**The author's name.**

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**Topic of the thesis.**

Personal learning environment adoption by teachers in primary and secondary schools

**Supervisor (s).**

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**A brief description of the subject, and definitions of the key terms.**

Choosing this particular topic has first of all a practical reason – to benefit the company I am working for – Almerin Ky. Almerin was founded as a response to appearing on the horizon of the IMAILE project, the project on a European level which addresses the area of ICT in the field of Education and e-learning. During personal chat with CEO of Almerin company, he said that the challenges what IMAILE project addresses (listed below) worries him too, and being a father of two kids, he felt like proactively doing something about it. So after he found out information about IMAILE, he established the company and applied for participation in the project. Since in the very beginning he had very talented people in the team, the whole company managed to get selected as one of the suppliers of ICT solution for IMAILE.

In brief, European Union got concerned, based on statistics from different schools, about early drop outs of those students for whom subjects of Science, Technology and Math (STEM) were way too hard to master. This fact in its turn result in lack of professionals in those areas and all related to it social impacts. That’s why a need appeared for developing such a personal learning environment (PLE) which will increase motivation of pupils (students) towards learning STEM subjects, will support them in personalized way throughout the whole process and be applicable to all learning styles.

Key challenges:

The challenges what IMAILE project addresses can be divided into several **sub challenges** **related to direct or indirect impact in the fields of pedagogy, technology and society**:

* **Challenge 1**  
  Full implementation of personalized STEM learning approach for all students including SEN (Special Education Needs) support
* **Challenge 2**  
  Increase STEM motivation and students results by using TEL solutions
* **Challenge 3**  
  Technology applicable to all devices, interoperability and scalability of innovative digital solutions
* **Challenge 4**  
  Labor market and increased demand of STEM professionals 2025
* **Challenge 5**  
  Costs and risks of early school leavers for EU Member States

(taken from IMAILE official web page <http://www.imaile.eu>)

Definition of PLE:

Personal Learning Environment (PLE) is quite a new concept and it has usually been described as a concept not as a learning environment. It was mentioned first time in a paper by Olivier and Liber (2001).

**(provide definitions from other resources too)**

A good definition of PLE as a learning environment can be found from Wikipedia:

*“Personal Learning Environments (PLE) are systems that help learners take control of and manage their own learning. This includes providing support for learners to:*

* *set their own learning goals (with support of their teachers)*
* *manage their learning, both content and process*
* *communicate with others in the process of learning “*

Definition of PLE in IMAILE project (PLEI):

The IMAILE Personal Learning Environment for STEM is an adaptive, accessible, and easy to use solution providing smart services for the realization of personalized learning including individualized learning paths, support of different learning strategies, and intelligent tutoring for primary and lower secondary schools.  (more info: http://www.imaile.eu/about/ple-personal-learning-environments/)

A new PLE should help solving above mentioned challenges because it should meet the following requirements which were defined by IMAILE:

* Create more 1 to 1 meetings between teacher and student in the classroom.
* Reduce teachers planning hours.
* Increase students’ motivation to learn STEM.
* Create a real shift from teacher centered learning to student centered learning ( research shows that lessons in math and science still is mostly teacher-centered, with few opportunities for the students to have influence on their own learning and using digital tool).
* Be applicable to all devices (responsive design for computers, mobile phones, tablets…), our PLE solution should be a tool that can be easily used from the students’ personal devices as well.
* Be applicable to all learning styles according to the Learning and Teaching Styles (Felder & Silverman, 1988): active/reflective, sensing/intuitive, visual/verbal and sequential/global.
* Provide students with a personalised formative feedback and scaffolding, based on their learning paths, needs and styles.
* Reduce the numbers of early drop outs in a long term perspective

(taken from IMAILE official web page <http://www.imaile.eu>)

**Motivation (Why do you want to investigate it?)**

E-learning is very attractive for me field of study generally. It is a great thing, allowing people to learn what they want to despite of their location and possible physical impairments which otherwise would be an obstacle on the way of studying in a classical contact teaching approach. I also like the idea of education system’s movement from **teacher centric approach** where teachers are using technology, interactive whiteboards and learning management systems (LMS) in their teaching activities towards **student centric approach** where all students have access to devices, digital content and software in a personalized way.

If e-learning is a good thing generally, there are no or very limited amount of means which provide really personalized e-learning experience in the context of primary and secondary schools education. Presently, every pupil (student) is just given with the same materials (and same representation of it, i.e. text, audio, video format), same level of tasks, limited types of devices a student can access materials with, lack of gamification element what makes learning fun and increase motivation towards it and many limitations more. And that’s why pupils might want to use a new PLE in their education in order to overcome those limitations and be able to have a full control on their learning: be able to plan it better with their parents, set certain goals, checkup upon the progress, have access to past activities/projects/assignments to be able to refresh those in mind and maybe to include something into a CV for future, choose learning paths and be able to visually track realization of it, play games instead of boring reading of textbooks what would increase motivation towards learning, be able to communicate inside of PLE to get help from peers or from teachers, be able to ask questions and support them with own attachments like pictures taken by own mobile device of unknown phenomena (i.e. when a pupil saw first time an aurora). On top of it a new PLE, using artificial intelligence, would suggest possible professional paths based on learning records of a person what will give pupils and their parents an idea what profession to pursue based on strengths of the child. Unfortunately, nowadays the situation is so that quite many children upon graduation from the school, when it is time to make big decisions (e.g. which university to apply to and on which program) still do not know what they actually want to do when they grow up what results in making wrong decisions and pursuing professions which don’t really interest them but were advised by e.g. relatives based on conditions on the labor market. These and many other challenges including teacher related ones (like decreasing teachers’ planning hours), the new PLE dares to help solving.

