E-COMPETENT TEACHER AND PRINCIPAL AS THE FOUNDATION OF E-COMPETENT SCHOOL E-EDUCATION, THE LARGEST SCHOOL INFORMATIZATION PROJECT IN SLOVENIA 2008-2013

doc. dr. Magdalena Šverc, mag. Andrej Flogie, Maja Vičič Krabonja and Kristjan Perčič
Institute Antona Martina Slomška, Vrbanska cesta 30, 2000 Maribor

ABSTRACT

During the years 2008-2013 Ministry of Education in the Republic of Slovenia prepared largest project of informatization of educational institutions. One of the main goals of the project E-Education is the development of the standard E-Competent Teacher, School Principal and IT Expert. The standard E-Competent Teacher, Principal and IT Expert defines the key e-competencies that every teacher, pre-school teacher or teacher in a student residence needs in order to work with their students; every school principal or deputy school principal needs in order to manage their school; and every IT expert or IT co-ordinator needs in order to successfully collaborate in planning school work and classes by using ICT. The second part shows the individual indicators of the e-Education project.

KEYWORDS

e-Education, e-competence way, informatization of educational institutions, didactic advice.

1. THE OBJECTIVES OF THE E-EDUCATION PROJECT

In 2007, the government of the Republic of Slovenia approved the Strategy for Development of Information Society in the Republic of Slovenia – si2010, which defined the national framework for the development of information society in Slovenia. It states: "By 2013, establish an effective and fully computer-supported national education system and also by this ensure sustainable economic growth, prosperity and quality of life of all citizens of the Republic of Slovenia. At the same time become synonymous with one of the most successful societies in the world that are knowledge-based, constant innovation and rapid development. To ensure inseparable connection between all processes and content with feeding and gaining knowledge from information and communication technology; there should be no curriculum, subject and participant where this would not be present. "

The strategy includes providing suitable equipment for schools, developing e-content and training education professionals (Kreuh and Brečko, 2011). The project E-Education is based on all of these aims because the only way to build a 21st century school that can be characterized as e-competent is to create an e-learning environment, to develop suitable e-content, and – most importantly – to educate e-competent teachers who can use this content in a suitable e-learning environment.

Ministry of Education and Sports is in response to the challenges of teaching and learning in the information society offered several strategic focused projects. One of the key projects is certainly the project "e-Education", which is co-ordinated within the web portal (e-center) and consists of three sets (three projects), as follows: consultancy development and implementation and support to e-Competence schools, development and implementation of e-learning materials, development and implementation of training for e-competent teachers.

The main objective that we pursue in the course of the project "Consultancy development and implementation and support to e-Competence schools" ("e-support"), is a continuation and acceleration of the process of computerization of each educational institution, depending on their current status in management, teaching and technical fields. We're talking about counselling (for school management, teachers, school professionals), educational support in teaching and learning (for teachers), technical assistance to educational institutions.

The main goal we pursue in the course of the project "Development and delivery of training courses/seminars for e-competent teachers" is the development of proposals for standard e-competent school, e-competent teacher, principal and IT expert. In these contexts we prepare and implement training and other activities.

Our collaborators in project are teachers, principals, experts from university departments and other institutions. We are establishing closer cooperation with certain university departments and other institutions in the field of education both at home and abroad. It can be said that the project "e-Education" provides an opportunity for all educational institutions, to focus on the use of new technologies, become more innovative and efficient in their work with students, practitioners and professional associates. By training at various seminars and counsellings, conducted both live and on-line, professionals acquire new competences in teaching, which they can test in the classroom already during the seminar.

One of the main goals of the project E-Education is the development of the standard E-Competent Teacher, School Principal and IT Expert. They are the most important factors in establishing e-competent schools. The standard E-Competent Teacher, Principal and IT Expert defines the key e-competencies that every teacher, pre-school teacher or teacher in a student residence needs in order to work with their students; every school principal or deputy school principal needs in order to manage their school; and every IT expert or IT co-ordinator needs in order to successfully collaborate in planning school work and classes by using ICT. E-competent school so includes: e-competent professionals, modern developed e-content (e-learning materials) and e-learning environment.

To achieve this objective, the e-Education project developed the following content: E-competences (for teachers, principals, IT experts), Seminars (live and on-line in virtual classrooms), Counselling (experts advising to a small group of 3-5 teachers, advantage is the flexibility and adaptability of content), Technical support, Education of teacher trainers (three times annually), Slovenian Educational Network SIO - web portal www.sio.si (with education catalogue, e-communities, e-learning materials, information), e-learning materials, e-textbooks, International conference SIRIKT, Information system to support project, Evaluation, self-evaluation.

