I*teach methodology in school practice

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I*TEACH METHODOLOGY IN SCHOOL PRACTICE

It is easy to teach someone something completely new;
the real challenge is to let him forget the old harmful habits.

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One of the assumptions of secondary education is that students are to acquire numerous ICT-related skills. The computer has become an essential element of live, both at school and outside it. Using ICT tools students can structure their knowledge, prepare images, create banks of data and analyze it, write reports and other text documents. Electronic mail, discussion lists, forums and other online applications facilitate communication and cooperation. World Wide Web gives an easy access to immense resources provided by museums, libraries and laboratories in which research may be carried out remotely. Adopting the ICT skills is usually a natural process for students. They are very familiar with the computer and like learning and implementing new computer skills and knowledge. But is it enough for their future "real" life? The recent research about needs of business and social life, done in the frame of I*Teach (Innovative Teacher) project, shows that the so called "soft" skills – team working, presentation skills, working on a project, information skills, are essential for realization of young people in their life after the school. The big challenge in front of the contemporary teacher is "How to do that?" Modern education is more and more based on active learning which places the student in the center of attention. Project based learning as a technique for active learning offers all resources for improving four groups of most important soft skills: operating with information, presentation, team work and project work. The next important question is: "Are teachers ready to implement methods of active learning?" Unfortunately most of them feel more comfortable with the old teacher-centered methods. To cope with this situation pilot teacher workshops constituted an integral part of the I*Teach project. During the workshops teachers were presented with the I*Teach methodology and prepared didactical scenarios according to this methodology. Teachers of all subjects participated in the workshops. Having completed the course, the participants carried out classes using the scenarios drawn up during the workshops.

Keywords: teacher training, lifelong learning, soft skills, ICT, education

1   INTRODUCTION

The *Innovative Teacher* (*I*Teach*) [3] project is a pilot project launched in October 2005 under the Leonardo da Vinci program [5]. It is related to the Lisbon meeting of European Council (2000) [6] guidelines for lifelong learning and using ICTs in education.

Researchers from 7 European countries (the Netherlands, Germany, Italy, Poland, Romania, Lithuania and Bulgaria) joined their efforts in developing the concept of *ICT-enhanced skills*.

The first goal of the project was identifying the most important skills which people should possess to realize themselves in the information society. After deep exploration four groups of *soft* skills were identified:

- **Working-on-a-project skills** – rationalization of the main task, creating a work plan, defining subtasks and sub-products, integrating results, keeping track of the progress, analyzing the whole process etc.

- **Information skills** – ability to determine the informational problem, collect and process appropriate information, to evaluate information, to extract the most important information, to use appropriate technical tools for searching and systematization of information.

- **Working-in-a-team skills** – skills of internal and external communication, ability to give/receive feedback, to support the other members of the team, to define and keep your own role, to take responsibility.

- **Presentation skills** – ability to choose the appropriate presentation media and appropriate design, to command language and behaviour to make correct citations etc.

The next aim of the project partners was to develop a methodology for teaching young people to acquire these essential skills. An important requirement for this methodology was that it should be easy to integrate within the different national educational curricula.

2   THE I*TEACH METHODOLOGY AND TOOLS

The **active learning methods** were chosen as being the most appropriate approaches in teaching ICT-enhanced skills. The reasons: a) they are student-centered and b) they allow working in groups.

Applying the **Project-Based Learning** (one of the active learning methods) stimulates students to *work on a project*. The project goals are discussed and clarified collaboratively and then the main points (**milestones**) are drawn. A presentation of the results after overcoming each milestone is required. In such a way students can work on their *presentation skills* in parallel with working on the given project. If there is group work included, the students have a good environment to grow their *working-in-a-team skills*. The whole process of realizing the project is accompanied by the need of searching and processing information which is a good precondition for refining the *information skills*.

The full *I*Teach* methodology is described in the *I*Teach* Methodological Handbook [4]. This new approach gives an opportunity for each student to focus his/her own education on some weak points needing improvement. On the other hand, teachers using *I*Teach* methodology are more flexible and able to meet the individual needs of their students.

