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Pedagogical support in adobting teacher to become familiar with tablets and understanding the pedagogical content in using tablets as learning tools

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ABSTRACT

The world of knowledge and communication has changed after smart phones and tablets became tools available for everybody. Children are already online on their free time, but at school devices such as smart phones and tablets are not in everyday learning use. In today's visions of the future school are strongly concentrated on the learning environments and learning methods that emphasizes the role of ICT. The visions are already here and it is possible to bring the future way of learning in to everyday schooling but the focus is on teachers ICT skills and knowledge. Teachers are in a key role in changing the way pupils learn. It is crucial to educate teachers to become experts in ICT-skills and take care of their motivation on using new technology in learning. But how do we educate teacher in this rapidly changing world of ICT? Teacher are not always able to participate in to different kind of conferences neither do they have access to new devices in every school. It is crucial to develop new strategies to reach teachers in their own comfort zone and find the ways to make it easy to adobt both new learning methods as well as new devices. In the ITC-strategy of Kokkola comprehensive school it is defined that each school should have their own ICT-pedagogical support person. The pedagogy behind taking tablets as learning tools lies on co-operative and contextual learning styles. In our region we executed a project which goal was to bring the support and the device into teacher's class and make it as easy as possible to become familiar with new device as a learning tool. That's the reason why the structure of this project was built on tablet pedagogy, not only in learning how to use the device. The project of pedagogical ICT support person was achieved in the municipality of Central Ostrobothnia in Finland 2013-2014 and was funded by the Ministry of Education and Culture. In this article I will introduce the model of pedagogical ITC support person and the meaning of the support for teacher in taking new devices such as tablets, and in this case iPads, as a learning tool in pedagogical way in use. The project was executed as action research, where the researcher was the pedagogical and technical support person and worked in the field for 8 weeks. From the teachers involved seven participated in the enquiry of the experiences from this project. In this article I will explain the background of the pedagogical point of vue in using tablets as learning tools as well as the meaning that teachers gave to support person and for the co-operation for their own development in ICT-skills during the day they had the pedagogical ICT support person working with them in their class.

Key words: tablet pedagogy, ITC, co-operative learning, pedagogical support, contextual learning

Introduction

New learning developments bring the teacher to the classroom. According to Patrikainen (2005) a teacher is able to give relevance to their teaching and enhance the learning of students by their choice of teaching methodologies, and personal teaching styles stating these as being key motivating factors for the students learning process. It is important to consider the teacher's capability to instruct the use of new technology in a rapidly changing technological environment. In today's society children and teens are accustomed to using smart phones and tablets as an extension of their social sphere. Tablets and apps are the norm. This norm must be introduced into the educational system as an integral part of learning. Sanoma Pro, Finland's largest publisher of educational material, published their findings (13.8.2014) on the use of information technology in the classroom. 52% of the respondents utilize tablets to enhance learning, and 53% make use of educational games. According to the research, 52% of teachers feel that their IT skills are inadequate to teach information technology. It is not simply a matter of replacing books with electronic equivalents, and rather an attitude adjustment towards an innovative learning culture that paves the way for equal opportunities in tablet-based pedagogy, which is the right of each student in Finland (Vähähyyppä, 2011, p. 11). 43% of the teachers who responded in Sanoma Pro's study feel that modern, or ICT, technology is not used to its full potential in the educational system. Kupianen (2011), as well as the EU Commission's (Digita Agenda, 2013), a study of seven European countries' educational systems concur, with the preceding findings regarding pedagogical use of information technology by students. According to the EU findings, the practice of ICT education is less in Finland than in the other countries, and the main reason for not using ICT educational methods is due to pedagogical reasons. Further teacher training is required.

