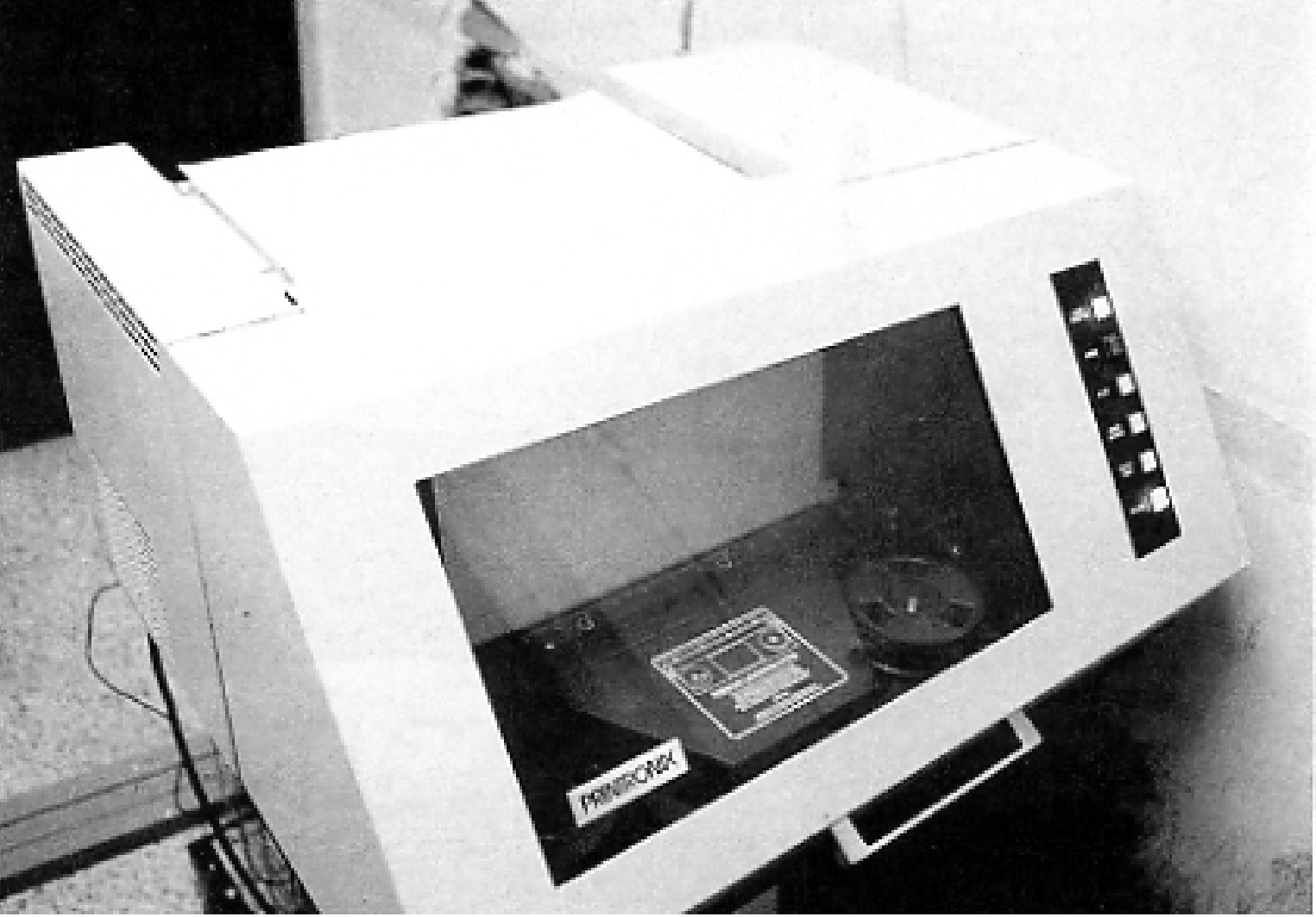
Jordi Castells Prims
Ferran Ruiz Tarragó

Generalitat de Catalunya
Department of Education

First initiatives and actions: 1982-1985

- Variety of initiatives of teachers, universities, and of the Department of Education
  - Computer Assisted Learning in primary school mathematics (TOAM system) in 12 schools (PDP-11 minicomputers with 32 terminals each)
  - Vocational education (PCs)
  - Logo in primary education (Apple II)
  - Mathematics projects in Baccalaureat (PCs)
  - Other (Atari, BBC, Commodore, TRS-80, …)

TOAM classroom with the teachers’ control room



... and the printer!