In addition to the Methodological Handbook other tools for teachers support were developed. The **repository** [3] allows teachers to share their ideas and didactical scenarios. **Scenario-** and **Task Templates** were prepared to facilitate them. Although the repository is placed on the Internet, there is an **offline tool** for supporting these teachers who have not full-time Internet access. A lot of teachers training courses were organized by the project partners. Now the *I*Teach* partners are working on the development of a **Virtual Training Center** for continuous teachers support and training.

3   TEACHERS TRAINING – THE GREAT CHALLENGE!

It seems easy to teach students. The most of teachers have their own professional experience, observations over the learning process, teaching habits. Usually it is not difficult for an experienced teacher to apply his/her approaches and to achieve the learning goals. Is it truth? What does it mean, "learning goals"?

Learning objectives are described in educational documentation – national requirements, national curriculum, etc. Unfortunately, teachers usually see there only outcomes directly related to a particular subject. Some times they forget that "If we want an educated citizenry, we need teachers who know how to think about their students' needs and write their own curriculum in community with others" [1].

"Teaching – like medicine, auto mechanics, professional basketball, and chemical engineering---is a craft. There are distinct skills associated with its practice, which people are not born knowing. Some people are naturals (in education, the so-called "born teachers") and seem to develop the skills by intuition; most are not, however, and need years of training before they can function at a professional level. (…) Not realizing that there are alternatives, new professors tend to default to the relatively ineffective teaching methods they experienced as students. Although they work hard to make the course material as comprehensible and interesting as they can, many of them consistently see only glazed or closed eyes during their lectures, terrible test grades, and evaluations suggesting that the students liked neither the course nor them. Some of them eventually figure out better ways to do their job; others never do, and spend their careers teaching ineffectively." [2]

In such situation the challenge is: How to teach teachers in a new way of teaching?

Several teachers training courses were organized in the frame of *I*Teach* project. The focus of this article is on the experience gained by teachers training courses in Poland and Bulgaria.

3.1   Teachers training courses in Poland

The training in Poland was carried out for two groups of teachers – in Poznań at the Faculty of Chemistry at Adam Mickiewicz University, and in Sanok at the Teacher Training Center. The workshops lasted four days and the participants were 17. The teachers were also

presented with the ICT methodology for developing *soft* skills on the basis of the prepared manual. Two-member teams were created to analyze the chapters of the manual and to present the material to the other participants. Thus, all of the trainees could find out about the content of the manual in relatively short time.

The teachers participating in the training spoke well of the manual. They found the Annexes as well as Tips and Templates most useful in the subsequent workshops which constituted the other part of the training. Another issue that appealed to them was the need to verify information with respect to its credibility and the need to provide the sources of information as well as their authors (e.g. whilst preparing presentations). This seems to be of a particular importance as on many occasions students do not realize that the paper they write should contain all the credits, literature and any other sources of citations, statistical data, etc.

At the end of the training the participants wrote didactical scenarios employing the I*Teach methodology in which they considered the *soft* skills that were discussed during the training. The scenarios were then presented at the I*Teach Innovative Teacher platform of the University in Iasi (Romania) as well as at the platform of the Faculty of Chemical Education at UAM in Poznań (Poland) which makes them available to teachers from many other countries. Within the project our teachers carried out classes based on these scenarios.

FIGURE 1. Minutes from teachers training courses in Poland

3.2 Teachers training courses in Bulgaria

Four different target groups in Bulgaria were trained in applying the *I*Teach* methodology. Two of them consisted of in-service teachers; most of the members of the first one were re-qualified ICT teachers whose original subject was science – physics, chemistry etc.; the representatives of the second group were experienced mathematics, ICT and informatics teachers whose professionalism had been proved by the achievements of their students. The members of the other two groups were pre-service teachers in bachelors and masters degree.

All the training sessions followed the *I*Teach* methodology pattern. The *I*Teach* meta-courses [7] were carefully designed to cover two main goals: a) to grow teachers' knowledge and skills and b) to demonstrate the *I*Teach* methodology. Only after the student went through the methodology they were asked to develop their own scenarios according to it.