This article focuses on the model of the pedagogical support person, to facilitate Continuing Education for the teacher providing an opportunity to develop their skills in an authentic environment, in their own classroom. It is the responsibility of the teacher to provide an inspirational and versatile teaching environment to optimize and inspire learning (Järvilehto 2014, p. 167). The pedagogical aims should be as diverse and multifaceted as modern technology. **TVT teachers** strive to influence positive changes within classrooms and educational establishments and to further the development of educational policies, all being of utmost importance (Mikre, 2011). Schools with proficient TVT teachers share their enthusiasm and knowledge with their colleagues, resulting in positive influences on the children's education by offering diverse and contemporary teaching methodologies using modern technology. Therefore, providing teachers with technological training and pedagogical education is of tantamount importance. The technical support model strives to provide this technological support and education concurrently.

Research Methods and Background

The research was conducted using an Action-based model of research. The goal of Action-based research is to gain further understanding of teaching methods, the development of teaching methods as well as situational learning (Carr and Kemmis, 1986, Stinger, 2007). An Action-based researcher is aware that pedagogical methodology, understanding and learning situations are self-created and situational (Carr & Kemmis, 1986, Stinger, 2007). According to Carr and Kemmis the purpose of Action-based research is to promote growth enhancing change in order to improve future perspectives by understanding how others perceive, interpret and respond to events related to the issue investigated (Stinger 2007, p. 19). Thereby, the pedagogical aim of the technological support person is to provide Continuing Education including pedagogical and technological support to teachers in an authentic environment, providing them with resources to impart their knowledge and skills to their students. This benefits both the teacher and the researcher. In this instance, I assumed the role of both the pedagogical support staff and researcher. I

developed and implemented a Pedagogical Technological Support teacher-training program in cooperation with teachers. I obtained information the experiences of the teachers regarding the participation of their students. Following the Continuing Education course I gathered information obtained during the workshop regarding the learning processes, the relevant experiences of the participants and of their finished products and posted them to the web-site ipadkoulussa.com. Also included were teacher responses gathered from an on-line questionnaire. In addition to using the information gathered for research, a strategy was devised from a compilation of common goals gathered from an on-line forum which served as a plan for future development.

The revised Finnish National Curriculum becomes effective in 2016. The curriculum includes TVT educational reforms that include the development of skills, with particular attention to the learning environment and teaching methodologies where students are provided with a diversity of opportunities to use ICT devices, various programs, and a variety contexts and service applications and an opportunity to use the internet (POPS 2014, 18). The current curriculum states that the learning environment, referencing access to modern technical devices, should support and provide equal opportunities for students to gain proficiency and knowledge to facilitate their procession in an ever-changing information advanced technological society (2014, 14). The revised curriculum also emphasizes the importance of the Comprehensive School's role in providing education that supports student acquisition of the necessary skills to develop their information and communication skills (POPS 2014, 21). The realization of these aims requires teachers to have sufficient knowledge of the applications and devices as well as the motivation to inspire learning. Teachers require information and technology education, support in the integration of the new technology into their teaching methods and education to attain the information technology skills required, as well as a multifaceted approach to the teaching of the curriculum and a sound knowledge of child-centered learning. TVT-education is directly related to the teacher's proficiency in these skills (Mitre, 2011).

The Child Media Participation Project (2013) research findings substantiated that the purpose of IT-support is to facilitate the use of support personnel in their role to provide support for side by side, or lateral learning, peer support and cooperative learning. The revised curriculum focuses on four key areas of ICT education which include the understanding of the utilization, safe and responsible usage, the searching for information in a safe and inquisitive manner, as well as developing communication and networking skills (Comprehensive School Curriculum, 2014 p. 21). This aim significantly raises the requirements of pedagogical and functional solutions in ICT-education. To this end, Continuing Education is required for teachers. Pedagogical support personnel are required to inspire and motivate teachers on the potentials of tablet-based learning. In order to sow the seeds of innovation, the ICT-program facilitated the use of a "visiting support person" in the district schools to inspire and innovate teachers in the use of tablet-based learning.

