EVALUATION OF ITEC PROJECT INNOVATIVE PRACTICE OF ICT BASED LEARNING SCENARIO FROM TEACHERS’ PERSPECTIVE

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Abstract
ICT use in everyday teaching and learning shows the lack of innovative successful educational practices. In the paper, successful examples in several schools/classes were evaluated and described in terms of consistent and structured criteria of innovative educational practice. After the interviews with teachers who piloted iTEC project scenario “A breath of fresh air”, main aspects of innovation mentioned by teachers’ were identified. Most common or key characteristics of the learning scenario have been indicated: variety of students’ and teachers’ roles, mixed environment, opportunity to choose research topic and level of curriculum, diversity of learning resources and technologies used, recognition of students’ competences and skills, the level of students’ and teachers’ motivation and responsibility for implementation of the goals envisaged and learning activities planned. These characteristics are corresponding to the REORDER model aspects of the applied “Personalisation by Pieces” approach elaborated by D. Buckley (2010), and it could be used as learning scenarios evaluation criteria.

KEYWORDS: innovative educational practice, ICT based “A breath of fresh air” learning scenario, evaluation criteria.

Introduction
ICT use in everyday teaching and learning shows the lack of innovative successful educational practices. Such practices are needed for the future education as development of technologies is more dynamic than changes in educational curricula and digital skills of all stakeholders. iTEC (Innovative Technologies for an Engaging Classroom) is a four year, large-scale project that takes an informed look at the potential classroom of the future (iTEC, 2010). Key aim of this project is to develop engaging scenarios for learning in the future classroom that can be validated in a large-scale pilot and be subsequently taken to scale. A number of scenarios for the school of the future have proposed a radical vision where schools will most certainly still exist but the organization of learning will be changing as social interaction and personalization becomes much more prevalent.

One of the most successful learning scenarios (LS) of the first iTEC project cycle was “A breath of fresh air”, which is also called “Outdoor study project” (iTEC, 2010). We state that it was successful because of the high scenarios facility to support curriculum. Besides, both, teachers and students, were very satisfied with the process. As could be seen from the Table 1 high early rating of LS results in its selection for further description as successful practice. 48 projects have been performed by this scenario (iTEC, 2010) in Lithuania (Lemill, 2011).

Aim of the research is to identify key characteristics of innovative scenario that could help to improve learning process from the teachers’ perspective using “A breath of fresh air” scenario implementation case. As we are interested to describe the innovative practices according to the teachers’ points of view, we choose analysis of teachers’ interviews as part of the case study.

Object of the research is innovative ICT based learning practice as well as its key characteristics that could be applied for the evaluation of particular learning scenario.

Research Methods
Evaluation criteria for success in iTEC project are reviewing throughout all project cycles using both qualitative and quantitative data for the scenario evaluation and development of scenarios during the later cycles.

In the paper, qualitative data analysis of the teachers’ semi structured interviews about scenario implementation practice was used. Structured template was proposed for the structured teachers’ interviews which were supplemented by the extended interviews on the main features of case study (i.e. semi-structured interviews).

After the semi structured interviews with 3 Lithuanian teachers who piloted mentioned iTEC project scenario, key characteristics and innovations related with them were identified. Narrative analysis of teachers’ interviews showed main aspects of new practice that all teachers had noticed.
The main aspects were considered as key characteristics or categories that should describe innovative practice used. Comparative matrix between the categories of the interviews’ analysis and the aspects of the REORDER model was used (Bitinas, Rupšienė, & Žydžiūnaitė, 2008).

Results of the Research

Pre-pilot LS evaluation was made before its implementation according to the proposed criteria proposed by the iTEC experts. The LS “A breath of fresh air” in total scored maximum 100 points for all the criteria. All these criteria were evaluated of equal worth, as it explained in the Table 1.