Educational institutions have decided freely if they would like to be included in the e-Education project. Being a part of the project gave them access to education, content and services.

2. HOW TO BUILD A 21ST CENTURY SCHOOL?

Because of the rapid development of digital technologies individuals require an increasing number of various skills, especially technical, cognitive and social skills, in order to perform tasks and solve problems in digital environments of their personal and professional lives (Eshet-Alkalai 2004). This also means more responsibility for teachers and other education professionals, since in the e-permeated world, ‘those who can understand and comfortably use e-facilities are significantly advantaged, in terms of educational success, employment prospects and other aspects of life’ (Martin 2005).

The aim of modern innovative practice is development of teaching methods that will improve learning outcomes for students and better prepare them to live and work in the 21st century (Vuorikari, Garoia, Balanskat, 2011). To succeed in today's society, rich with information and knowledge, students and teachers must use technology effectively. The introduction of ICT in the classroom affects in following ways: It helps students to develop the skills necessary to successfully live and work in the 21st century, to encourage teachers to improve the way of teaching in the classroom through interactive and dynamic resources offered by ICT, and provides more motivation and a richer learning experience for students (Brečko, Vehovar, 2008).

A foundation for this is course syllabi that are based on lifelong competencies. One of these competencies is the development of learners’ digital literacy. Schools are committed to use modern technology in their classrooms, but only by training of all school employees they will be able to fulfil other requirements set forth in the syllabi. E-competent principals, teachers and IT experts are the most important factors in establishing e-competent schools.

3. E-COMPETENCIES – WHY AND HOW?

The standard stems from many years of work focused on the role of ICT in education. It takes into account the findings of numerous ICT studies conducted in Slovenia and abroad, the knowledge acquired in the many years of training education professionals, the development of e-materials, and the efforts of the state to provide suitable equipment for schools. In addition, in the process of devising the standard, a number of non-Slovene standards, licenses and strategies in the field of ICT were examined. The way to the new standard is based on 6 key competencies which define all the competencies and e-competencies that help teachers, pre-school teachers, principals and ICT co-ordinators achieve digital literacy. Of course, they are related to the requirements for digital literacy of students specified in the course syllabi. Teachers and pre-school teachers should be trained to carry out the aims specified in these documents.

Every education professional can acquire e-competencies as authentically as possible: the content and examples of good practices are selected based on the subject or subject area relevant for the institution and thus directly transferable to practice; take part in "blended learning" (live and on-line) seminars in e-classrooms, which makes it possible for the participants to learn experientially and work on collaborative projects; Undergo competencies assessment in all seminars.

In 2013 we introduce independent competencies assessment, which will enable the already skilled teachers, pre-school teachers, school principals and ICT co-ordinators to assess their e-competencies or skills independently, without taking part in training seminars. We also offer consultancy services which are intended to motivate education professionals to use ICT in their everyday work and to help them choose a suitable training seminar. Post-seminar consultancy can further develop and perfect the acquired competencies. Seminar participants can also collaborate in e-communities where they exchange their experiences and learn about new developments in teaching.

3.1 Three Levels of Digital Literacy

Following the needs of today's society and the development and needs of learners, the project E-Education defines and describes the digital competencies or e-competencies that represent the basic level of digital literacy. They refer to teachers, pre-school teachers, ICT co-ordinators, school principals and deputy school principals.

Our seminars mostly focus on the first level of digital literacy since they support the development of digital competencies. Partly, the second level is also included because the blended learning seminars enable participants to put into practice the knowledge they gain on various strategies, approaches, content and materials. By doing so, they apply the acquired competencies to their professional field. However, it depends on each individual to what extent they use the new approaches in their work after the training, and only eventually (probably after years of work) can they reach the third level, i.e. the level of digital transformation that includes innovation and creativity in the use of ICT.

3.2 Personal Training Plan

The focus of the seminars on one key e-competency allows teachers, pre-school teachers and school principals to plan their way towards e-competency. Each individual should therefore prepare a personal training plan prior to the training. One of the tasks in the entrance seminar Collaboration in the On-line Learning Environment focuses on this.

Teachers should use the Slovene Educational Network web portal to choose suitable seminars from the Seminar Catalogue. Their search can be based on the subject area (for example, languages, physics, kindergartens, school principals …) or on the main e-competency developed by the seminar. For every seminar there is a description of content and aims, so the potential participants can also consider the subject matter they might be interested in. Personal training plans should be part of Institutional Informatization Plans, which are prepared by educational institutions and are consequently part of their E-Card.

