

E-Teacher Standards and Certificates

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Abstract

Evaluation of teachers' qualifications to use modern technology in working with students is proposed as a certification process which is supposed to be closely connected to classrooms, teachers' place of working and students' environment for learning. Two certificates are available – e-teacher and e-teacher expert. Lesson plans with educational materials provided by teachers, surveys from the school administration and from a peer evaluator (another teacher), and surveys from students are applied as evaluation tools. The proposal has been endorsed by the ECDL Foundation and the pilot project addressed to 500 teachers has been recently completed and its outcomes will be presented. Our approach to teachers' evaluation has many elements in common with the teacher evaluation and improvement system discussed in the MET project organized by the Gates Foundation.

Keywords

teacher training, lifelong learning, technology integration, technology standards for teachers, teacher certification

Motto: Changes and reforms in education should be observed and evaluated in classrooms, in the place of learning.

INTRODUCTION

There is an increasing number of initiatives, such as Digital School in Poland, to provide students, teachers, and schools with access to digital technology and to the Internet. However, without appropriate teacher professional training and support these investments will not cause any change and progress in education systems. Teachers should have an opportunity to develop their pedagogical knowledge and technical skills and to experience how to bring these skills into classrooms and use them in helping and supporting students to better learn.

In the core curriculum, introduced to the Polish schools in 2008, "skills to use advanced ICT" and "ability to search, select and critically analyse information" are the most important skills acquired by the learner in the process of learning. Every teacher should also possess these skills.

There are many factors which influence teacher continuing professional development. We propose here an approach to evaluation and development of teachers' competences in using ICT in working with students which is based on technology standards for teachers and utilizes the certification process, reviewed in schools by

both sides, teachers and students, and then evaluated by professional staff on pedagogical integration of ICT with education.

The ICT competences are not enough to be a good teacher, but it is not possible today to be a teacher without these competences. It applies not only to teachers of technology, but also to teachers of all other subjects since technology changes pedagogy and subject disciplines.

The e-teacher certificate program described in this paper has been endorsed by the ECDL Foundation as a professional certificate for all teachers.

BACKGROUND AND MOTIVATIONS

ECDL – as a certificate for everyone

The ECDL certificate has been a benchmark for standard ICT skills for almost twenty years. Although the certificate precisely defines competences in basic areas of ICT, it has been designed for everyone, not particularly tailored for teachers. As a general test, it misses specific pedagogical aspects and does not measure those teachers' skills and competences which are important in classroom while working with students to organize their learning and help them to learn.

A computer driving licence addressed to teachers has been proposed at the 7th IFIP WCCE 2001 in Kopenhagen as a Danish national initiative, called The Pedagogical ICT Driving Licence. Then it was extended to the European Pedagogical ICT Licence (EPICT). The EPICT is a concept of in-service training course focusing on the pedagogical integration of ICT in the teaching practice (Ingesman L., Hojsholt-Poulsen L., 2009).

Teacher training with no evaluation in schools

In the last twenty years there have been in Poland many in-service training courses on ICT addressed to teachers. They have ranged from 30 to 350 teaching hours. The former designed as short courses on particular ICT tools run by ICT training centers and the latter – as courses run by tertiary schools as post-diploma studies, providing teachers with additional qualifications to teach ICT (sometimes also to teach informatics – or Computer Science!) as a subject. Each school which has been supplied with a computer lab from the Ministry of Education (MEN) or from a local government, financed training in pedagogical use of ICT for at least 6 teachers (ICT/informatics teacher, school administrator of computer labs, and at least 4 subject teachers). Moreover, a number of IT Corporations (such as Apple, Intel, Microsoft, Cisco) offer their teacher training, devoted mainly to technology issues (hard and soft) which they deliver to schools.

In recent years a number of local and national in-service training courses for teachers have been co-financed by the EU grants and a large percentage of 600 000 teachers working in schools have participated in at least one of these in-service courses on integration of ICT in education. Moreover, new teachers coming to schools are prepared at tertiary schools according to ICT curricula, which are equivalent to the ECDL Start syllabus, at least. In such situation we have decided to focus on certification of teachers' knowledge and skills in the area of using technology in practice. The certification process described in the next section is based on technology standards for teachers (Sysło M. M., 2010), endorsed by the Polish Information Processing Society (PIPS, National Partner of ECDL Foundation in Poland). The e-teacher certificates have been also approved by the ECDL Foundation.

Effective communication with a positive feedback

In (Berndt-Schreiber M. and al., 2013), the training course for school teachers was described in which the focal point was an effective communication and collaboration between all the groups involved in the education system: university teachers, school teachers, school students, and school authorities. Each of the 75 course participants prepared a plan for a lesson supported by ICT tools. Then the lessons were

performed at schools and evaluated by school principals, outside-school observers (teachers) and also by students. Finally, the individual lesson plans together with evaluation surveys were reviewed by the university staff members who had ran the course. Very positive feedback has been received from all partners: school teachers and administration, university teachers, and school students.