The students of all groups had to work on a project whose broad theme should correspond to their interests. After some brainstorming the groups came up with a set of appropriate subtopics. After expressing various points of view on the main topic students formed small teams according to their interests and worked on the specific subtopic. Each team had the task to create a plan for solving problems related to the given subtopic, to follow it and to present intermediate and final results/products at the end.

The topic *School Outdoors* was chosen for the first group of in-service teachers. The teachers' teams worked on organizing "green" and "blue" schools, discussed the street and the home as a place for learning. One of the most attractive subtopics was "Why *K*not"? Making a parallel with "Why not?" question and treating knots as a communication media the *knotty* subtopic *tied up* all other subtopics together.

FIGURE 2. Careful scenario design leads to promising resuls!

The next training with in-service teachers was held during the Spring National Conference of the Union of Bulgarian Mathematicians. *Fishing as a metaphor of teaching* was discussed. It was chosen because the participating teachers were very experienced and had a lot of achievement. Through revealing learning objectives, methods and activities hidden in *fishing* pictures teachers were expected to re-discover the *I*Teach* ideas. Why fishing? As the conference took a place at a famous Bulgarian sea resort the *fishing* topic arrived in natural way. In addition, the idea of *teaching someone to fish* as opposed to just *giving him/her a fish* corresponded well with the ideas of lifelong learning.

The MSc students worked on the theme *Come to visit me*. This winter workshop was immersed in a festal atmosphere because of the approaching Christmas holidays. During the workshop students prepared a lot of greeting cards, menus and amusement activities. They researched and publish on the Internet a web-site presenting ethical rules which should be kept during various kinds of visits. The workshop was closed with the gala-evening prepared by students and supported by their intermediate and final products.

The topic for BC students was more serious: *Which way now?* Most of the young people have a problem with their professional orientation and the instructors' goal was to help them to find the proper way in the context of the *I*Teach* methodology. As it was observed

after the brainstorming session the students faced a lot of problems – desirable or non-desirable such as pregnancy, family relationships, financial problems etc. All this provoked serious reflection on the theme *Which way now?*. Passing through a lot of challenges, complex problem solving, teams reforming and discussions finally let the participants present their ideas about a proper reaction to a chosen problem.

FIGURE 3. Bouquet of emotions surrounded all the workshops

After implementing the *I*Teach* scenario all the groups were asked to summarize what new they had learned, what approaches they had used and what results they had achieved. The analyses were supported by the instructors presentation about the ICT-enhanced skills and the *I*Teach* handbook. As an outcome of the trainings all the participants developed their own scenarios in accordance to the *I*Teach* methodology. At the end of courses the *I*Teach* repository was presented and the best scenarios were uploaded there.

4   RESULTS AND IMPRESSIONS

Although teachers training courses in Poland and Bulgaria have followed different teaching strategies there are still a lot of common characteristics of the observed results.

At the beginning all participants were skeptic about the *I*Teach* methodology. Firstly, because they were convinced that the project dealt with issues they had already known as they had been using some of the active learning methods on a daily basis. Secondly, the idea of using computers in their lessons did not really appeal to those who had never done that before.
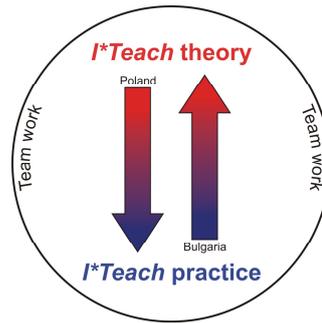
FIGURE 4. *I*Teach* trainings in Poland and Bulgaria

After the trainings all of the participants expressed their conviction that the project was very interesting. Each of them had an opportunity to focus on the *missing points*. Technology experienced teachers concentrated their education on combining the traditional and the active learning methods. Teachers who felt comfortable in using active learning methods worked more on the effective use of ICTs in the teaching process. The result is that all the teachers clarified the *ICT-enhanced skills* concept and accepted the *I*Teach* methodology as a useful and natural way of teaching providing much better results than the traditional approaches.

