OVERCOMING THE BARRIERS IN TEACHER-PARENT COMMUNICATION

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Abstract

Inquiry-based learning (IBL) approaches have been identified as one of the powerful innovative methods that enable learners to develop scientific literacy. At the same time, teachers encounter difficulties in applying them in class, as the courses for their professional qualifications are usually conducted traditionally through lectures. This paper presents an example of implementation an inquiry-based learning and teaching reflective practice for professional competence development of teachers in science, technology, engineering and mathematics (STEM).

The success of the implementation of the IBL approach strongly depends of the active involvement of all the stakeholders in the educational process. The effective IBL learning in the STEM classroom implies awareness to the STEM disciplines importance and inclusion of parents in the different stages and phases of the IBL. To be able to manage this process, teachers needs of special knowledge and skills for efficient communication with different types of parent.

The education scenario “My girder is the most rude” (Bulgarian idiom), the description of which is presented in this paper, aims to help teachers and teachers’ educators to develop competencies to work with parents, applying the IBL approach. The scenario follows the template, developed under the Enhancing Learning in Teaching via e-inquiries teaching and learning (Erasmus+) project [1], for STEM teachers professional competence development. The teachers’ educational methodology is based on the Working Environment with Social and Personal Open Tools (weSPOT) project IBL model [2].

The pilot implementation of the scenario presented in the article is in the form of meta-training of STEM teachers and teachers’ educator. The activities, in which learners are involved, aim to improve the attitude and connections between school and parents; identifying methods by which parents’ inclusion in learning can support application of inquiry-based approach by teachers; creating learning communities by involving all stakeholders in the education process. Contemporary innovative practices such as games, problem solving, teamwork, literature research are naturally integrated into the scenario. The importance of teamwork and reflexive practice is subject of analysis. Learners’ feedback as well as insights they have reached on how to apply the experience gained in their practice is presented. The trainees’ feedback and ideas for transferability the learning experience to the practice are commented too.

The article presents also the observations of the problems encountered during the implementation of the scenario and approaches for solving them, as well as a summary analysis of the reflexes at the different stages. Conclusions have been made to improve the scenario and good practices have been derived that can be applied in future inquiry-based and reflective trainings of STEM teachers.

Keywords: Inquiry-based learning, teachers’ professional competences development, STEM teachers’ training.

1 INTRODUCTION

Recent reports of the Organisation for Economic Co-operation and Development (OECD) stressed that only innovation-driven growth has a potential to create value-added jobs and industries [3], which means that the Science, Technology, Engineering and Mathematics (STEM) education has a key role in contemporary economic growth. As innovation involves the integration of diverse STEM competences and transcends disciplines, and it is a highly interactive and multidisciplinary process tightly connected to life, the importance of STEM education increases dramatically for today’s economics and life. STEM adheres to the development of scientific, technological and mathematical insights, concepts and practices and how to use and apply them in practice in order to solve complex questions or real-life challenges. In addition, it develops analytical and critical thinking as well as inquiry competences – crucial for raising the current generation with innovative mindsets.
The key role of STEM education establishes the need to strengthen teachers’ competences enabling them to respond to the demands of the new digital innovation-driven era. Teachers nowadays need the competence to innovate and adapt to opportunities emerging from the new digital era. This includes having critical, evidence-based attitudes to available resources, enabling them to respond to student outcomes, evaluating new evidence from inside and outside classrooms, and engaging in professional dialogue, in order to adapt their own practice for better students’ learning outcomes [4]. More than ever before STEM teachers face the challenge of facilitating students to acquire the necessary knowledge of and about science to participate actively and responsibly in, with and for society, successfully throughout their lives [5]. That is why one of the most important requirements for teachers’ competence development is to ensure learning to learn skills and competences.

To face the challenge, teachers need to be supported in their new role as reflective practitioners, responsible for their own learning.

In the course of the ELITe project and on the basis of the EC (2013) framework [4] for teachers’ competence development we have identified that, for effective 21st century teaching, STEM educators need to develop and practice a range of competences under their roles as learners themselves, as facilitators of students’ learning and as members of educational communities.