"Having participated in an in-house training session at my own school I felt was not inspirational and was too complicated. We were introduced to the basics of Edmondo, used in upper secondary school, thus felt that the content was not relevant and did not meet my needs." (Subject teacher B)

Teachers must be given the opportunity to learn new teaching methodologies and innovative technological devices and the support and encouragement to put this learning into pedagogical practice. According to the research conducted by Sanoma Pro (2014), 69 % of teachers would like to spend more time in acquiring new ideas. Katariina Stenberg (2011) ponders the relevance of personal experiences in offering new possibilities for learning and concludes that putting authentic experience into practice paves the way to a more creative and open-minded approach to teaching as well as professional growth. The question is how

to challenge teachers to facilitate hands-on learnings, and to provide them with the necessary technological education within the limited constraints of time.

The City of Kokkola's Information and Communication Strategy (2012-2016) states that teachers are to be provided opportunities for Continuing Education. An obstacle to this aim is the demanding nature of the teaching profession and fiscal restraints. The Excellent Project (Erinomaista! –hanke) was developed to fulfill the necessary requirements of Continuing Education. Training was provided in the classroom and work-place environment. Also important was to recognize and understand the feasibility of the methods required to promote and update electronic media education in the classroom and to give relevance to electronic media education. The strategy provides a plan of motivation for continuous training in Continuing Education as well as a plan for life-long learning, as defined by the curriculum (OPS, 2014, p.10). The City of Kokkola's TVT-strategy (2012) defines the provision of access to support personnel in each school. This strategy was placed into effect by the Excellent Project. In addition to technological support, the role of the support person is to provide pedagogical support for the teacher (2012 p.10). As well as providing the necessary tablets, the goal of the Excellent Project was to provide a support person to visit the schools in the district on one day of the week at each of the participating schools. The presence of the support person was to provide pedagogical support by working in cooperation with the teacher to develop a thematic learning plan as well as to provide technical support and assistance for the students in the use of the tablets. Within the context of the curriculum the goal was to provide authentic learning experiences for the students and to explore the realm of possibilities of tablet-based learning. The tablet itself is only a device but nevertheless opens up a world of opportunities for learning and acquiring knowledge. The understanding of Information and communication technology, devices and applications, is important within the context for which they are to be used. (Tella, S., Vahtivuori., S., Vuorento, A., Wager, P., Oksanen., U. 2001. p. 27; Kainulainen, T & Kilpelä, J. 2012. p.18)

The Strategy and Content of the Project

Nine cities and communities of Central Ostrobothnia participated in The Excellent Project (Erinomaista! – hanke): Kokkola, Pietarsaari, Halsua, Kannus, Perho, Lestijärvi, Toholampi, Kaustinen and Veteli. The availability of the pedagogical resource person was determined by the number of students involved, each region was responsible for assigning a school from which one or two classrooms were chosen as target groups in the project. At the outset a group of individuals were selected to a panel to oversee and monitor the project. The panel met 2-4 times per term to monitor the project and make any necessary device acquistions. The pedagogical support person was on rotation at the different schools for two weeks during the fall term (2013) and for six weeks in the spring of 2014.

The Project strategy included a commitment from the participants to participate in the support program during both the fall and spring terms, so that both the teacher and students would get sufficient experience in the use of the iPad and the teacher would be able to impart the knowledge gained from the project to other teachers in the school that were not involved in the program. At the outset of the program participating teachers were invited to a Kick-off seminar where the teachers were given hands-on instruction for the use of tablets in the classroom as well as clarifying the pedagogical visions of tablet-based teaching. During the two-week rotation in the fall, the support person visited six outlying regions in addition to Kokkola. During the spring all of the participating schools were visited. The scope of the project included 26 teachers and 600 students. Following a half-hour of initial orientation instruction each student was given the opportunity of 3 hours daily of iPad time for a period of 31 days. The pedagogical support

person visited 2-3 ninth grade classrooms, for one or two days, at which time they, the students, used the iPads for 1-2 hours depending on the availability of time allowed by their timetables.