3.3 Six Key e-competencies

The concept of reaching e-competency is defined in the document The Guidelines of the Standard E-Competent Teacher, School Principal, IT Expert (Kreuh and Brečko 2011) and based on the implementation of six key e-competencies (Figure 1).

Figure 1. Key e-competencies

3.4 On the Way towards e-Competent Schools through Seminars - One Seminar, One Key Competency

Our way towards e-competency is based on seminars that follow the principle 'one seminar, one key competency'. Each seminar focuses on developing one of the six key competencies. The key competencies are marked with numbers 1 to 6 (Figure 2).

The seminars for teachers, principals and IT experts or ICT co-ordinators are devised by teachers, members of various subject groups or subject area groups, and aimed at various target groups in education.

Figure 2. Key e-competencies marked from C1 to C6

3.4.1 Precondition: basic ICT skills

A precondition for achieving digital literacy and being on your way towards e-competency is basic ICT skills. They encompass six areas that include working with texts, spreadsheets and presentations, the use of the web and e-mail, as well as the use of the necessary hardware and software. By responding to our questionnaire, teachers, principals, IT experts or ICT co-ordinators can conduct a self-assessment of their basic ICT skills. Achieving basic level of ICT knowledge and skills provides participants smooth work in seminars.

3.4.2 The way from C1 to C6

Entrance seminar for professional staff

The first step on the way towards a teacher's e-competency is the entrance seminar Collaboration in the On-line Learning Environment. The aim of the seminar is to establish both live and distance collaboration. By using a wide range of tasks, teachers collaborate, communicate and learn about personal data safety in the virtual environment.

In their second step on the way towards e-competency, teachers select and complete at least four seminars. They have to take into consideration that the seminars should be chosen so that they include the first, second, third and the fifth competencies. Teachers can select the seminars from the catalogue available on the web portal www.sio.si. The following options are available: Seminars in their own subject area, seminars from other subject areas (for example, a language teacher can choose a seminar primarily meant for primary teachers or art education teachers), seminars for professional staff in general.

The range of seminars is such that it allows, for example, a secondary school specialist subject teacher to reach the standard despite there being no seminars focusing on their specific area.

Choosing seminars that focus on other subject areas provides possibilities for interdisciplinary collaboration and opportunities for the participants to learn from each other even though/because they specialise in different subject areas. The seminars selected by teachers on their way towards e-competency target four key competencies that are marked as C1, C2, C3 and C5.

The catalogue on the web portal www.sio.si allows teachers to search for seminars based on key competencies or based on subject areas, making it possible for them to easily create their personal training plans.

After successfully completing the seminars that they select on their way towards e-competency and after acquiring the competencies C1, C2, C3 and C5, teachers automatically acquire the competency C4 (Safe use of the web, ethical and legal use of information) and the competency C6 (Plan, perform, evaluate learning and teaching by using ICT).

3.5 A Principal and an IT Expert or ICT Co-Ordinator on their Way towards e-Competency

In this section, a training strategy similar to the one for teachers is presented for principals and IT experts or ICT co-ordinators.

A principal on their way towards e-competency completes four seminars targeted at principals. Every seminar has a key competency: the seminar On-line Communication in the Working Environment and Elsewhere focuses mainly on the competency C2, the seminar An Appropriate and Critical Use of Data and Information in Educational Institutions on C3, the seminar Publishing Data on C5, and the seminar Principal's Planning and Monitoring Work by Using ICT on C6.

Figure 3. A diagram presenting the way to become an e-competent principal

To fulfil the aims of these seminars and to acquire new knowledge, consultancy is also available. By working on seminar tasks, principals identify the skills that they require to run their institutions and choose the type of consultancy that best fits their needs. Such consultancy is conducted in small groups and focused on principals' work.

It is very important that principals on their way towards e-competency establish mutual co-operation, which takes place during live and distance seminars as well in the form of communication and exchange of good leadership practices among educational institutions.

An IT expert or ICT co-ordinator on their way towards e-competency completes two compulsory seminars for ICT collaboration and at least two seminars that they select depending on the subject they teach. The two compulsory ICT collaboration seminars focus on the key competencies K2 and K6, while the seminars emphasizing the competencies K5 and K3 can be selected freely.

IT experts or ICT co-ordinators follow the goal of acquiring the skills that will make it possible for them to support the ICT needs of the professionals at their institutions. They will co-operate:

- With teachers to plan ICT supported lessons,
- With principals to plan the work at their institution and introduce changes.

The competencies C1 (Knowledge and awareness of ICT, critical use) and C4 (Safe use of the web, ethical and legal use of information) are included in all seminars for principals and IT experts.