After deep research in four European countries (Greece, The Netherlands, Bulgaria and Spain), the ELITe project has identified the thematic Effective teachers-parents communication as one of the most important for teachers’ professional growth. The study shows that there still are barriers in teachers-parents communication, especially with respect to STEM disciplines. Development of teachers’ competences for effective and efficient communication with parents will lead to creating a strong stakeholder’s community, working for students’ 21st century global competences development.

The presented teachers and teachers’ educators training aims to achieve the following goals. At one hand, as a direct goal, they aim to develop skills for overcoming barriers in communication with parents. The ultimate goal is trainees to be able to build community of stakeholders and supporters of the application of the inquiry-based approach and other innovative technologies applied in STEM subjects in school. At other hand, in parallel, the training aims at development of the teachers’ researchers’ competences, communication and problem solving skills, and their critical thinking.

The paper is structured as follows: Second section presents the background theory on which current approach is based, learning scenario aims, and methodology used. Third section presents the implementation of the scenario. Section four discusses the results of the experiment, presented through the teachers’ reflections. Finally, summary is presented in the conclusions.

2 METHODOLOGY

2.1 Inquiry and Reflective practice

There are many definitions of reflective practice in education but all of them have common points based on (Figure 1)

- Looking back to your own practice and thinking about the experience and possibilities for improvement or going closer to a desired state
• Exploring possible solutions and alternatives
• Making evidence-based decision
• Evaluating results of its implementation that forms the first stage of the new reflective cycle.

According to Kerry Earl & Bill Ussher, the phrase ‘reflective practice’ can be understood in two ways. It can be used to refer to a habit of people, such as teachers, who reflect on their own practices, or it can refer to a style of practice as in ‘teaching as reflective practice’ – the practice of the teacher here referring to teaching not to reflection [6].

Research or inquiry is a reflective practice of professional development. Its special feature is its publicity. An inquiry process, along with learning from this process, is intentionally designed to be shared [6].


The essence of the model is the following three short, but meaningful questions:

• When recounting an event (concrete experience, reflective observation), individuals must consider what happened prior to and during this event: **What?**
• As individuals attempt to understand why the event transpired (abstract conceptualization), they determine what they have learned about the situation: **So what?**
• To anticipate future actions and consequences (planning for implementation, active experimentation), individuals determine what they will do similarly and/or differently: **Now what?**

2.2 Learning scenario

The scenario area “Enhancing teacher-parent collaboration” is identified by the European Parents Association in the frame of the ELITe project as one of the most important areas needed teachers’ competences development. Its idea, as well as other seven scenarios concrete topics (e.g. [9]), was developed at specially designed workshop together with teachers and teachers’ educators. During the workshop, teachers shared the opinion that identified by European Parents Association topic is vital for taking on board of STEM education all stakeholder, especially parents. Keeping in mind that some of the teachers sharing this point of view represented the National High School of Mathematics and Science, it was decided that this scenario is important to be tested through pilot experiment in Bulgaria also.

The scenario aims to help teachers to develop skills and competences to involve effectively parents in the different phases of the research approach for learning.

After the training, the participating teachers and teachers’ educators would be able to:

• Recognize different types of parents and identify approaches to working with them.
• Recognize different problem situations and can apply different communication techniques and involve parents to overcome them.
• Effectively manage communication between parents, school, other teachers and third parties in implementing the research approach.
• Include parents in student assessment processes (through achievements), teachers (as leaders of research and innovation training) and the education process (in line with real challenges and achievements).
• Provide research training, its objectives, tasks, results and assessment methods to parents and third parties.
• Know and use different types of methods and techniques that can effectively involve and involve parents in the different learning phases using the research approach.

The training scenario follows the weSPOT [2] six-phase model: **Problem/Topic, Operationalisation, Data collection, Data Analysis (processing), Interpretation, and Communication.**
The activities, in which learners are involved, aim to improve the attitude and connections between school and parents; identifying methods by which parents' inclusion in learning can support application of inquiry-based approach by teachers; creating learning communities by involving all stakeholders in the education process.

2.3 Methodology scenario

The study applies inquiry and reflective practice as a qualitative research method. The training was designed as a role-playing game, where the participants were in the roles either of a STEM teacher, either of a parent during the first stage, and vice versa during the second stage. The completely training process was structured as a meta-training, following the weSPOT IBL methodology. Participants had to deal in pairs ‘teacher’-’parent’ with a STEM-related problem, caused by a student's behaviour (the case is derived from real teacher’s practice).