The devices procured for the project were iPads due to their wide range of applications and user-friendliness. There are over a million applications available for iPads of which over 70,000 are suitable for educational purposes. The Project made available for classroom usage 16 iPads, Apple TV, AirPort, a voice application, and VGA and HDMI cables. The classrooms were to be equipped with their own video projection devices, speakers, and WiFi access. Some complications resulted due to internet access for the use of Apple TV, as well as outdated video projection devices. The lack of availability of speakers in the classroom was corrected by including them in the classroom kit brought by the support person.

"I have learned that outdated projectors cannot be used with Apple TV, and Apple TV cannot be made available if the internet access is insufficient, one just must be satisfied with the use of the iPad itself." (iPad blog 24.3.2014

Each iPad was downloaded with the necessary applications, but applications were added as required. The focus of Project was to use basic applications and each respective teacher was informed to plan their lessons so the products would be a Key Note presentation, an electronic story, poem, information text or a textbook, musical composition or an animated film. To this end, it was determined that the applications to be used were iMovie, Key Note, Pages, GarageBand, Book Creator, PuppetPals or StoryMaker. In addition. Popplet concept map application was used as a planning tool. During the spring of 2014 I blogged about the Program at ipadkoulussa.com. Included in the blog were descriptions of learning experiences and outputs.

The Learning Model in Schools

The pedagogical support person works alongside the teacher for 4 lessons. Initially the children familiarized themselves with the iPads and its various applications with the support of the "mentor", or support person. The students were also informed of the learning aims and were allowed time to execute their tasks. In conclusion, students presented their final products. The goal of this model was to optimize learning by embracing new technology and maximizing potential learning by obtaining immediate feedback. The positive outcomes of the method were readily apparent. Both students and teachers benefited from the hands-on approach to learning. The introduction of new methodology into the classroom was made easier for the teacher with the help of the support person. Teachers were motivated to improve their skills and knowledge as substantiated by the Troika Web Learning Concept, that mentoring supports the individual in learning (Poutanen, P., Laaksonen, S-M., Parviainen, O., & Tiiuraniemi, T. 2013).

"The support program was particularly significant in learning the use of the tablet as a teaching tool. It was motivational to realize that the tablet is suitable in the context of authentic learning such as conceptual diagrams. It was great to see how motivated the students were during the tablet lessons." Classroom teacher D

In a familiar learning environment teachers are also able to assimilate new concepts alongside their students. The student-focused learning aims were taken directly from the curriculum. The students were

motivated to use the devices working in pairs or in a group situation. The students were able to influence in their own learning. Although the topic and applications to be used were decided in advance, the students were allowed to plan and create their own masterpieces cooperatively with their peers. The feelings of autonomy, competence and a sense of belonging strengthen the motivation for learning (Deci & Ryan, 2009).

"The students were clearly enjoying themselves and quickly learned the use of the applications. The students also taught the teacher which was certainly and change of roles." Classroom Teacher B

David Perkins emphasizes the use of educational games as a learning toad as opposed to simply using a linear approach to teaching. "Playing the whole game" is the solution resulting in some sort of inquiry or performance to involve students in authentic learning situations providing students with opportunities to discover and explore. Learning happens naturally when the students are motivated and are responsible for their own learning (Perkins, D. 2009). The intention of the Project was give the students hands-on experience and to allow them to discover the myriad of possibilities offered with the use of the tablet.

"The students took to the tablets quickly. During the project we were given the opportunity to use the tablets on many occasions and each time the students gained familiarity with the continued use. The beauty of the iPads is that they are simple to use and in addition to the many applications available, they have a camera, and video recording capabilities. I also learned to use the tablet during the year." (Classroom teacher D)

Teacher A felt the role of the mentor was instrumental in the tablet-based learning experience as the support offered increased the skills to use the tablet and also the confidence to use it. Teacher A was in agreement with other participants in the program in that the applications were easy to use. Only 1 of 21 teacher participants felt at the end of the program that the use of the tablet was still difficult and complicated. The reasons cited for this was the difficulties which arose due to poor internet access and the cumbersome process of saving the students creations to some abstract "cloud service."

