This study has been initiated to support the company participating in IMAILE project.

This study concentrates on context of primary and secondary education.

Before going more in detail into the context of the research, it is important to give definitions of core terms, namely to explain what is meant under ‘adoption’ and ‘ICT integration’ throughout the entire study.

Rangaswamy & Gupta, (2000) describes adoption as the decisions that individuals make each time that they consider taking up an innovation. Similarly, Rogers (2003) defines adoption as the decision of an individual to make use of an innovation as the best course of action available. Rogers (2003) argues that the process of adoption starts with initial hearing about an innovation to final adoption. For the purpose of this study, Rogers’ definition of adoption is used.

Earle (2002) linked ICT integration with the concept of wholeness, when all elements of the system are connected together to become a whole. For instance, the two important elements of teaching and learning which are content and pedagogy must be joined when technology is used in lesson. In other way, if students are offered series of websites or ICT tools (e.g. CD ROMs, multimedia, etc) then the teacher is not integrating ICT into teaching since he/she is not tackling the pedagogical issues. Similarly, Williams (2003) described ICT integration as the means of using any ICT tool (Internet, e-learning technologies, CD ROMs, etc) to assist teaching and learning. For the purpose of this study, Williams’ definition of ICT integration is adopted.

Buabeng-Ando (2012) made a literature review of those studies which were done to find out factors influencing teachers’ adoption and integration of ICT into teaching. The literature review was done so that at first factors which positively influence on teachers’ adoption of ICT were reviewed followed by factors which have negative effect. The summary of positive factors is presented in table 1. Identified factors have been categorized according to the framework of Sherry & Gibson (2002) who claimed that technological, individual, organizational, and institutional factors should be considered when examining ICT adoption and integration.

TABLE 1 Factors positively influencing teachers’ adoption and integration of ICT into teaching (Buabeng-Ando, 2012).

|  |  |
| --- | --- |
| **Level** | **Factors** |
| Personal | Teachers’ attitudes |
|  | ICT Competence |
|  | Computer self-efficacy |
|  | Gender |
|  | Teaching Experience |
|  | Teacher workload |
|  | |
| Institutional | Professional development |
|  | Accessibility |
|  | Technical support |
|  | Leadership support |
|  | |
| Technological |  |
|  |  |
|  |  |
|  |  |

From the same work of Buabeng-Ando (2012), table 2 collects findings of those several studies which have conducted empirical research on factors (barriers) that discourage the use of ICT by teachers. These factors (barriers) have been categorized in teacher-level, school-lever and system-level barriers as suggested by Balanskat, Blamire & Kefalla (2007).

TABLE 2 Factors negatively influencing teachers’ adoption and integration of ICT into teaching (Buabeng-Ando, 2012).

|  |  |
| --- | --- |
| **Level** | **Factors** |
| Teacher-level | Lack of teacher ICT skills |
|  | Lack of teacher confidence |
|  | Lack of pedagogical teacher training |
|  | Lack of follow-up of new |
|  | Lack of differentiated training programs |
|  | |
| School level | Absence of ICT infrastructure |
|  | Old or poorly maintained hardware |
|  | Lack of suitable educational software |
|  | Limited access to ICT |
|  | Limited project-related experience |
|  | Lack of ICT mainstreaming into school’s strategy |
|  | |
| System level | Rigid structure of traditional education systems |
|  | Traditional assessment |
|  | Restrictive curricula |
|  | Restricted organizational structure |

As it is possible to see from table 1 and table 2, there are various of factors positively or negatively affecting on adoption and integration of ICT into teaching. Table 2 can be considered to be as a derivative from the table 1 as the table 1 consists of general factors which actually could have both positive or negative effect on ICT integration into teaching depending from which perspective to look at them. Buabeng-Ando (2012) used two frameworks for categorization of influencing ICT adoption factors suggested by different studies. Sherry & Gibson (2002) suggested rather general framework while Balanskat, Blamire & Kefalla (2007) focused specifically on educational context while actual meaning between these two frameworks stays the same. ‘Personal level’ factors in educational context could indeed be called ‘teacher level’ factors, ‘institutional’ – ‘school level’ and ‘technological’ – ‘system-level’. Throughout this study while speaking in general, terms suggested by Sherry & Gibson (2002) will be used while if going more in education specific context, categories of Balanskat, Blamire & Kefalla (2007) are then used instead.

