

A SUMMARY OF TEACHER ATTITUDES TO ICT USE IN SCHOOLS

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Overview

This brief report summarises recent research on teachers' attitudes on the use of ICT in education in countries participating in the iTEC project. This report should be seen neither as a comprehensive review of research across all the countries nor as the definitive account of teachers' perceptions of the use of ICT. Because of the range of experiences and lack of comparable studies for all countries, some of the information may also appear contradictory. This reflects the complexity of the issue and the diversity of the region. This report focuses on secondary-level education and studies from the past 5 years.

Background: ICT in education across Europe

There has been recent significant investment in ICT across European education systems at a variety of levels (eg, policy emphasis, infrastructure investment, teacher training in ICT). The majority of schools now have access to the internet and computers in classrooms, though this access still varies greatly across countries and among schools in each country (Korte & Hüsing 2007).

Unsurprisingly, investment in ICT 'kit' does not guarantee its effective use or what impact it will have. Even in countries where the commitment has been significant and ICT equipment is seemingly ubiquitous, its use in classrooms is highly variable and often underwhelming (IEA 2006). Indeed, the IEA's 2006 SITES survey of 35,000 teachers in 22 countries (including 9 involved in iTEC) found no correlation between pupil-computer ratio and use of ICT in classrooms. While teachers may recognise the positive potential that ICT can offer in the classroom, that potential is rarely realised (Gulbahar & Guven 2008, Bingimlas 2009).

Use of ICT also varies hugely across Europe. An Empirica survey of 30,000 headteachers and teachers across 27 countries in Europe reported that 35% of teachers in Latvia report they have used ICT in class in the last year, compared with 96% of teachers in the UK (Korte & Hüsing 2007). The same study found that ICT use spanned all subject areas, the highest share of ICT-using teachers are those who teach 'mathematics, science and computer science' (ibid). Differences in national curriculum policy and emphasis have also been shown to impact on how ICT is integrated into different subject areas (IEA 2006).

In terms of *how* ICT is used, the SITES study suggests that its impact is 'highly dependent on the teaching approach when ICT is used' (IEA 2006, p2). Employing a

student-centred focus and enquiry-based group work reported greater student gains in what the report called '21st Century Skills' like 'self-directed, collaborative inquiry' (ibid).

The reasons why ICT is either adopted or not in schools are complex. There appears to be an interplay between individual factors (eg, teachers' lack of skills, insufficient training) and wider, system-level factors such as school and national policies and the complexity of integrating ICT into the curriculum. Significant research has examined what obstacles and enabling factors affect the integration of new technologies in schools. One of the most important determinants to the uptake of new technologies is teachers' attitudes to ICT use in learning.

Teachers' attitudes on using ICT in education

A majority of teachers perceive ICT to offer advantages to classroom learning but many also struggle to see specific benefits and methods for use.

A number of studies have identified these contrasting perceptions from teachers. (Korte & Hüsing 2007, Balanskat et al 2006, Becta 2008). In an EU Schoolnet (2010) pre-pilot teacher survey on usage of Acer netbooks involving 6 countries, a significant majority of teachers agreed that netbook use impacted positively on learning, allowed for personalised learning and helped to extend learning beyond the school day. However, other research suggests that a significant minority of teachers do not see considerable learning benefits for students from ICT, regardless of the sophistication of their ICT systems. The Empirica survey found that a fifth of European teachers felt that using computers in class did not have 'significant learning benefits for pupils' (Korte & Hüsing 2007)¹. A survey of UK teachers also showed that teachers' positivity about the possible contributions of ICT was moderated as they became 'rather more ambivalent and sometimes doubtful' about 'specific, current advantages' (Becta 2008, p45).

Teachers differ on whether they feel ICT makes their jobs easier or adds to their workloads.

Nearly half of teachers participating in the netbook survey agreed that using netbooks would increase their workload (EU Schoolnet 2010). Bingimlas (2009) suggests that one of the major reasons teachers do not use ICT significantly in lessons is due to time limitations in their job. However, Becta's 2008 survey found that across sectors a small amount of time was saved by using some technologies, particularly online resources and interactive whiteboards. Balanskat et al (2006) identified lesson planning as an area where ICT helped teachers work more efficiently, particularly through its ability to support collaboration and resource sharing.

¹ This scepticism about the benefits to learning seems to have little relation to a country's ICT profile; 'it is expressed by teachers in leading countries with regard to ICT use as well as in those countries lagging behind' (Korte & Hüsing 2008, p4).

A majority of teachers responding to an EU Schoolnet report (2009) are also using games in classrooms and want to know more about how to use games as teaching tools.

This holds true regardless of their gender, age or experience with using games themselves.

Teachers have varying perceptions about their effectiveness when using ICT in the classroom, which can subsequently impact on how much they use technologies in the classroom. For example, teachers in the UK reported high levels of self-rated effectiveness, but teachers in a Turkish study felt much less confident about their technology skills and therefore usage in the classroom (Becta 2008; Gulbahar & Guven 2008). On a related note, Bingimlas (2009) reported that teachers who are confident in ICT use agree that new technologies help them teach and would like to use them more in the future. An extensive research review by Balanskat et al (2006) found that teachers' practice 'is not changing much when they use ICT', but it also reported that teachers with highly positive perceptions of ICT impact will use ICT in a more 'project-oriented, collaborative and experimental way' than other teachers.