From the students' surveys we have also learnt, what in fact we had expected before, that almost all students have computers at home and most of computers are connected to Internet. Unfortunately, reviewing lessons plans we have found that only one teacher included in the lesson plan a home assignment which required the use of a computer and Internet. This observation opens another research topic – there is a need to investigate the extent of using technology by the students in their off-class education activities, especially at home. This question is partly covered by this conference theme: learning while we are connected. It will be a subject of another element of our study and further paper.

E-TEACHER STANDARDS AND CERTIFICATES

Based on the experience in running in-service courses for school teachers, described shortly at the end of the previous section, we have designed a certification process and now two certificates, e-teacher and e-teacher expert, are offered to teachers in schools as a mean for evaluation of their performance in classrooms and how successful they are in supporting students' learning with the help of technology.

The main goal of e-teacher certificates is to evaluate and confirm that teachers adjust the methods of teaching, working and their personal development to conditions and requirements of education in the global information society. In particular we expect that the certification process will affect school practice so that teachers can better help their students to learn.

The certificates are based on the revised technology standards for teachers (Sysło M. M., 2010), which are similar to the ISTE standards (NETS, 2008). The previous technology standards were published in 2003 and they focused on what teachers should know about technology and be able to do using technology, e.g. a teacher knows how to write a document using a text editor, a teacher knows how to find information in the Internet, a teacher is aware of ..., etc. The new technology standards are operational and expand this focus to include what teachers should be able to do to inspire and engage students, to promote students' ability to learn effectively. Moreover, the new standards focus also on teachers' engagement in professional development.

Technology standards for teachers (Sysło M.M., 2010)

The requirements for the e-teacher certificates are based on technology standards for teachers (Sysło M.M., 2010), which include the following five categories. The teachers:

- A. **Inspire and engage students in learning and developing creativity:** use knowledge and skills in their disciplines, teaching methods and technology to support students in their educational development and creativity both in the classroom and in the virtual environment.
- B. **Promote and develop digital citizenship and responsibility:** create awareness of legal, ethic and social issues, observe the legal and ethic standards, and develop coexistence in the information society.
- C. **Use and develop teaching and assessment methods using technology:** plan, develop and assess experience in developing teaching and assessing methods by using technology and digital resources.
- D. **Work and teach in global and digital society:** demonstrate knowledge, skills and educational practice by supporting students' creative and innovative activities in global information and digital society.

- E. **Engage in professional development and leadership:** constantly improve, develop and enrich skills to use technology, to teach; exhibit leadership at schools and professional communities; demonstrate effective use of digital technology and educational resources; participate in educational research on the influence of technology on students' achievements.

e-Teacher certificates

There are no formal pre-requisites for the e-teacher certificate. However it is assumed that a teacher who intends to enter the process of certification has a basic knowledge and skills in the following three areas: the use of an operating system, the use of standard applications and educational software, communication and information search in the Internet.

The certification system is based on the assumption that the teachers' knowledge and skills are evaluated in the classroom, the main arena of their work with students.

Three stages in the certification system are distinguished:

A. e-teacher test

A candidate takes a test which covers the following three areas:

- copyrights, intellectual rights, and social aspects of ICT applications;
- application of educational software in candidates' teaching subjects;
- use of virtual learning environments in blended learning.

The test consists of 10 multiple choice (9) and open questions (1). The questions are randomly selected from a data base of questions which equally cover the three areas mentioned above.

The teachers who have already got other ECDL certificates (e.g. Start or Core) do not need to take the e-teacher test and they pay a reduce fee for getting the e-teacher certificate.

B. e-teacher certificate

The e-teacher certificate is a confirmation that a teacher intentionally and effectively uses ICT to improve her/his educational skills and tools and students' achievements are increased, and also cares about her/his own further development in the area of technology. To confirm that the requirements for a certified e-teacher are met, the teacher:

1. provides at least three lesson plans (for 45 min each) supported by ICT and justifies how the use of technology contributes to raising the level of students' activity and increases their achievements;
2. conducts lessons based on these plans and provides documentation of the lessons, which allows to verify the use of technology, students' and teacher activity, and students' performance. The documentation should include:
 - electronic materials for lessons or, alternatively, a website address where the materials used in lessons are available, as additional confirmation of the lesson conduct;
 - the school principal's observation report and a peer's observation report;
 - students' surveys;
 - her/his report of how technology has influenced lessons performed and students' achievements; comments on students' surveys and on principal and peer observation reports.
3. participates in at least one form of training on the use of ICT in classroom;
4. passes the e-teacher test.

Teachers applying for the e-teacher certificate may receive guidance from a teacher who applies to obtain the e-teacher expert certificate, or from an e-moderator, in the area of: education methodology, the choice of materials proving the fulfillment of requirements specified in the syllabus and the documentation of these requirements.

C. e-teacher expert certificate

The e-teacher expert certificate is a confirmation that a teacher meets the requirements for the e-teacher, and moreover shares with other teachers her/his knowledge and skills on the use of technology in teaching. Demonstrates also creativity in teaching and educational leadership and initiatives in the community of teachers.