Table 1. Pre-pilot LS “A breath of fresh air” evaluation

<table>
<thead>
<tr>
<th>Scenario title</th>
<th>Scenario: A breath of fresh air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criterion proposed by iTEC project experts</td>
<td>Scores and comments assigned by Lithuanian pre-pilot teachers selected</td>
</tr>
<tr>
<td>Score</td>
<td>Comments</td>
</tr>
<tr>
<td>A. Match to identified trends and challenges</td>
<td>20</td>
</tr>
<tr>
<td>B. Feasibility of pedagogical implementation</td>
<td>20</td>
</tr>
<tr>
<td>C. Feasibility of technological implementation</td>
<td>20</td>
</tr>
<tr>
<td>D. Innovative/ transformational character</td>
<td>20</td>
</tr>
<tr>
<td>E. Prospects of impacting at scale, if validated successfully</td>
<td>20</td>
</tr>
<tr>
<td>Total / 100</td>
<td>100</td>
</tr>
</tbody>
</table>

Results of the structured teachers’ interviews

After teachers had piloted the aforementioned scenario, they have emphasised satisfaction with the educational practice used. During the interviews, teachers were asked to overview implementation of the learning scenario according to aspects provided in the structured template as follows: What was the fit with curricula? Was scenario adapted and if so how? What was the role of technology? How did the students perceive the experience? How innovative was it? What did the participants perceive were the success factors behind the implementation? What were the challenges that participants faced? What, if any, solutions were identified in relation to the identified challenges? What was the impact on pedagogy? What was the impact on other factors (teacher attitude, learners’ attitudes, learners’ attainment, other stakeholders, school policies/plans, organizational issues, and the curriculum)? Were there any unexpected outcomes and if so what were they?

During the interviews, teachers shared their observations on the implementation of “A breath of fresh air” scenario. Most of them told that scenario matched the curriculum and schools’ visions, though frequently it was realized during extra curricula activities such as circle or informal outdoor students’ activities. As the specific task of the aforementioned LS was to capture authentic data based on a real problem in different learning environment, many projects were performed during the Science and Technology subjects or integrated. The main innovations associated with the process where the students worked in different environments are as follows: changed roles, technologies, etc. Technologies were used for many tasks – data processing, taking photographs, creating movies, collaboration among students and teachers. Students collaborated with multiple teachers in different tasks. For example, biology teacher helped to identify signs of polluted air in lichens. For many participants, collaboration was found as the main innovation.
The teachers mentioned students’ motivation to be the main success factor to work collaboratively on real problems, to get experience as well as the results tangible and visible for the community. Teachers noticed that students didn’t encounter any technical difficulties, and they learned new technologies by themselves and in small groups with pleasure. They felt responsibility for the tasks they performed. Students as well as teachers liked new experience and what they were doing. Teachers in this situation became engaged in learning new technologies such as TeamUp (AALTO, 2010) teachers’ collaboration workspace etc.

However, teachers (unlike students) needed training or consultations on technologies. Therefore, iTEC project national coordinators’ help was very desirable. Teachers named unknown or inappropriate technologies and software as the main challenge during the implementation of LS.

According to teachers, there was a visible impact on their pedagogy despite the aforementioned fact that the scenario was implemented during extra-curricular activities. As we could see from above, the important aspects mentioned by all the teachers were: the changed learning activities, students’ and teachers’ attitudes, and increased motivation. Moreover, teachers stated they performed curricula requirements and achieved even more students’ competences. They expressed the readiness to use the scenario in the future during the regular lessons. Thus, we definitely can see impact of innovations on educational practice, because teachers have easily controlled new educational process without unexpected outcomes.

Narrative analysis of teachers’ interviews

After the interviews with Lithuanian teachers who piloted mentioned iTEC project scenario, the main evidences of innovative practice and aspects of success were identified. Analysis of the teachers’ interviews showed the main particularities of the new practices that all teachers notice. Facts and notes described by teachers were categorized by selecting common characteristics that emerged from the interviews (see Table 2). Main evidences marked by teachers can be revealed as key categories and describe new practice are as follows: changed relationships between teachers and students, and their roles; students mixed schools and outdoor spaces, they could choose between environments; students could choose and negotiate the topic of their study project, and they had opportunity to set goals and learning activities; teachers could easily accommodate research topic and level of curricula; students had the possibility to choose easy used, well known technologies, access to multiple teachers, other resources; learners collaborated with teachers etc. Not only formal assessment was applied, but also non formal recognition important for students like recognition between peers, schools community, and by different subject teachers.