As the nature of their work requires a number of technical skills, IT experts and ICT co-ordinators will be offered additional training in this field as well.

3.6 Independent Assessment of Competencies

We are developing ways to independently assess competencies, so that the skilled self-learners will be able to evaluate their competencies and attest some of their e-competencies without taking part in the seminars. This means that they will achieve e-competency on their own, using distance learning. Independent assessment will be regarded as equal to assessment at seminars. However, since one of the basic requirements of the standard E-Competent Teacher is collaborative work, this type of assessment will not be available at any time, neither will it be completely independent. Candidates wishing to prove their competency in this way will be placed in groups to collaborate by following the instructions of the group administrator.

3.7 E-card

To monitor their way towards e-competency, teachers, principals and IT experts will be issued E-Cards. The E-Card will enable them to systematically follow the progress they make while attending the training seminars focusing on the six competencies. When the six competencies are acquired, the way towards becoming an e-competent teacher, principal and IT expert in the project E-Education is complete. The E-Card will also contain information on the role of E-Education collaborators and participation at training sessions. The E-Card represents a list of skills that belongs in the portfolio of every education professional. The latter is increasingly important since it is a record and a plan of every individual's development.

3.8 E-competent School

A contemporary school of the 21st century or an e-competent school, as such school is named within the E-Education project, is a school of e-competent teachers who sensibly use e-content in e-learning environments and follow contemporary teaching and learning trends centred on e-competent children and adolescents.

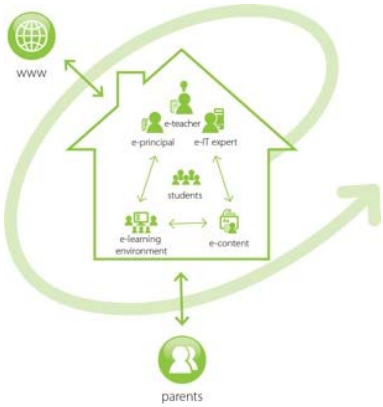


Figure 4. An e-competent school scheme

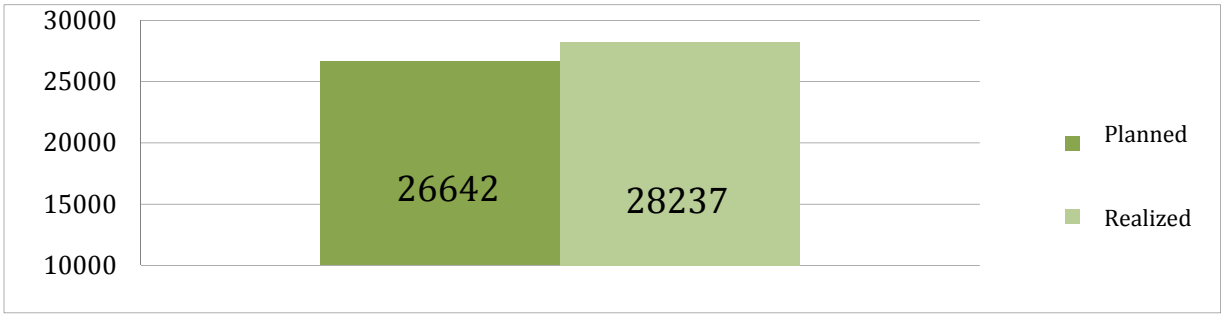
4. THE RESULTS OF THE E-EDUCATION-AN OVERVIEW OF INDICATORS

4.1 Number of New/Updated and Already Carried Out Seminars

There were 173 new/updated seminars in the period from March 2009 to the end of 2012. All of them have edited and regulated virtual classrooms with tasks and exercises that include verification of skills and competences. Each of them includes tasks of online safety. In the period from March 2009 until the end of December 2012 there were 2088 seminars carried out.

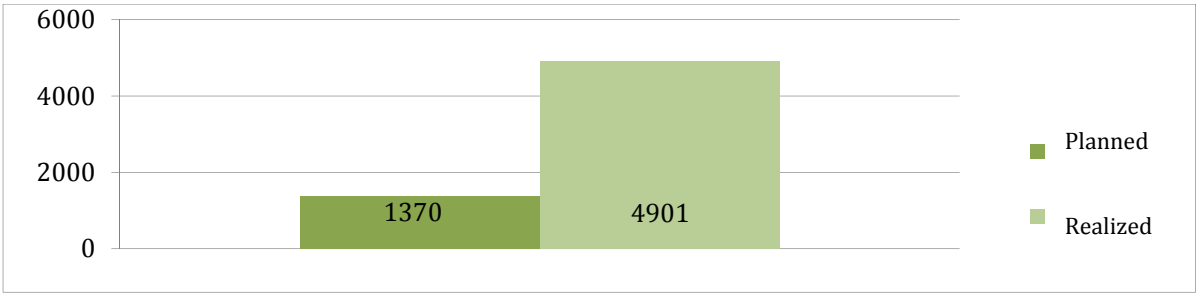
4.2 Number of Participants

The graph below shows that in the period from March 2009 to the end of December 2012, we planned 26,642 participants on conducted seminars, in fact, the seminars attended 28,237 participants.