Perceived barriers and enablers to ICT use

Teachers' positive perceptions of the potential benefits of ICT use do not necessarily lead to its adoption in daily practice or the improvement of teaching and learning. A large body of research has examined what factors both hamper and facilitate the uptake of ICT in education.

It can be difficult to identify the discrete barriers and enabling factors that affect the uptake of ICT in education across Europe because they are often interlinked. Additionally, the factors identified below may not apply to all countries, as different countries have varied policy and curricular emphasis, teacher development plans and institutional investment.

The barriers to ICT use, as reported by teachers, include²:

- Variable access to resources, including hardware, broadband, updates and technical support. Access differs greatly across European countries, especially in areas like broadband, pupil:computer ratio and institutionalised technical support (Korte & Hüsing 2007). Teachers in the netbook survey identified technical problems (eg, freezing, inability to access the internet) as their top concern when using the netbooks (EU Schoolnet 2010).

² Teachers' 'resistance to change' has been identified as a main barrier to ICT uptake in schools, but Bingimlas (2009) suggests we look deeper at the issue and investigate what factors incite this resistance to change. Many of the barriers listed here can be seen as factors that fail to motivate teachers or do not offer effective incentives to change practice and adopt technology.

- Lack of support on the use of ICT in learning environments. Teachers reported a lack of clarity and understanding on the benefit to learning and how to translate it from policy and the curriculum into their pedagogy. Other factors included lack of dedicated time to training and experimenting with ICT, insufficient class length and curricular restraints (Gulbahar & Guven 2008). A study on creativity and innovation in Europe also reported that government policies often emphasise buying tools like interactive whiteboards or learning platform environments without the maintenance or training to use them effectively (Banaji et al 2010).
- Low levels of teacher confidence. Teachers report feeling unprepared on how to use ICT in the classroom to support learning. ICT was the second highest area identified as a 'high development need' by teachers in the TALIS survey (European Commission 2010). Teachers have also reported feeling anxious about using ICT in classes when they perceive that students know more about ICT than they do (Balanskat et al 2006).
- Lack of skills and knowledge. Studies show that even for teachers who are positive about the potential benefits of technology in the classroom, many do not feel competent in their technical knowledge or 'computer literacy' (Gulbahar & Guven 2008). This is true for both those beginning their career and the more experienced (Banaji et al 2010). Additionally, teachers who are technically competent in ICT do not necessarily have pedagogical ICT competence. Also teachers' technical and pedagogical competence is highly variable across different countries (Korte & Hüsing 2007, Balanskat et al 2006).

Enablers to ICT use, as reported by teachers, include:

- Technical and pedagogical support. Support, as identified by teachers, means technical help, administrative support, informal networks for learning, and consistent training specific to teacher's needs (IEA 2006). Support for both the technical and pedagogical use of ICT in education was important. Becta's 2008 survey of teachers also showed that having an on-site technician support helped 'foster teachers' enthusiasm for the use of ICT' (p45).
- Appropriate resources for policy and curriculum priorities. Government interventions and specific programmes that lead to 'routine use' of technologies have been shown to foster teachers' positive attitudes towards ICT use (Balanskat et al 2006). Research suggests that this is particularly effective when ample time and space are made available for teachers to contribute to and act on national and school policies.
- Development of competence and confidence. As discussed above, regular use of technology in the classroom can relate to teachers' feelings of effectiveness and the usefulness of ICT. Those who used ICT in the classroom more regularly also showed higher levels of perceived self-efficacy in ICT use (Gulbahar & Guven 2008).
- Collaboration and sharing practice. Innovative use of technologies in a school is often the result of one teacher's interest or creativity. Sharing practice, collaborative working and development of support networks have been

reported as important factors to help develop more innovative uses of ICT. (Banaji 2010; IEA 2006). This also includes more collaborative teacher-learner relationships. Many teachers reported feeling that they were less knowledgeable than their students about new technologies, leading other reports to suggest teachers work more in partnership with students (Banaji et al 2010).

Looking ahead

Research looking specifically at teachers' perceptions of ICT use across Europe is somewhat limited. Much of the early research on using ICT in education has explored technical competence rather than teachers' attitudes and motivation to using ICT (Gulbahar & Guven 2008). Korte & Hüsing state 'there is a lack of information on the actual use of ICT for learning in schools', particularly on its qualitative impact on pedagogy and teaching methods (2007, p1). There is also a need for further research in how ICT use can be enabled and supported in different subject areas (Becta 2004).

Therefore, the iTEC project could work to illuminate some of the following questions:

- How do teachers use particular types of ICT in the classroom? What are the activities and pedagogies associated with these uses, particularly in relation to different subject areas?
- What helps teachers gain confidence in the use of ICT? What are the motivational factors and support mechanisms that are most effective in developing teachers' confidence in technical and pedagogical aspects of using new technologies?
- How can new relationships be fostered between teachers and learners that allow them to collaborate in the use of new technologies? How can learners' ICT competencies be included in learning and teaching?
- What environments enable teachers to take more risks and use ICT in creative and challenging ways across the curriculum and in different subject areas?
- What is the potential in the use of newer technologies like haptic technology, handheld devices and mobile phones and touch-tables? How can these support 'anytime, anywhere' learning across Europe?

This report has summarised the current landscape of teachers' perceptions of ICT across Europe, with an aim to equip the iTEC project with a better understanding of the factors that affect teachers' relationships with ICT. This background should support project members to develop scenarios that consider teachers' perspectives, think beyond the current 'state of play' and support the integration of ICT into educational experiences that are creative, effective and valuable for every teacher and learner.

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