1986: The Informatics in Education Programme (PIE)

- Informatics in Education Programme (Programa d'Informàtica Educativa, PIE)
- Created in January 1986
- To develop and specific plan for secondary education (including vocational education) between 1986 and 1989
- Important investment
- Extended to primary education in 1990

Tasks of the Informatics in Education Programme

- Define, coordinate and implement policies on:
  - hardware & maintenance
  - software & development
  - in-service teacher training & teacher support
  - curriculum development & educational experiences
  - information, documentation and communication
  - telematics services
- Promote collaborations & partnerships

Main equipment features of the 1986-1989 period (PIE)

- 3500 computers in 350 secondary schools
- PC standard with MS-DOS
- State-of-the-art: every PC with hard disk drive and colour monitor
- Modem in all secondary schools (1988)
- “Framework” integrated package & variety of professional and educational software (Catalan language)

The 1986 star in the secondary schools of Catalonia

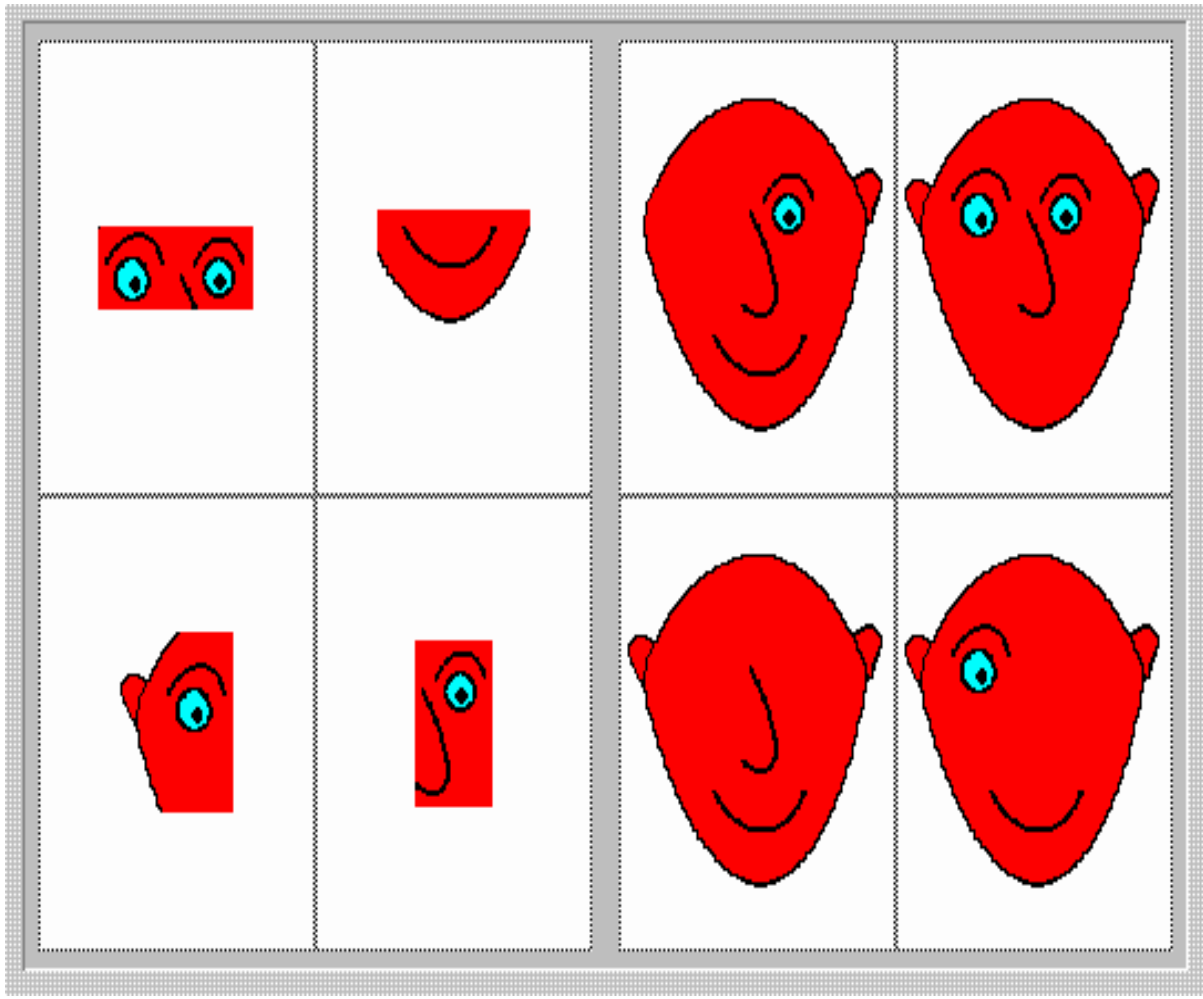
Bull Micral 30

Specific curriculum development projects in 1990

Special needs education (interfaces, peripherals)	4
CAD / CAM (voc. educ.; ATP numerical control, AutoCad)	29
Desktop Publishing (Page Maker, school magazines)	50
Graphics & Design (Autosketch, DPaint, colour printers)	47
Control and robotics (sec. educ.; Logo, Fischer Technik, BSP)	30
Data logging (mechanics & electricity sensors, PC Card)	20
Music education (Music, MIDI keyboards, Personal Composer)	45
Telecommunication in rural schools (primary ed.; XTEC, Agora)	30

A very powerful environment: CLIC (authoring tool & player)

- Multimedia objects
- Main activities:
  - puzzles
  - associations
  - memory games
  - text activities
  - crosswords
- 120.000 screens of activities
- Freely available on the Internet



In-service teacher training. Government objectives

- To familiarize teachers with computers, related equipment and the diverse types of software
- To promote confidence in the classroom use of IT applications
- To show good practice across the curriculum (different topics, techniques and approaches)
- To foster professional development and curriculum innovation