There has been done various of studies on explaining personal factors influencing ICT adoption in different contexts and in education particularly. Moreover, several educators have proposed different models and theories for that. Among the core ones are the following:

* Diffusion of innovation (source)
* TAM (source)
* UTAUT, UTAUT2 (source)

Undoubtedly, personal factors are crucial to understand because despite of the nature of the context, any adoption ends up in personal adoption of ICT tool by that person(s) who is supposed to use it. But as Buabeng-Ando (2012) through performed literature review pointed out, particularly in education there are other factors as well influencing ICT adoption and integration like school-level factors and system-level which have been studies significantly less. This study focuses on school level factors in order to fill out this gap in some extent.

If to consider school level factors influencing on ICT adoption and integration into classroom, it is possible to notice that these factors in their turn have own factors positively or negatively affecting on them. In this study it is claimed that these factors are influenced by different levels of educational polices. Before going into different levels of polices, it is important to give an overall definition of what is meant under word ‘policy’ in this study. According to Cambridge dictionary, the word ‘policy’ means “a set of ideas or a plan of what to do in particular situations that has been agreed to officially by a group of people, a business organization, a government, or a political party”. Another reputable Oxford dictionary gives a definition of the word ‘policy’ as “a course or principle of action adopted or proposed by an organization or individual”. In this study, considering an educational context, the word ‘policy’ means “a plan or a set of rules, norms and recommendations that has been agreed to officially by a competent educational authority and which aim to give official regulations, guidance or recommendations just as for all educational institutions of certain region so for all members within particular educational unit”.

Every school apart of school level polices is also influenced at least by national-level polices of that country where a school resides. In some cases, if a country is a member of some bigger organization or a union, e.g. European Union, then the whole country is also influenced by union-level educational policies. Kozma (2008) argues that without the guidance of national policies and the resources of corollary programs, it is less likely that individual school and classroom innovations will be sustained. From another hand, Tondeur et al (2008) claims that it is local policies which do reflect to a larger extent what happens in the classroom because as according to Kennewell, Parkinson, & Tanner (2000), if teachers share the values expressed within a school-related policy and understand the implications, this policy is able to influence practice. This study is not arguing with the first claim, but rather will exclude the factor of national and possible union-level polices completely in order to focus solely on school-level polices to subsequently test the second claim.

The research of Tondeur et al (2008) verified the claim of local-polices reflecting to a larger extent what happens in the classroom in the context of primary schools in Flanders (the northern part of Belgium). He concluded that indeed the adoption and actual use of ICT in classroom clearly related to actions taken at the school level which are in their turn defined in the local polices. But the proof of the claim got from the research of primary schools of one part of Belgium does not give the opportunity to say with a big assurance that the same will be true in the context of primary schools of other countries. Thus, to cover this gap in some extent, this study will focus on Finnish primary and secondary schools to test the same claim. Finland is chosen to be the country of the research due to personal interest of the researcher and certain limitations of getting data from primary schools of any other country.

While considering Finnish schools, three level of polices can be identified which have direct or indirect effect on school level factors of ICT adoption and integration into teaching. Among those are EU-level educational polices since Finland is a member of this organization, national-level polices and school-level polices.

For the purpose of this study it is enough to point out that EU – level and Finnish national level educational polices do support and do encourage ICT use in classrooms (some sources). But while studying schools in the same EU country, particularly in Finland, these factors become irrelevant because they stay the same for all Finnish primary and secondary schools. If so, it is interesting to see is there still a difference in ICT use in classrooms between these schools or not. And if yes, it has to be connected somehow to the local variables of each particular school because as according to Tondeur et al (2008), “schools are considered to differ with respect to performance level, innovation capacity, and contextual characteristics”. In this study it can be argued that school-level polices do have a great effect on actual ICT use in classroom.