Graph 1. Number of participants in seminars

There are 34,400 teachers, educators and other professionals of education (on pre-school, primary and secondary school level) responsible for education in Slovenia (Statistical Office, 2012). 36,495 teachers were included in counselling. So in average every teacher was involved in counselling of e-Education project. It must be taken into consideration, that some teachers attended number of different counselling. 28,237 teachers were participating at seminars. A total number of 64,732 teachers were involved in teacher trainings of e-Education project. The project involves 680 trained advisors who attended 4901 training courses for teacher trainers. We have been planned only 1370 participating teacher trainers. Obviously we succeed to include far more people.



Graph 2. Number of teacher trainers attending training coursers

4.3 Number of Participating Schools and Counselling

There were 1,780 or 99% of all schools in Slovenia included in the project from March 2009 to 31 December 2012. In average there were 8 visits of our consultants and 6 on-line counselling per school. All together we performed 14,500 live counselling and 8,501 on-line counselling. Planned number of teachers, who would be included in counselling, was 7000. Actual or realized number is 36,495.

5. CONCLUSION

We set out the path of informatization of educational institutions in Slovenia. Consequently the process of changing the traditional way of teaching and change of teaching and learning paradigm itself has begun. This is certainly the way that reflects the needs of modern society and the students in it.

The e-Education project is allowing each educational institution to decide and include itself into the project according to their needs and vision. The biggest successes of the project are: clear-cut path to e-competence of professional staff, pedagogical and didactic oriented seminars and counselling, possibility of online independent assessment of e-competencies, developed modern e-learning materials, web portal of Slovene Educational Network SIO and on-going evaluation. It is important to note that schools' demands for such teacher training exceeded our plans and availability. It is especially encouraging that the Ministry of Education has already prepared a new project aimed at 1:1 pedagogy and the development of third generation e-textbook.

The next step would be monitoring effects in schools. Only the observations done in classrooms could prove the effects of project and its impact on the way of teaching and learning.

ACKNOWLEDGEMENT

Firstly we would like to thank Ministry of Education, Science and Sport, that through European Social Fund supported our e- Education project. Special thanks go to our partners: Zavod RS za šolstvo - Slovenian Education Institute, Kopo d.o.o., Inštitut Logik, Pia d.o.o, Miška d.o.o., Kopo d.o.o. and Tehniški šolski center Nova Gorica. At the end we would not be able to succeed and implement the main idea of our project without our co-workers: schools, teachers, teacher trainers and many others.

REFERENCES

Alan, M. , Grudziecki, J., 2006. DigEuLit: Concepts and Tools for Digital Literacy Development. Italics 5 (4): 249–267. Avaliable: http://www.ics.heacademy.ac.uk. (20. 12. 2009)

Brečko B., Vehovar V., 2008. Informacijsko-komunikacijska tehnologija pri poučevanju in učenju v slovenskih šolah (Information and communication technology in teaching and learning in Slovenian schools), Pedagoški inštitut.

Eshet-Alkalai, Y., 2004. Digital literacy: A conceptual framework for survival skills in the digital era. Journal of Educational Multimedia and Hypermedia, 13 (1): 93–106

Kreuh, N., Brečko, B. N., 2011. Izhodišča standarda e-kompetentni učitelj, ravnatelj in računalnikar. Ljubljana: Zavod RS za šolstvo; Miška d.o.o; Nova Gorica: Tehniški šolski center: Kopo; Maribor: Zavod Antona Martina Slomška; Velenje: Pia; Ptuj: Inštitut Logik, Avaliable: http://www.sio.si/sio/promocijska_gradiva/izhodi- sca_standardi.html

Martin, A., 2005. DigEuLit – A European Framework for Digital Literacy: a Progress Report. Journal of eLite- racy 2, 130–136.

Vuorikari, Garcia, Balanskat, 2011. Introducing Netbook Pedagogies in Scool, European Zschoolnet, 2011. Authorised by the Department of Education and Early Childhood Development, 21 Steps to 1-to-1 Success, Victoria.