Review of key studies which have informed WP2 approach to scenario development

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REVIEW OF KEY STUDIES WHICH HAVE INFORMED WP2 APPROACH TO SCENARIO DEVELOPMENT

About iTEC

Innovative Technologies for an Engaging Classroom (iTEC) is a large European project involving 27 partners in 18 countries. The project aims to bring together policy makers, researchers, technology suppliers and innovative teachers in order to design and build learning and teaching scenarios for the future classroom. The aim of the iTEC scenarios is to provide flexible frameworks to enable technology-enhanced learning activities that engage teachers and learners. Within iTEC, Work Package 2 (WP2 - led by Futurelab UK) has responsibility for the development of the initial scenarios. Before being tested in actual classrooms around Europe, some of the scenarios undergo further refinement and are enriched with specific technological resources and tools during the five cycles of the project. Completion of the project is scheduled for August 2014.

Scenario development in iTEC - Work Package 2

Scenario building in WP2 is based on a multidisciplinary approach and reflects an emphasis on the systemic elements that can foster educational innovation. In particular, we have been inspired by studies which have investigated the factors that can impede or nurture the adoption of innovative, technology-enhanced practices in formal schooling. Drawing on 'classic' work on end-user innovation (Hippel, 1991; Rogers, 1995), we assumed that the commitment and the energy of individual users (teachers) is crucial to developing new practices and approaches, and that the most effective way to foster innovation is to create the conditions for these individuals to develop their own solutions to problems. With this in mind, we were keen to avoid in iTEC the simplistic 'rolling out' of innovations, which assumes that dropping a technologically advanced and attractive piece of kit in as many classrooms as possible will automatically lead to scalable 'transformation'. We were fully aware of the 'if you build it they will come' misunderstanding – the idea that if you give something inherently useful to people, they will use it - that has led many genuinely innovative solutions to be neglected and then unceremoniously shelved, not only in education.

Therefore, we came to the conclusion that the development of meaningful scenarios, based on current trends relevant to teachers and learners alike, was a viable way to create the conditions in which teachers could define their own personal roles as end-user innovators. The scenarios can be defined as narrative descriptions of preferable learning contexts that take into account user stories, including the description of resources and the functionalities needed, the interactions they have, the tasks they perform and the aims of their activities. Their main purpose is to provide a context-specific and relevant setting to enable a change in teaching and learning practices, without being too prescriptive to the point of impeding the 'innovation work' carried

out by individuals. The expected outcome of this approach is the initiation of a process of 'diffusion' in which innovation spreads across a system organically (Rogers, 1995).

Although focused on end-user innovators, the scenarios reflect a steadfast concern for the multifaceted nature of educational change. In this respect, we have drawn inspiration from studies which have adopted an 'ecologic' approach to change. Viewing schools as parts of complex ecosystems, these studies have suggested that shifts in certain areas or subsections have repercussions on other areas and on the system as a whole (Law et al 2008, Zhao and Frank, 2003). For instance, crucial influences to educational change – which can hinder or enable innovation - can be located at different levels of a system:

- At the macro – level, government led initiatives, national policy, national curricula, assessment regimes define the broad conditions in which innovations are developed and negotiated, politically and culturally.
- At the meso-level, local influences such as school cultures, management structures, technological infrastructures and the pressures and expectations originating in the local communities have a direct, observable impact on the uptake of innovative solutions in schools.
- At the micro-level, the influences are directly relevant to the innovators themselves and they originate from individual characteristics such as the capacity and the disposition to use technology, the familiarity with alternative pedagogic approaches, not least the time and the personal effort required for such approaches to succeed.

iTEC acknowledges these influences at all times, and the project as a whole is attempting to adopt a systemic approach to educational innovation, most notably through the direct involvement of European education ministries and technology suppliers. Within this framework, we made the conscious decision in Work Package 2 to focus only on the elements that were within the control of individual teachers, notwithstanding the need to consider how even very specific actions are influenced by policy decisions, by local and national cultures, by varying predispositions towards technology and innovation, and more broadly by the socio-economic contexts in which innovations are introduced.