The Implementation of the Services Provided by the Pedagogical Support Person

The far-reaching dimensions of the pedagogical goals were significant. The teacher planned the areas to be taught with respect to the curriculum. The teacher conferred with the mentor by e-mail and the mentor offered ideas and suggestions on how to implement the use of the iPad for learning purposes. A few of the teachers requested that the tablet-based learning be structured from a pedagogical perspective. The goal of the Project was to innovate current teaching methodologies with the use of tablets as well as to increase the use of tablets for learning purposes.

The project targeted students from grades two to nine. The students´ interest and ability to learn the use of the tablets was equally successful at each grade level. Also, it was a first for all of the students involved in using the tablets in a classroom setting. When the question of how many had used a tablet was posed to a class of Kokkola ninth-graders, all answered affirmatively by a show of raising their hand. When asked how many of them had used the tablet for learning purposes, no one had. The time is ripe for a multi-faceted

approach to tablet-based learning in the schools. Teachers were enthusiastic about participating in the pedagogical tablet education program. Teachers were greatly interested in the mentor support educational program, and the limited number of days were quickly spoken for. All of those who were interested were not able to participate due to the limited resources available. The teachers involved had not used tablets in the classroom previously and were not familiar with their use. Prior to the project day, I requested teachers to e-mail their lesson plans and learning objectives. This information facilitated the decision as to what devices and applications would be best suited for achieving the particular lesson aims outlined by the teacher. I arrived in the classroom with the necessary equipment, set up the Apple TV and proceeded to support the aims and objectives of the teacher using a hands-on approach. The focus of the learning goal was student involvement, but the teacher also gained valuable knowledge and experience by the use of the tablets as a learning aid. As a result the teacher also benefited from the mentor support and was able to assume the role of a learning facilitator as well as providing technical support in the use of the tablet and the applications. The teacher and students learned co-operatively. The teachers often turned to me for guidance and then proceeded to assist the students with their learning.

In Perho and Pietarsaari teacher colleagues came into the target classroom to observe and learn. This made it possible for many teachers not directly involved with project to gain valuable information about tablet-based learning.

The success of the program was largely due the cooperative nature of it. Teachers outlined their ideas for the lessons and the learning aims for the day and as a result I was able to provide the necessary structure, equipment and applications that would be best suited to achieve the learning outcomes provided by the teacher. Regardless of their skill level students were allowed to explore the uses of a variety of applications and within the constraints of the learning aims. I was in the classroom from 9:00 am to 1:00 pm. On that particular day the teacher had set aside four hours of lesson time. Each student was given a tablet, and while giving them hands-on instruction on the use of the tablets the teacher and I informed them of the tasks and aims for the allotted time. The students were then put to work in pairs or groups.

The students and teachers were enthusiastically awaiting for the arrival of the iPads and were already motivated to learn. Many of the students had prepared in advance by gathering material and planning what they wanted to accomplish. There were classrooms who were not given advance notice of the arrival of the Support Person and so the daily task of learning the use of the iPad and applications, as well as the learning aims, were undertaken on the same day. Great learning experiences were achieved by the students. They were interested, enthusiastic and motivated in the use of the applications and the co-operative nature of the tasks. The insight of Montessori, (1936, 114) on how the learning environment, the educator and the materials available are integral concepts for learning and all three aspects merged during the Program.

“iPads motivate students and I noticed some new characteristics of some of the students. Writing was easy and the children were able to speak freely. It was also enjoyable to notice how quickly the children learned everything! And had the courage to try!” (Classroom teacher E)

I video recorded a ninth-grade classroom’s feedback session regarding their learning experiences (25.10.2913). The students’ responses about their learning experiences were positive. They were given the task of creating a business, to develop their business concept using the Popplet application, to prepare a business presentation with Key Note and to make an iMovie to create an advertising video to promote their respective businesses.