These features corresponded to the REORDER model aspects of the applied Personalisation by pieces approach elaborated by D. Buckley (2010). He formulated the REORDER framework by looking at large scale projects that had failed. He researched the reported causes of failure to determine what missing that was caused them to fail. In brief, the REORDER model states that for a larger goal or vision to be realised it must take account of all of the following aspects: Relationships, Environments, Opportunities, Resources, Distribution of Leadership, Evaluation, Recognition (Buckley, 2010). We’ve found especially good correspondence with this model, when D. Buckley applies it to describe main features of Personalisation by the Learner named his P-route model. P-route varies from T-route…

Let’s clarify and compare the key characteristics of selected LS implementation practice and P-route example using the REORDER aspects in the Table 2 below.
<table>
<thead>
<tr>
<th>REORDER aspects</th>
<th>Main features of P-route of PbyP</th>
<th>Main aspects of innovations</th>
<th>Description / examples of innovations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationships: Negotiated democratic</td>
<td>- Collaborative working&lt;br&gt;- Universal rules applying to adults and children without privilege or exception&lt;br&gt;- Calm negation, non-threatening role models&lt;br&gt;- Positive language and ethos for all groups&lt;br&gt;- Teachers move rooms more often than groups</td>
<td>Teachers and students roles and their relationships. Various collaborative activities.</td>
<td>Increased students’ collaboration with teachers; teachers discuss with students topics, tasks and goals of projects. Students talk and communicate more with teachers while investigating research matters and performing their tasks. Teachers recognize their usual position to ”stay in front of the students”, and this is a real challenge for them to change their pedagogical approach.</td>
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<tr>
<td>Distribution of Leadership: Driven towards widening leadership at all levels</td>
<td>- A clear programme for progressing learners leadership skills through managing real life services and projects&lt;br&gt;- Learners co-developing and co-running services&lt;br&gt;- Distribution of budgets is wide and includes some learner led groups and organisations.</td>
<td>Students’ autonomy, self-organized activities and responsibility for the task results.</td>
<td>Students feel responsible for the works they are doing, and for its results. They are distributing roles and tasks between themselves in groups, and enjoy to work in addition to the challenging tasks and technologies.</td>
</tr>
<tr>
<td>Environments Variety of spaces and functions, shared ownership</td>
<td>- Staff and learners have equal quality social spaces&lt;br&gt;- Qualified access to areas&lt;br&gt;- Negotiated expenditure on décor and furnishings&lt;br&gt;- Learners can choose between environments&lt;br&gt;- Larger spaces so teachers collaborate</td>
<td>Mixed schools and outdoor spaces: the students could choose between environments.</td>
<td>Students enjoyed performing exploratory creative activities outside the school; they have performed extra activities at school and at home.</td>
</tr>
<tr>
<td>Opportunities Diversity of routes</td>
<td>- Longer periods of time to allow for deeper engagement and self-organisation&lt;br&gt;- Mixed age and stage working&lt;br&gt;- Programme changes weekly or to fit projects&lt;br&gt;- Frequent negotiation to set goals and set route</td>
<td>Adaptability to the curriculum and learning goals. Simplicity, easy to match with curricula</td>
<td>Different subjects of sciences and technologies and natural sciences are involved in the LS, and students of different ages are participating: primary school students and 13-15-year-old students. Increased students’ involvement into topic of their study project selection and discussion and opportunity to define goals and learning activities. Teachers didn’t face any unexpected outcomes.</td>
</tr>
<tr>
<td>Resources: Maximising learner choice</td>
<td>- Open access to most resources&lt;br&gt;- Multi function rooms and spaces&lt;br&gt;- Learner controlled access to some spaces and resources based on earned responsibility measures&lt;br&gt;- Access to multiple teachers in any task&lt;br&gt;- Some student controlled budget for resources</td>
<td>Diversity of resources</td>
<td>Various tools, devices, and software are used; Students choose usable, well-known technologies; they consult with teachers of different subject, while performing interdisciplinary project. Students also create simple learning resources. Teachers discuss with students, which problem is to be solved during this LS. Among main</td>
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</tbody>
</table>
Factors that contributed to the success are choice of the problem to be solved and the participation of external experts.

**Evaluation:**

- Competencies such as leadership and participation are measured in terms of progression.
- Attitudinal surveys and open debates are used to directly and openly influence decision making.
- Professional learning communities allow for evaluation and feedback on teacher practice.
- Whole school aims which are the basis of annual evaluation.