During the Problem / topic phase the ‘teacher’ should present the problematic situation in front of the parent, and they together should find a solution. The challenge for each of them was to enter the other's shoes, and to find an appropriate way for efficient communication. At the end of the session, in plenary, all groups reflects on its members’ approaches, points of confrontations, challenges in communication, found solutions and/or reasons for failure.

During the next phases - Operationalisation, Data collection, Data Analysis (processing), the pairs should review psychological literature about different types of parents, their characteristics, and ‘working’ approaches for communication. The results should be interpreted during the Interpretation phase, when the roles were reversed. The participants should apply in practice their new knowledge, identifying (‘teachers’) / presenting (‘parents’) a particular type of parents, and to lead the meeting to a successful end in terms of the student’s development.

The Communication phase is designed again as a plenary session for reflection and discussion on the lessons learnt during the training.

The process is supported by an IBL dedicated online platform DojoIBL [10], where the training resources were uploaded, and through which the reflective practice was managed.

The trainees achievements – the developed competences for cohesion and inclusion of different types of parents in the stages and phases of the STEM IBL process are assessed by their reflections in the online system, as well as on the base of generated by them ideas about parent involvement in own IBL practices.

3 SCENARIO IMPLEMENTATION

The scenario was implemented with group of ten STEM teachers and teachers’ educators.

The training was organized in two type of sessions:

- Face-to-face: meta-training, applying IBL approach and reflection

The face-to-face session took place at out of working place environment, in informal settings in the cottage out of the city, where the participants leave. That was by intent - to predispose them for more friendly and open training and communication.

Although the participants are on site together, time for the training was limited – eight hours. Because of that it was important face-to-face session to be combined with online sessions, supported by DojoIBL system, where learning scenario phases, resources and activities was structured, following weSPOT inquiry-based model (Fig. 2).
During the initial session, the participants were divided into two equal-sized groups: half of them in the role of STEM teachers and another one – in the role of parents. The pairs were carefully spread in advance, taking into account psychological characteristics of each of the participants, so to have different type of parents in pair – some relentless, other accommodating. The same approach was applied for distribution of teachers in pairs – some of them persistent, other uncertain. In all pairs the teacher was a women, the parent was a man.

Each couple had a task to deal with the following casus, described in DojoIBL (Fig. 3):

A student has found in the computer lab open social network profile of another student. The first student has used the situation to write messages and post from the name of the owner, violating his reputation on the Internet and crossing the border of his privacy.

The teacher’s task was to invite the parent on personal meeting, to explain the situation, the role and importance of ICT school subject, and safety and ethical issues working in internet. Both, the teacher and the parent should come to a common solution on how to deal with student and class management.

Chosen for the training place offered good environment for the separation of pairs. That made possible pairs ‘teacher-parent’ to work not disturbing each other. During this task, the trainer, leading the implementation of the scenario, had the role of moderator, observing the role-players and guiding them invisibly through the process (keeping them on the discussion of the casus, not going in free direction of the dialogue).

Role playing teacher-parent game was named Let’s your parent come to school (Fig. 4), common phrase used by teachers in Bulgarian school, inviting parents to a dialogue when it is necessary to discuss with parent some problematic situation in the school with his/her child.
After the role-playing, the participants (teachers and parents) reflected from different points of view in DojoIBL on the communication during the game and if the couple came to a common solution, how, why not (Fig. 5). In order to do this, participants were informed in advanced that they will need personal device – smartphone, tablet or laptop – to be able to participate in the training.

Next, trainees had a group reflection session (Fig. 6) for discussing, guided by moderator, the questions: Is the pair reached consensus during the role-playing? If consensus is reached, why? If not, again why?
The group reflection has followed by participants’ work online in DojoIBL, where they were provided with scientific materials about the different types of parents. Participants elaborated them in DojoIBL, collecting additional data – papers and other published online resources (Figure 7).

![Figure 7. Collecting online scientific materials about types of parents in DojoIBL](image)

After participants have read and collected in the DojoIBL data and resources on different types of parents, they reflected on their own or found by others materials as well as, inspired by others’ trainees’ reflections, shared their own experience, again in the system (Figure 8. Reflection and sharing of experience in DojoIBL (Fig. 8).