Our aim was to build on research which has highlighted that teachers are often subjected to many pressures to use technology (Bowman, 2004; Chaptal, 2002). If these pressures are not managed and if teachers are not supported in developing a thorough, even critical, understanding of the actual benefits and limits of the many tools and resources they are presented with, they may resort to a tokenistic approach, characterised by low level usage and by superficial practices that focus on presentation of content and classroom management (PowerPoint and electronic registration systems come to mind). Hence teachers may pass muster in relation to the implicit pressures to 'look innovative', but they would still struggle to comprehend the instructional and pedagogical purposes of technology use in their classrooms.

Scenarios for purposeful technology use in the classroom

Conversely, we are trying to make technology use in the classroom a more purposeful activity, by linking it to concrete issues which have bearing for teachers and learners. With this in mind, we adopted two key criteria which guide the development process. The first is the need to account for variations in 'distance and dependency' (Zhao et al 2002). The second criterion was motivated by our own conviction that grounding scenarios in relevant socio-technical trends would increase the likelihood that teachers and students would find them engaging.

The distance/dependency criterion (Zhao et al, 2002) assumes that technology-based projects in schools are more likely to succeed if they:

a) carefully manage the distance of the practices required by the project from whatever represents the norm in existing instructional contexts. To put it simply, if an innovation requires a pedagogic shift which is too demanding or labour-intensive, then it is unlikely to succeed. In principle, every increase in the distance between current and desired practices needs to be incremental- rather than transformational and radical - and accompanied by adequate support, not least concrete incentives for teachers;

b) account for the dependence of the project on people and resources which are not immediately available. Projects with low levels of dependency, and which rely on technologies and resources within the educator's control are more likely to be successful.

The relationship between distance and dependency can be represented graphically on a two-axis scale, on which innovations are plotted in a simple, yet intuitive manner (Zhao et al 2002). On the vertical axis is the distance of the innovation from existing practice, whereas the horizontal axis shows the degree to which the innovation is dependent on resources for success.
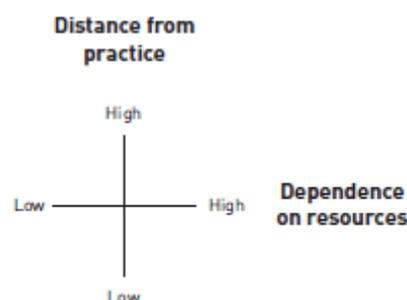

Diagram 1: Distance and Dependence model

The second criterion - contextual grounding - has informed the decision to focus on relevant trends which may have an impact on education. In this respect, we have been influenced by the literature on 'educational futures', which assumes that images

of the future can be powerful drivers for action and change at a local level (Bussey and Inayatullah, 2008; Slaughter, 2004). According to Richard Slaughter 'The whole point of exploring the array of future potential is to tease out the critical choices, strategies, possible responses in the here-and-now and to apply these in a thousand different ways. In other words, the possession of a high-quality forward view fundamentally changes the way people and organisations operate in the here and now' (Slaughter, 2004: 188).

Rather than presenting teachers-innovators with imperatives to adapt to ineluctable social and technological change, we tried to create the conditions for them to identify their own small-scale responses, in the context of loosely structured 'scenarios' that would not thwart individual agency, but would instead encourage critical thinking and the emergence of personal stances in relation to images of the near future: the 'ubiquitous learner', the 'resurgence of science, technology and mathematics', or some less positive images such as 'teaching in times of enduring crisis and hardship'.

Ultimately, the aim of the scenarios - and the underlying process of trend identification, discussed in detail elsewhere[1] - is to ensure that iTEC can account for the many tensions and contradictions that surround technology use in the classroom, most notably the fact that teachers are subjected to many conflicting demands and expectations, while at the same time acting according to their own ambitions, values and predispositions towards technology. It would in fact be misguided to assume that there is always overlap between the interests of the different parties involved in the complex and very political dynamics of educational technology: school authorities, policy makers, ICT companies, academic researchers, not least teachers themselves (see Selwyn, 2011). The scenario development process in iTEC is therefore borne out of the need for compromise, allowing for a negotiation between the realities of teachers and learners, and the demands for change dictated by socio-economic shifts and technological progress.

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[1] See **iTEC scenario development process**, available here http://itec.eun.org/web/guest/scenario-dev

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See the list of selected sources for the iTEC trends here:
http://itec.eun.org/web/guest/trends-sources

http://itec.eun.org

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