For the successful adoption and integration of ICT in classroom, it is not enough just to briefly mention use of ICT in school-level policy, it should be explicitly described in there and assigned to a certain role. According to Collis and Moonen (2001), technology in schools is being used in two different ways:

* “core” technology based on what all major activities in the teaching–learning process are built
* “supplementary” technology, the use of which typically occurs through a bottom-up approach via pioneer teachers who tries to make use of the potentials of new technologies or which occurs due to initiative of students.

Moonen (2008) argues that only when the use of technology moves from the complementary aspect to a more core aspect, can a general policy become successful. Thus it is interesting to investigate whether or not the ICT technology which is being used widely within teachers of the same school has been specified as a core technology in school-level policy.

This research is going to analyze school-level polices according to five areas emerging from the school improvement approach chosen in the work of Tondeur et al (2008). The justification of why school improvement approach is selected over school effectiveness is well justified. Thus this research is in line with the presented paper. Table 3 represents these five key factors from the school improvement approach and links them specifically to school policies stimulating ICT integration in the classroom. A small disclaimer what Tondeur et al (2008) gave about these five factors was that despite the existence of differences in school improvement approaches, there seems to be a general agreement on this basic set of factors.

TODO: couple of words about of school improvement approach

TABLE 3 Five areas of local ICT polices from a school improvement approach (Tondeur et al, 2008).

|  |  |
| --- | --- |
| **School improvement** | **Local ICT polices** |
| Clear goals and systematic strategies for educational change | Development of an ICT plan facilitating comprehensive ICT integration and fostering an environment towards the realisation of the vision in the ICT plan |
|  |  |
| Strong leadership to guide change efforts | Leadership to effectively direct the process of ICT integration |
|  |  |
| Profession development and support for the implementation of reforms | Support and training to ensure ICT integration |
|  |  |
| (Self) evaluation systems for monitoring change processes | Evaluation to monitor the integration of ICT and guide ICT planning |
|  |  |
| Networking and exchange of good practice with other schools working on the same reform | Cooperation to create between-school communities for the dissemination of ICT-related knowledge |
|  |  |
|  |  |

The purpose of the study is the following:

* Describe the state of the art regarding ICT school polices in Finnish primary and secondary schools with respect to five areas emerging from the school improvement approach as discussed above: the presence of an ICT policy plan, leadership supporting the process of ICT integration, school, internal support, evaluation of ICT use, and between-school cooperation.
* To verify the claim of Tondeur et al (2008) that it is local policies which do reflect to a larger extent what happens in the classroom in the context of Finnish primary and secondary schools.
* Explore the extent to which the use of ICT in the classroom practice can be associated with these school factors.
* Is ICT use in classroom described as a core or supplementary technology in school polices?
* How the process of choosing of ICT tools look like? Is that a bottom-up or up-to-bottom initiative?

TODO:

* Describe technological factors for table 1
* put sources for above mentioned theories from example theses

???

* National polices have rather recommendational character about the ICT use in classroom while actual call to action is usually described in school-level polices

Particular interest is in learning management systems (LMS) as an ICT tool, how they are presently being adapted and integrated into teaching in Finnish primary and secondary schools. Why so big interest in LMS? Because these systems

In education there is a trend of moving from teacher-centered learning to student-centered, where student plays an important role. Systems like LMS or LMS-based directly or indirectly support student-centered learning that’s why it is interesting to investigate

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Primary and secondary? To narrow down to just primary or just secondary.

Effect of Finnish primary schools’ local polices on adoption and integration of ICT (focus on LMS) in classroom.

Is LMS defined as a ‘core’ or ‘supplementary’ technology

Along the way I will try to find out what systems are currently in use and how the decision about adoption of that particular ICT tool has been made. Was it bottom up initiative or top to bottom?

The level of LMS use in Finnish primary schools.

The main purpose of these systems? (file sharing, submitting of the assignments …)