While new PLE in being developed, it is already clear that the development of it results in innovation and the biggest challenge with a software, and especially with that software which includes something totally new, is to sell it to actual clients. For pupils to be able to get all mentioned above advantages of using a new PLE, it is necessary that schools adapt it in their teaching activities. Thus Almerin clients are actually schools and to be more particular – teachers, who will actually be using the new software and whose opinion has a big weight in schools’ overall decision on whether to take it into the use or not. That’s why I want to study primarily teachers in the context of adoption of a new PLE. As a result of my research I want to find answers on the basic question of ‘why teachers would want to adapt new PLE in their teaching activities?’ in order for Almerin to use these answers as arguments in their selling campaign.

The importance of PLEI:

Pupils of K-12 (primary and secondary schools), for whom PLEI is intended, need support in their studies the most because they are still so unexperienced, not mature and having their heads twisted because of large amounts of new information and choices of professions for the future career. Thus learning support and responsibility of the entire process lies on the shoulders of teachers and parents. New PLE dares to help teachers in their daily work and give a hand to students and their parents guiding them through the dark forest of education.

Problems of existing PLEs:

The world of e-learning and using ICT in education is full of solutions and online environments. Most of them have a long history behind them and have had excellent user experiences reported. The dawn of the social age has driven more solutions, software and services to support learning processes and personalizing the learning. New pedagogies and working approaches have innovated teachers and researches to create their own solutions and vision of PLE.

The challenge of the existing solutions and software to support PLE is two-fold. Firstly the solutions focus on only some of the features that PLE needs and on the other hand they are mostly mended to university users (young adults) who can take the responsible of their own learning.(Lang et al, 2012)

Table 1 shows the analysis of some of PLE technology solutions existing on the market.

TABLE 1 ANALYSIS OF EXISTING PLE SOLUTIONS (Lang et al, 2012)

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Source** | **Description** | **Shortcomings** |
| Gooru | http://go.nmc.org/gooru | STEM education research, search, and curation portal that relies on crowd sourcing and collective intelligence | This service is a search engine and not applicable on our target groups Primary and Secondary schools. |
| The Learning Hub | http://go.nmc.org/yokoh | Each student has their own blog that develops into their electronic portfolio and personal learning environment. | This solution does not support teachers and students to assess and select tools according to their learning methods and personalized needs. |
| LTISD Learning Portal | http://go.nmc.org/ltisd | Students have 24/7 access to a webbased learning environment from school, home, and their mobile devices | This is a learning portal learning management system (LMS) and not specific a PLE. |
| The PLAYground | http://go.nmc.org/thepl | Online platform for the curation, creation and circulation of user generated learning activities that encourages children and adults to learn and teach each other. | This solution does not support teachers and students to assess and select tools according to their learning methods and personalized needs. |
| Shared Learning Collaborative | http://go.nmc.org/shared | This project is developing a common data layer and  encouraging independent software vendors to build personalized learning applications for five pilot states in the US. | The project is not a holistic approach. |
| Trail Shuttle | http://go.nmc.org/trail | Self-directed learning platform that uses technology to enable students to build their own learning programs | Not PLE but LMS. |
| Peda.Net | http://peda.net | Peda.Net is user-based platform, which is building around the personal learning place. It is a PLE platform for students and teachers. | The weakness of online tools, evaluation system and big data collecting still need development. |
| Mentorixx | http://www.mentorix.eu | Mentorixx offers a flexible, dynamic and interactive learning platform, facilitating the process of building internal or external training sessions! Mentorix Learning also includes social networking, where communication is central, to broaden the interaction and learning between staff and trainers. | The interaction with the parents and big data collection are the weak points of the platform. |

The overall conclusion from the scanning for PLE for the K-12 education is that the market doesn’t have yet fully functional PLE–platform to be recommended. The vide implementation of new pedagogies, equipment and methods challenge the market. The new needs from the primary and secondary education students, teachers and parents can’t be answered platform which have been created for universities in the first hand. (Lang et al, 2012)

Method to improve PLE:

Method for improving existing PLE is to utilize (all or partly) those emerging technologies which are nowadays in trend of technology enhanced learning:

* Cloud computing
* Wearable technology
* OER
* BYOD
* Blended learning
* Gamification
* Learning analytics
* Automated online assistant

Almerin in its development of PLE utilizes most but not all of these technologies but thanks to the fact that new PLE is being developed as a platform **(n-side market)**, it makes it possible to cooperate with third party companies and integrate their solutions into the new PLE which are in their turn utilizing the rest of above mentioned technologies. This way Almerin ensures that all parts of the puzzle are on place and a new PLE is going to correspond to 21st century personalized learning demand.

**Preliminary research questions.**

Why teachers in primary and secondary schools would want to adapt a new PLE in their teaching activities?

* what could motivate them to start using it?
* What challenges teachers experience while using existing tools?
* What issues teachers would want to have solved while using a new technology?

**The research method, if it can already draw.**

To be decided with the supervisor. My personal thought is to go with quantitative research method, create a survey and send to several schools.

**A few scientific sources.**

* Felder, R. M., & Silverman, L. K. (1988). Learning and teaching styles in engineering education. Engineering education, 78(7), 674-681.
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**Capacity to carry out the work.**

My advantage in doing a research on the chosen topic is that I actually work in that company, so I have a possibility to collect more realistic data and have deeper insights. But what is my advantage can be a disadvantage as well: due to the work schedule, I have a limited time what I can dedicate for my theses writing, about 10 hours a week. Starting from next February this amount might be even smaller as I intend to be working full time. But my motivation to finish my theses by the end of 2016/2017 academic year is high, so I will do my best to make it happen.

References:

Lang, M. Lounaskorpi, P. Pardo, A. (2012) State of the art in Personal Learning Environments