The only hindrance in its implementation which might appear is the lack of free access to computers at school where the computer room is usually occupied by students participating in IT classes. On the other hand, nowadays computer rooms are so frequently modernized and students are so well familiar with ICT that one must not complain about either the availability of hardware or the students' computer skills. Furthermore, the I*Teach methodology enhances the project work abilities and team work abilities where computers are used not only during classes but also in independent student work outside the classroom. All the forms of communication are important here especially those using electronic communicators; groupware (e.g. LiveMeeting or NetMeeting), the software for conferences and videoconferences and joint work on the project which may result in preparing a web presentation.

Based on the feedback information, we must say that all of the participants were satisfied with the training. Therefore, at the end we wish to quote some of the opinions expressed by the participants regarding the training itself as well as the I*Teach methodology:

"I usually approach trainings with reservations. Some are more valuable and useful, some others less. The workshops carried out by Maria proved to be great; they really met my expectations and gave me the courage to implement what I learnt in my everyday work.

Before the training I was reluctant to use multimedia equipment in my classes and in after-school clubs. Now, once I have become familiar with the I*Teach methodology, I am

sure that ICT is not only about computers but it also constitutes the chance to develop a number of students' abilities, including the emotional ones ". (I.Ł, Poland.).

…*"The activating methods of work, competence, clear instructions and recommendations provided by the trainer equipped the participants with new skills which are so essential in our work. It also allowed us to brush up on the skills we had mastered in the past. The tasks we did met the expectations of the participants.(…) We could also find out how to use both the Internet and computers more effectively. It is impossible to point to any disadvantage of the course as it was simply flawless." (E.W., Poland)*

"For the lack of negative remarks, I can only write about good points of the course: a wonderful atmosphere and organization. The choice of topics was very well adjusted to my everyday work. (…)It seems to me that especially young teachers should be interested in applying I*Teach methodology as computers and the Internet are the daily bread for their generation."(B.B., Poland)

"(…) I have participated in the I*TEACH course. The atmosphere was great! We have been working hard supervised by our competent trainer. Tomorrow is not only the day of the World Championships Finals in Volleyball but also, regretfully, the end of our course which has made me realize how important it is to skillfully apply ICT in teaching. Being computer literate is simply not enough! (…)" (J.B., Poland)

"It was just great. I have learnt a lot and became familiar with software for teaching emotional abilities. I am looking forward to more training of this type. " (M.M, Poland)

"… and I'm very happy that there is a bank with scenarios and tasks which I can use in my work. (M.I., Bulgaria)"

"I enjoyed so much during the courses that I did not understand how much I learned there! And when..." (J.S., Bulgaria)

"There was no any instructional design during the courses and I thought that no one knew what we were doing. Not till the end I understood the great idea! To this moment in my mind I did not study anything. But... fantastic! At the end I saw the results – my skills (including teaching abilities) were considerably improved!"

The impressions of the teachers after applying the methodology in their classes are the real measure of the I*Teach advantages:

"I tried using the I*Teach methodology in with my students and results were amazing!" (N.G., Bulgaria)

"(…) My students shared that they did not understand that they are learning. The work was so amusing and fascinating for them- they wish to apply the same approach every time." (B.K., Bulgaria)

"It really works! My students get much more motivated following the I*Teach methodology. They continue work after regular classes, they contact me by Skype to ask for help and feedback. They seem really happy to study! And I got happy to teach!" (M.N., Bulgaria)

5   CONCLUSIONS

Training within the *I*Teach* project made teachers aware that working with the computer is a must not only in Computer Science but in any other subjects as well. They believe that the abilities acquired during the course are not merely art for art's sake; they will remember them for a long time and the scenarios constitute the best evidence of the teachers' attitudes even though each of the scenarios will have to be adjusted to the abilities of their students.

As a result of trainings teachers improve their abilities to attract students and actively involve them in the process of education. They deeply understand the need to develop not only specific subject knowledge and skills but *ICT-enhanced* skills in team and project working, information proceeding and presentation. Only in such a way the students will be ready for the real life – they will be able to meet the society and business requirements and to realize themselves in a proper profession after the school.

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