Courses for secondary education teachers in 1988-89

Introductory courses to IT in education	124
Word processing, databases and spreadsheets	55
Document databases	7
Logo	9
Telematics	8
Pascal programming	2
Curriculum subjects with computers	31

There was no formal presence of IT in the curriculum until 1993. This still is a controversial matter

In-service teacher training. What do teachers want?

- To be informed of training activities
- To be able (time and place) to participate in them
- To choose the most suitable courses according to their own criteria
- To get useful training and to get satisfaction from the activity
- A smooth and comfortable process

In-service teacher training. Set-up of specific strategies

- Information (concise, on time, avoid errors)
- Effective access to courses (calendar, place, personal time and costs, long-term plans)
- Adequacy (real curriculum, classroom practice)
- Quality of design and implementation (authoring, modularity, consistency, materials)
- Quality of realisation (competent, motivated, coordinated and accountable trainers)
- Good management (trainers, registration, control, strictness of the whole process)

What we learnt and has remained valid/true

- Teachers do not consider IT as an end in itself
- Not all teachers see IT as a poweful tool to extend teaching and learning processes
- There is no single “best use” of IT
- Human and organization factors are most important
- Integrating IT in school life is a difficult task that requires time, commitment, suport and rewards

Early emphasis on telecommunications

- Creation of the Catalan Telematic Network for Education in 1988 (XTEC)
- Actions:
  - setting up of infrastructure
  - applications, service and content development
  - organization of innovative educational projects
  - distance in-service teacher training
  - support services

The Catalan Telematic Network for Education (XTEC) in 1988

- Server
  - BULL DPS8/49 (GCOS)
  - BULL DPX II (Unix, since 1991)
  - DATANET communications front-end
- Transport:
  - switched voice network
  - data network (Iberpac, Ibertex)
- Terminals:
  - MS-DOS microcomputers
  - internal modems
- Public service, specific to education, free of charge

