Teachers and technology - between a traditional and a modern approach

Klára Šeďová, Jiří Zounek

http://www.phil.muni.cz/wupv
http://www.zounek.cz/

Department of Educational Sciences, Faculty of Arts,
Masaryk University, Brno, Czech Republic

ECER 2009

Former title

ICT beyond a “special treat”: drawing a picture of Czech teachers at work

Czech Republic

J. A. Comenius

This paper is a part of the output of a three-year-project called…

Information and Communication Technologies in Everyday Work of Teachers

The grant project is supported by the Czech Science Foundation (grant #406/06/1022)

This presentation has also been made possible by a scholarship at the ***Institute for Advanced Study in the Humanities and Social Sciences*** *(NIAS) of the Royal Netherlands Academy of Arts and Sciences* in 2009.

Presentation outline

- Research methodology
- Selected results of the quantitative stage of the research
- Some conclusions following from the results
- Selecting from our book:

ZOUNEK, ŠEĎOVÁ. **Učitelé a technologie. Mezi tradičním a moderním pojetím. Brno: Paido, 2008**.

The presentation can also be downloaded at

http://www.zounek.cz/

Research objective

- Explore and describe whether and how ICT affect everyday work of teachers, viewed as the key protagonists of formal education

Research methodology

empirical research designed as **qualitative/quantitative** and structured into 2 main stages

- Stage 1 – **qualitative**; objective: describe inductively how teachers use ICT

- Stage 2 – **quantitative**; objective: determine the distribution of identified phenomena in teacher population

First stage of the research project 2006 - 2007

- qualitative analysis of ***in-depth interviews*** with primary school teachers (ISCED 1 and 2) … and ***class observations*** (video recordings)

- results: see ECER 2007 presentation – ICT and power in class

Second stage of the research project 2007 - 2008

- analyses of data from the questionnaire (return rate 67 %, 404 respondents)
- random-selected teachers from South Moravian schools (ISCED 1-2)
- data analysis – Statistica

What is going on in the classroom?

ICT integration is manifest at two main levels:

1) **the methodological** level

   - ICT is used as a methodological tool (ECER 2008)

2) **the relations** level

   - ICT is used as a tool of teacher power (ECER 2007)

Selected research results

Motivations to use ICT

- **Push** = an external requirement necessary to adjust to (**school leadership** or "**techie kids**"/net generation)

- **Pull** = an opportunity attractive to an individual ("**puller**" – a person who inspires respondents or **technologies themselves**)

How teachers view their own attitude towards ICT

Type of attitude	Share of respondents
pull	75 %
push	61 %
no response to push or pull	26 %

Respondents could choose push and pull simultaneously (the teacher can respond to both push and pull).

Which means that

Pull is the most significant motivation factor

BUT some sources claim that:

- school management is an important factor of successful ICT use in school

- see e.g. DEXTER. Leadership for IT in Schools. In VOOGT, KNEZEK. *International handbook of Information Technology in Primary and Secondary Education*. 2008, p. 543–54.

What does this amount to?

- teachers in our sample perceived their innovator colleagues as those who were the real help

school management stayed in the background - why?

- management activities are invisible to the respondents (they do not see specific results, „only“ purchase of technologies, no clear vision)
- school management does not fulfil its role
- school management has other priorities

Barriers

Barrier	Share of respondents
technology failure may spoil a lesson	71 %
demands on preparation	58 %
insufficient teacher knowledge of materials, applications and ways of using ICT in class	43 %
inadequate ICT base in school	41 %

What does this amount to?

- teachers do use ICT but are aware of its potential unreliability

- high demands on preparation are a typical problem of initial stages of learning to control any new device/application (the barrier is likely to recede)

- insufficient knowledge of materials – insufficient support on the part of central administration and institutions (SIPVZ has virtually ended, massive advertising etc.)

Between educational paradigms

traditional educational paradigm

- based on a general systems theory, cybernetics and especially (neo)behaviourism
- ***selected characteristics***: learning is a behavioural change, an external stimulus influences the pupil's learning and behaviour, the teacher is central, instructional teaching, content divided into small parts or steps

modern educational paradigm

- based on constructivism, respects importance of specific readiness of pupils to learn as well as importance of their contact and interaction with the environment etc.

- ***selected characteristics***: learning is viewed as a personal, reflective and transformative process, teacher as facilitator, help, guide, couch; interactive or dialogical teaching etc.

these two paradigms informed the interpretation of our empirical results

as the following example will demonstrate

Methodological functions of technologies (ECER 2008)

- *Original, inductively derived **typology** concerning all technologies*

- ICT as a **medium** (presentation, self-study)
- ICT as a **working tool** (tasks, projects)
- ICT as a **testing tool**
- ICT as an **extension** (eye, abilities)
- ICT as a **stage prop** and **stuffing**

Between educational paradigms

(ECER 2009)

traditional paradigm:

- ICT as a **medium**
- ICT as an **extension**
- ICT as a **testing tool**

modern paradigm:

- ICT as a **working tool**

beyond the paradigms:

- ICT as a **stage prop** and **stuffing**

In conclusion

- teachers in our sample population tended to use ICT in traditional ways
- routinizing the use of ICT in some frequent activities, teachers create space for more creative work based on face-to-face communication

- even in ICT-supported teaching, the relation between teachers and pupils remains traditional (teacher strive to keep control over the class)

- unreadiness of teachers to use technologies in in methodologically efficient ways – not only teachers to blame

- but: the book describes a group of enthusiastic teachers whose lessons proved that the constructivist dream of modern school involving ICT support *can* be transformed into reality

leading motive of the book:

ICT skills and the skill of using it as a teacher are two distinct groups of skills

(see MISHRA, KOEHLER. Technological Pedagogical Content Knowledge: A new framework for teacher knowledge. *Teachers College Record*, 2006, Vol. 108, issue 6, p. 1017–54)

Questions and issues which emerged from the research

- Cuban (*Oversold and Underused: Computers in the Classroom*. Cambridge: Harvard University Press, 2001) – **unrealistic expectations**:

  - *technologies have been overestimated by both optimists and politicians (and the public, too – we would add) and insufficiently used by teachers and pupils*
  - *schools are not businesses*

- **Is the traditional paradigm truly dead? Or are the two paradigms two equally feasible approaches to teaching and learning?**

- we are inclined to support the opinion that: flexibility and liberalism in choosing a theoretical concept benefits ICT in education as to both development and research

(see e.g. RAVENSCROFT. From conditioning to learning communities: Implications of fifty years of research in e-learning interaction design. *ALT-J*, 2003.)

- **What will the emerging technologies bring in their wake?**

  (social networks, Wiki, Weblog, Podcasting, …)

see e.g.

Zounek. **E-learning – One of the Forms of Education in Modern Society.** Brno: Masaryk University, 2009.

(in print, the book was written during the stay at NIAS in the Netherlands)

Thank you for your attention

Masaryk University, Department of Educational Sciences, Brno, Czech Republic
http://www.phil.muni.cz/wupv

***Klára Šeďová* - ksedova@phil.muni.cz**
***Jiří Zounek* – zounek@phil.muni.cz**