![Figure 8. Reflection and sharing of experience in DojoIBL](image)

Next, based on available in the system and collected by the participants materials, related to identified by psychologists types of parents and ways for communication with them, each participant was asked to identify the type of the parent in the couple, to compare the result with his/her partner (Figure 9), and together to revise the communication issues, and how they could be overcame in the specific context.
The next steps were to change the role of partners in pairs, and, knowing in advance parent’s type, teachers to present a case from their own STEM practice, so to reach a consensus with the parent, trying to be in the parent’s shoes.

The last stage of the scenario was to prepare a strategy for regular communication with parents’ community as well with different types of parents individually.

The training finished with short face-to-face plenary session for summary and reflections (Figure 10), main of which are presented in the next section.

4 RESULTS

The results of the experiment are presented through the eyes of the participants – their reflections and inspirations.

Teachers and teachers’ educators evaluate highly the technic of ‘going into the other’s shoes’ as a way of development understanding and empathy to parents as well as to look for good practices of communication with parents.

They shared that their research practices on parents’ types and successful communication technics were much more focused and critical after the role-play than usual.

Some of teachers’ reflections are:

- We have had a chance to experience, together with other teachers, life cases from our own practice – to share difficulties, worries, etc. I was excited to see that my problems are not ‘mine’ personally. And, while I’m feeling alone and lost in the situation on the workplace, discussing and reflecting with colleagues reveal lot of approaches to the solution and sense of security and support from the professional community.
At the beginning, I was reserved to so much reflection required by us during the online phase. Actually, starting sharing experience, resources and opinion in the reflection tool, I struggled to read others’ opinion and point of view, to explore different aspects, and… to share again.

Teachers’ educators’ reflections pointed out on other important elements of the training and the scenario:

- **Initial face-to-face stage is a prerequisite for creating a relationships of trust and a sense of community which turn leads to full communication and effective training during the online phase.**
- **The power of the IBL in the presented case is focusing of self-directed teachers’ inquiry to relevant direction.**
- **Shared online work safes teachers’ time for elaborating many resources, evaluating their reliability and relativeness. It helps for easy filtering resources useful in practice.**
- **The regular reflection during the training carry a potential for revealing a diversity of point of view and approaches for looking for solution of a given problem.**

All these reflections make possible to conclude that overall results are positive and the scenario aims are reached.

**5 CONCLUSIONS**

The presented pilot training demonstrates the power of the IBL application in teachers’ competence development. It shows that the inquiry and reflective practices help participants to demonstrate their willingness to share materials and resources they used, ways they might change them in different contexts – according to parents’ and other stakeholders characteristics, situations, etc. Participating in a meta-course, accompanied by a reflection, supports teachers in development of professional competences as well as in transferring the experience to their future practice. Direct effect of this pilot was visible though the following three months later experiment [11] during the Researchers Night, where larger community of stakeholders was built for overcoming the students and parents prejudice for career in STEM. As Krishnamurthy shares, *the reflection makes possible to learn from our mistakes, examine our actions, evaluate them against prescribed norms, alter them for success, repeat successes, revise and plan continually* [12].

The critical reflections, inquiry style of learning, sharing experience and inspirations, lead to development of competences (knowledge, skills and attitudes) for overcoming barriers in communication with parents. In the continuously changing teaching context, the professional community, developed during the training process promises long-term support for participants in their further practice. Moreover, the trainees demonstrated their ability to build community of stakeholders and supporters for implementation of innovative technologies in STEM subjects teaching at school.

The IBL methodology, applied during the training, aims at development of the teachers’ researchers’ competences, communication and problem solving skills, and their critical and analytical thinking.

The experimental training reveals that the role-playing games, typical for children, have their own place also in teacher’ professional development. Providing atmosphere of fun and empathy at one, they facilitate the understanding of other’s point of view and finding an adequate and efficient way for communication. As a consequence, the empathy and the feeling of safety, support deep critical reflection, as well as the development of personal friendships and professional network.

During the training participants developed the perception that overcoming the barriers between teachers and parents is important and possible. As a result, it leads to forming community with stakeholders. Succeeding in this takes to a long-lasting learning effect and continuous community support of the inquiry-based approaches applied in STEM subjects the school.

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