The e-teacher certificate is the pre-requisite for the e-teacher expert certificate. To confirm that the requirements for the e-teacher expert are met, the teacher:

1. develops at least three lesson plans in one of the following categories: a plan for a project based learning (e.g. webquest), a plan of a lesson run in groups (co-operation of students); a lesson plan with a significant use of educational platform (LMS – distance learning); other innovative activities;
2. conducts open lessons based on these plans and provides documentation of the lessons, which allows verification of the use of technology, students' and teacher activity, and students' performance. The documentation should include:
 - electronic materials for the lessons or, alternatively, a website address where the materials used in lessons are available, as additional confirmation of the lesson conduct;
 - the school principal's observation report and a peer's observation report;
 - students' surveys;
 - her/his report of how technology has influenced lessons performed and students' achievements; comments on students' surveys and on principal and peer observation reports;
3. acts as an advisor to at least two teachers applying for the e-teacher certificate;
4. documents one of the forms of additional activities on sharing with other teachers, in her/his school or in another school, knowledge and professional expertise in educational use of technology, e.g. runs at-school in-service training for other teachers from her/his or other schools.

e-moderators

e-moderator is an expert in the field of teacher education, who supervises the teachers' certification process. E-Moderators have the knowledge and skills at least at the level of an e-teacher expert and are authorized to conduct the process of e-teacher and e-teacher expert certification. They are also advisors to teachers in the process of obtaining e-teacher and e-teacher expert certificates.

e-moderator duties:

1. E-moderator is an advisor to teachers in the process of working on getting e-teacher or/and e-teacher expert certificates.
2. When a teacher applies for a certificate, e-moderator confirms the formal fulfillment of qualifications required and admits the teacher to the certification process.
3. In the certification process, e-moderator checks and verifies the content and correctness of submitted educational materials and documents.
4. On the basis of positive opinions in each of the above stages, e-moderator submits her/his decision to grant a teacher the e-teacher or e-teacher expert certificate. If any of the requirements is not met by the teacher, the role of e-moderator is to identify the teacher's errors and deficiencies, and advise her/him how she/he can correct and improve her/his performance.

Platform and logistics

The work is in progress on building a platform which will serve as the main environment for the certification program. The platform will host all lesson plans and teachers' educational materials, and documents. Moreover it will serve also as

a social network for teachers willing to get a certificate, the teachers with certificates, e-moderators, and other experts. All lesson plans and e-materials will be available to all other teachers (with assumed CC licenses). Such a platform has been used in the pilot project described below. Templates for lesson plans, teachers' observation reports, students' surveys and e-moderator reports are provided and will be available on the platform.

Pilot project

The pilot project that aimed at verifying and evaluating the certification program and its procedures described in this paper was organized in the second half of 2012, co-financed by the EU grant. The project was carried out within the Regional Project Opole e-School (pl. Opolska eSzkoła) which is a long term initiative to build an educational grid in a part of the Silesia (pl. Śląsk) region.

More than 400 teachers of various subjects, from various educational levels took part in the pilot project. They attended a 60 hours blended course (20 hours in the training centres and 40 hours at home and in schools learning how to integrate technology with the curriculum, design lesson plans enhanced with the use of electronic materials, incorporate technology with classroom activities, and engage more strongly and motivate students). Technical and methodological instructions and learning materials for the teachers taking part in the pilot project were provided on the educational platform, which then have been available for other teachers interested in getting the certificate.

In the pilot project, 17 e-moderators were appointed from a group of expert teachers recognized for their achievements in using technology in education.

The results of the pilot project will be presented at the conference.

CONCLUSIONS

Concluding our paper we are glad to find out that our approach to teachers' certification has many elements in common with the teacher evaluation and improvement system discussed and proposed in the Measures of Effective Teaching Project (MET project) supported by the Bill and Melinda Gates Foundation (MET, 2013).

The starting point of the MET project was that students' test scores alone are not sufficient for teacher evaluation. There are plenty of things that teachers do for students that are not captured by any test. Especially when technology is involved since no test in school refers to technology itself. In such a case, tests should measure how much technology is supporting learners, teachers and the subject – in our approach we are getting such information from students' surveys.

The main finding of the MET Project is that the most reliable teacher evaluation and improvement system should use a balanced mix of multiple measures, including lesson observations in classroom and student perception surveys, in particular:

- to keep getting better, teachers should get the feedback from other teachers, from school principals, and from students – our certification procedure requires reports from those three groups and a teacher who applies for a certificate has access to these documents and is required to analyse them to prepare a final evaluation report;
- classroom observations require two or more lessons – we suggest at least three lessons;
- each lesson should be scored by at least two different observers – it is also included in our certification procedure;
- at least one of the observers should be outside a teacher's own school, since the observers from the same school usually rate teachers higher than the outside observers do;

- students write surveys on how a teacher with technology in hands help, motivate, and inspire them to better learn when they have also access to technology in classroom.

Based on the students' surveys collected in our pilot project we will also verify how these surveys are beneficial for students, who may become more confident in their knowledge and skills and learn about their learning. We are sure that such surveys are good opportunity for students to analyse and think about their learning.

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Biographies



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