The students were enthusiastic and highly motivated with the assignment and were happy to use the iPads and they felt that the iPads were easy to use. They enjoyed using graphic design applications such as PicCollage and they felt that the making of the movie trailer was an innovating experience because they were allowed to leave the classroom and to work and learn by doing and not just sitting and listening. The students also appreciated the opportunity of working in a group situation, planning and implementing the skills learned. By giving the students the skills and knowledge to create their own products is what made the learning enjoyable. A subject teacher previously taught a similar lesson unit having students prepare power-point presentations of their business concepts. With the aid of the tablet the unit gained a more multi-faceted a far-reaching dimensions.

Tablets support holistic learning "in that they support knowledge acquisition across the curriculum. The essence of learning is not the tablet itself but the information which is easily made accessible." (Subject teacher A)

Pedagogical Mentor – The Influence of the Project

Clearly, the presence of a Pedagogical Mentor had a positive effect on the motivation of teachers to employ the use of technical devices in a pedagogical approach. One teacher comments that without the support of the Mentor I would not have been able to initiate tablet-based learning, I would not have believed how easy it was to learn to use the tablets. The effects left by the mentor from the fall of 2014 are readily apparent. The teachers who participated in the Project continuing using what they learned and imparting their learning in their classrooms, starting with the applications they learned to use during their mentoring period.

"I have often used Story Creator to create stories with the children." (Classroom Teacher E)

"Last term, I made use of the iPad in teacher-focused teaching (Mathematical apps, Presentation tools) as well as letting the students use the tablets (making videos, taking photographs, games)…but I intention to use the tablets for student-centered activities. I plan on using them, for example, to teach music and art." (Classroom teacher D)

As a result, teachers have been motivated to continue learning. Many of the teachers involved in the Project participated in Continuing Education offered by Apple in Kokkola in the fall of 2014.

"I learned how to use ShowBien." (Classroom teacher D)

Mäntykangas School appointed a pedagogical support person from their staff to be available to support staff for one hour biweekly. The principal of the school said the idea was formed by the need to have our own "Sirkku," a pedagogical support person on staff. At Kiviniitty Middle School the teachers who participated in the project employ the use the BookCreator, as an example, for language teaching. Halkokari School in Kokkola procured 18 iPads and the teachers who participated in the Project were selected to be a serve on an in-school committee to decide on the tablet and application usages as well as the planning of the pedagogical approaches to be employed. In Kannus, following the Mentor Support Days early education teachers were enthused to begin in-school training to learn more about the

applications that were introduced during the Project. A teacher who participated in the program from Koivuhaka School in Kokkola was also activated and initiated in an in-school Continuing Education training to teach colleagues how to use the iPads and applications to enhance learning. The Project made available two sets of 16 iPads for classroom use, which teachers were able to reserve for a period of one week beginning in the fall of 2014. Currently the tablets are in constant use and are fully booked. The procurement of the tablets have ensured that even the schools and classrooms that do not have enough, or any, of their own equipment are able to use them. The aim of the Project was to encourage and motivate teachers to use iPads for pedagogical purposes and to pique their interest and to develop their confidence in their own abilities to enable them to use the available technology in their profession. Another aim of the Project was to establish the validity of the support program in Kokkola and the surrounding area and this aim has been realized within the schools of the district. Due to the success of the Program, in the spring of 2014 a county school applied for funding to hire an ICT support person, and the funding was granted. Beginning January 2015 a county school hired an ICT support person full-time to continue the legacy of mentoring teachers and providing technical and pedagogical support as was initiated by the program. The revised curriculum necessitates national and regional attention to the availability of modern technological devices in the schools to ensure equality of the students.

The pedagogical support person, the curriculum based lesson, and the knowledge of the students, the given tasks, student interest in the program all factored in the success of the "tablet experience." All it takes is one interested and enthusiastic teacher with the required skills to motivate other colleagues.

"Little by little the other teachers in our school became interested in the pads following your visit." (Classroom teacher D)

Teachers play a key role in providing the skills of the future to students in their daily learning routines. Updating the skills and knowledge of the teacher naturally, in a familiar environment - the classroom setting, using the peer support model of providing the skills makes it possible to realize the goal of educational equality regardless of the school or region.

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