XTEC Main Educational Applications

- Reference resource database (SINERA)
- Curriculum development through teleconferencing
- Distance in-service teacher training
- Education news service
- Messaging (pre e-mail) system

SINERA: reference database of educational resources (1988)

- Aim: facilitate online access to educational resources selected by teachers
- Implemented on MISTRAL document database
- Network of information providers & indexers
- Common document format
- Centralized control and uploading
- Videotex mode search
- Full-duplex mode search:
  - MISTRAL query language (terminal mode search)
  - PC-based interface software

1992: CD-ROM and multimedia PCs in schools

- CD-ROM drive or multimedia PC in (almost) every school
- SINERA on Disc (1993): the references plus the digital resources on a single disk

Curriculum development through teleconferencing

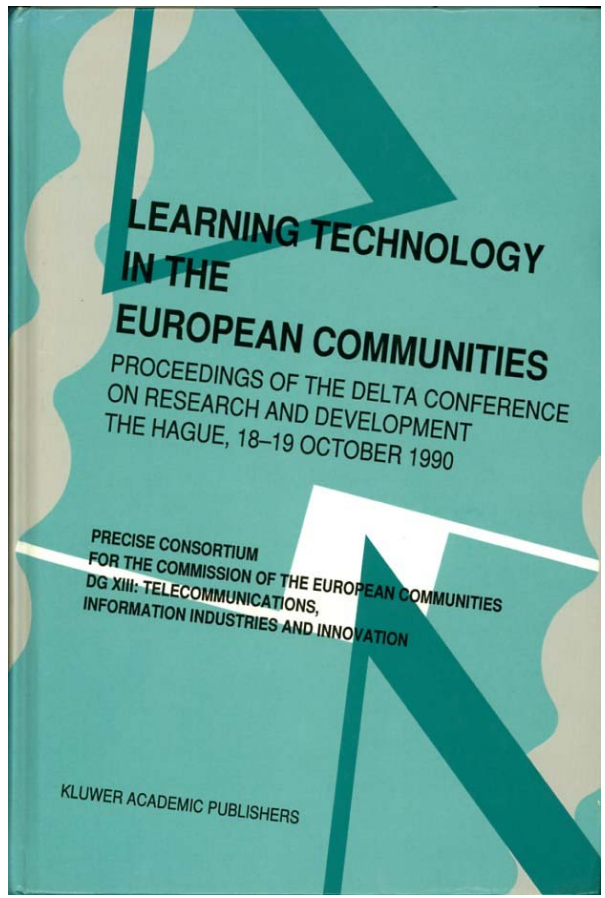
- The teledebate concept:
  - contruction of a database of well developed messages
  - by students of different schools
  - over a fixed period of time
  - according to strict curriculum goals and methodology, agreed previously by teachers
  - under the lead of a moderator
  - with external support

Early days of XTEC services

A tipical videotex screen (XTEC messaging service)

New approach to distance in-service teacher training (1990)

- Design & implementation of a telematics-based approach to training
- Two experimental courses:
  - document databases
  - spreadsheets
- Independent follow-up & evaluation