Diversity of forms of student assessment.

**Recognition:**

- Peer assessment is given high status.
- Aim to display or perform all work.
- Certificates awarded between peers, peers and teachers and recognising equal right to recognition.
- Variety of methods for recognising competency.

Students’ and teachers’ attitudes and motivation.

**Students’ projects and resources are highly-rated on different subjects; students publish their created resources in the internet or simply present them at school. In this way students have a feedback, and they evaluate themselves.**

**Teachers recognized better students’ digital competence performing creative activities.**

After comparison between the evaluation model, proposed by D. Buckley (2010) and our selected characteristics we can make several conclusions.

Firstly, many of the REORDER aspects are comparable with characteristics of the indicated LS during the teachers’ interview. We can see common aspects of innovative educational practice that are presented in both parts of the Table 2: diversity of Environments, variety of the Resources, Opportunity to adapt for curriculum and learning goals, etc. Changing relationships and roles are interconnected with students increased autonomy and leadership distribution, therefore we indicated Roles as one of the key characteristic. Evaluation and recognition were combined in our main aspects to Assessment. We indicated one more characteristic such as both teachers’ and students’ Motivation, that’s widely accepted in educational sciences and practice as strong factor of success. The set of the aforementioned criteria is the main result of our research.

Secondly, main features of the P-route model are corresponding to the descriptions of innovations, which were founded during our LS implementation presented by the teachers. Therefore we can decide about our scenario facility for Personalisation by Learner in educational process.

Finally, main characteristics describing learning process, proposed as REORDER model aspects from one hand, and selected in our case from another hand, could be used as set of reliable evaluation criteria of innovative LS, and its further practice description by these criteria.

**List of references:**


ITEC PROJEKTO IKT GRĮSTO MOKYMOSE SCENARIJAUS INOVATYVIOS PRAKTIKOS ĮVERTINIMAS MOKYTOJŲ POŽIŪRIU

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Išvados ir santrauka

Informacinių ir komunikacinių technologijų naudojimas kasdienėje mokymo ir mokymosi praktykoje rodo sėkmingos inovatyvių ugdymo praktikos stoką. Tokios praktikos poreikis vis didėja, kai technologijų plėtra dažnai aplenkia visų ugdymo proceso dalvių skaitmeninę kompetenciją ir ugdymo programų pokyčius. Straipsnyje nagrinėjami sėkmingos ugdymo praktikos pavyzdžiai keliose mokyklose ir klasėse. Jo tikslas įvertinti ir aprašyti, taikant nuoseklius ir susistemintus kriterijus.

Vienas sėkmingų inovatyvių ugdymo praktikos pavyzdžių buvo iTEC projekto metu įgyvendintas ateities mokymai skirtas mokymosi scenarijus „Sviežio oro gūsis“ (iTEC, 2010). Jis buvo atrintras iš kitų projektų įgyvendinančių mokymosi scenarijų dėl aukščiausių mokymo ekspertų įvertinimų prieš pradedant experimentą (žr. 1 lentelę). Be to išbandžius scenarijų, jis gavo visų aplkaustų mokymo ir mokinių teigiamus įvertinimus, be paaiškėjo įvomąji suteikti vertinimų mokymosi scenarijų ir aprašymo ugdymo tikslų.


Mūsų įvairių kriterijų ir REORDER modelio aspektų palyginimas parodė bendrus inovatyvių ugdymo praktikos vertinimo aspektus: aplinkos įvairovė, išteklių daugybė ir įvairovė, galimybės prieiškinti ugdymo programas, tikslus ir kt. Pokyčių syntykiaose mūsų analizėje susijusi su didėjančiu mokinių savarankiškumui bei, atitinkamai, su lyderystės, todėl šiuos aspektus apjungėme į vieną kriterijų, įvairintų įvairovės kriterijumą. Šis kriterijus buvo įvairių kriterijų įvairintų kriterijų, kur skiriami formaliojo ir neformaliojo vertinimo būdai. Taip pat mūsų tyrimo išryškėjo dar vienas papildomas kriterijus - tai mokinių ir mokymo motyvacija, kuri pradeda priežiūrą ugdymo mokslinę ir praktikos svarbą sėkmės veiksnyms. Ši kriterijų visuma yra pagrindinis mūsų tyrimo rezultatams