Distance in-service teacher training: services to learners

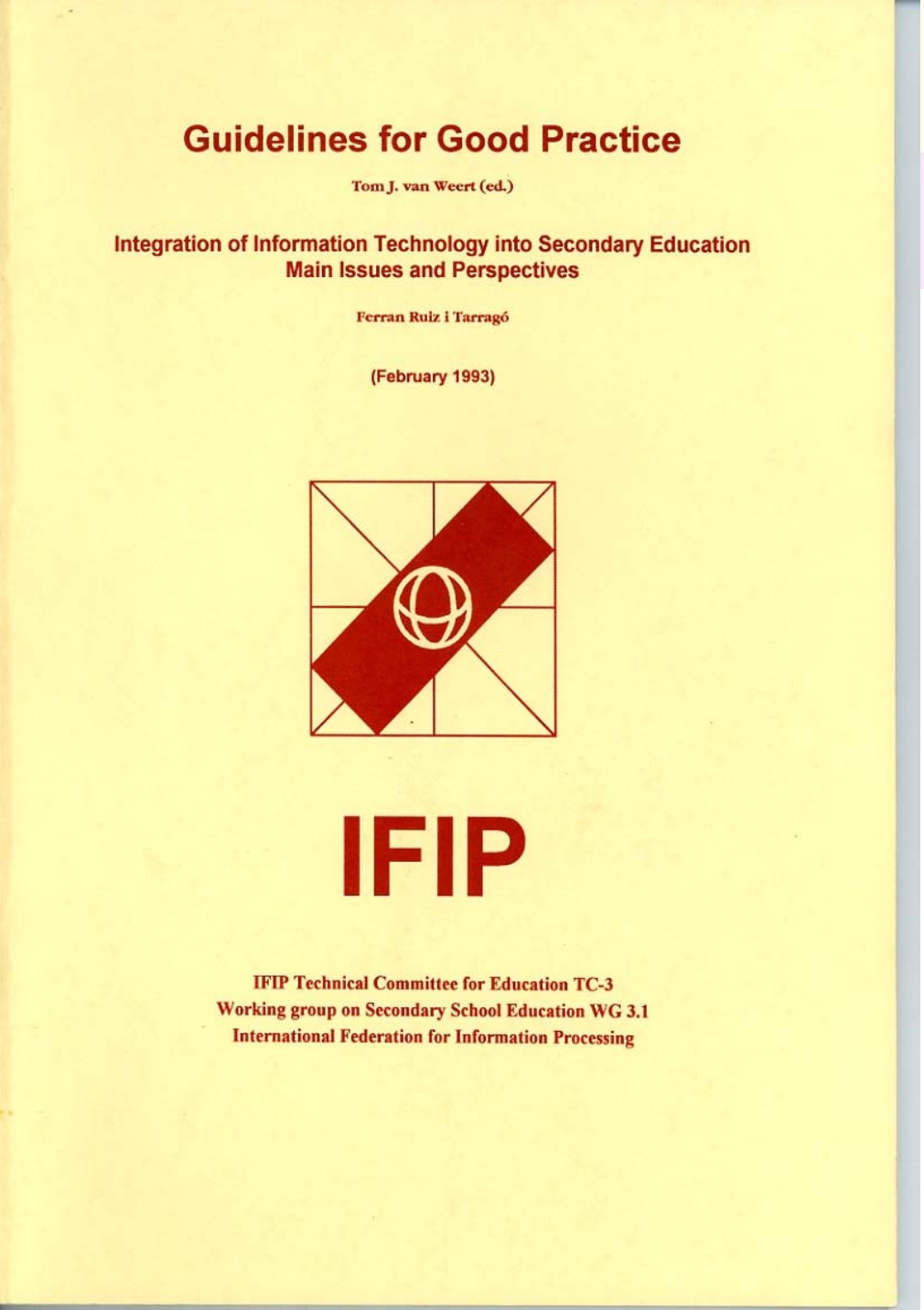
- Collaborative learning environment
- Delivery system to download files and text materials
- Continued personal tutorial help by e-mail
- Modular learning materials
- Communications & applications software
- Some face-to-face group meetings
- Personalized project guidance for every student
- Course certification

Distance in-service teacher training: learning materials

- Study guide: specific objectives and contents of course modules
- Working materials: worksheets, software, etc
- Assignments: practical work, self-assessment
- Software: programs & specific manuals
- Readings: case studies, papers
- Bibliography for further reading
- Elements of evaluation for the tutor

A heritage of the 1992 Barcelona
Barcelona Olympic Games

150 Unix workstations for schools (Sun IPX)
XTEC turns to the Internet



Many ideas and experiences of those early years of ICT in education were reflected in this IFIP publication

It's just another proof of the contribution of IFIP to the History of Computing in Education

Thank you very much

Jordi Castells Prims jcastell@pie.xtec.es
Ferran Ruiz Tarragó ferran@pie.xtec.es