

Using action research approach to develop teachers` digital skills: the initial framework

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Abstract. This paper summarizes theoretical framework and preliminary data for a planned action research project in a secondary education institution with the intention to improve teachers` digital skills and capacity for educational ICT use through establishment of a professional learning community and development of cooperation between the school and a university. This study aims to fill the gap of knowledge about how engaging in professional learning communities (PLC) fosters teachers` skills and confidence with ICT. Based on the theoretical assumptions and review of previous research, initial ideas are drafted for an action research project.

Keywords: professional learning community, community of practice, practices of ICT use, confidence with ICT, ICT integration, teachers, action research

1 The Research Problem, Theoretical Framework and Aims of the Study

Information and communication technologies affect the ways of working, accessing knowledge, socializing, communicating, and collaborating in modern society [EC, 2013]. Hence active and meaningful use of information and communication technologies (ICT) in schools is one of the key issues in educational policies for countries around the world. As a response we see that schools in different ways and with different results try to encourage teachers to integrate ICT in teaching [Ruthven et al., 2004, Beck, 2011]. Still, for decades scholars [e.g., Buckingham, 2011; Cuban, 1993] describe the process of technology uptake in schools as unsatisfactory slow.

Implicitly teachers` digital literacy, their competencies and practices of ICT use are central to the way technologies are adopted and used at the classrooms [OECD, 2001; Schibeci et.al, 2008]. Therefore supporting teachers` abilities to enhance their professional knowledge and classroom practices is essential to fostering educational improvement [Kidd, 2012], although in European countries teacher participation in ICT training is rarely compulsory [EC, 2013].

To improve teachers skills to work with ICT, the existing teacher training programs mostly are based on the deficit model [Clarke & Hollingsworth, 2002] where the emphasis is on teaching mastery of prescribed knowledge and skills through a

one-size-fits-all set of solutions [Hofman & Dijkstra, 2010]. Previous research has provided conclusive evidence of the drawback of this approach [see Clarke & Hollingsworth, 2002].

Alternatives to this teacher training approach derive from the concepts of peer learning [EC, 2013], communities of practice [Wenger, 1999] or professional learning communities (PLC) for differentiated professional development [Grierson & Woloshyn, 2013] of in-service teachers. The contextual learning and knowledge sharing is especially important with the regard to the argument that digital literacies of teachers should be addressed not only as an individual skillset, but rather as an institutionally and culturally dependent set of practices [Gruszczynska et.al, 2013].

Addressing this problem from the scientific perspective, scholars note that there is limited and insufficient body of academic knowledge about the efficiency and applicability of PLC approaches for improvement of more skilled ICT use in educational settings. Scholars note that the available literature fails to explain how teachers learn from contextually situated professional learning, especially looking at learning as a complex process [Opfer & Pedder, 2011]. Little is known about the influence of teachers who have already established ways of working with ICT in stimulating wider implementation of such practices within the context of their subject departments or schools [Hennesy & Deaney, 2004]. Therefore application of PLC concept in educational settings call for further research to be investigated and reviewed more in depth [EC, 2013; Cassidy et.al, 2008].

Therefore **the aim** of the particular study is to contribute to filling in the gap of holistic knowledge and understanding about the interdependent and reciprocally influential processes, interactions between the autonomous entities (teachers), collectives (e.g., subject groups, grade levels etc) and their functioning in larger systems, e.g., on school level, school system level. The aim is to exemplify how engagement in an inquiry-based PLC can support and increase teachers` confidence, skills and knowledge about using ICT.

Research questions of the study:

-How can teachers` digital skills be improved through collaborative action research approach within and across different school subjects?

-How do teachers` ICT skills and confidence change over a period of development of PLC?

-How can the establishment of university – school partnership contribute to the improvement of teachers` digital skills and ICT use practices?

For the purpose of the particular study the notion of community of practice is taken from Wenger [1999] where he focuses on personal growth of individuals and the trajectory of individuals' participation within a group [Wenger, 1999]. According to Wenger, the community of practice is “a group of people informally bound together by shared expertise and passion” [Wenger & Snyder, 2000]. Communities of practice in this notion have four characteristics: members of community of practice interact with each other in formal and informal settings; members share knowledge with each other; members collaborate with each other to create new knowledge; community of

practice groups foster the development of a shared-identity among members [Li et.al, 2009].

As Cassidy et.al [2008] emphasizes: “Community, of necessity, involves individuals (..) coming together in some sense and for some common purpose or goal.(..) In essence, the members of a community work together; (..) they strive toward a shared and common understanding. It should be understood that community will not be formed instantly by virtue of individuals meeting; community evolves, grows and develops over and through time” [p.219].

In PLC teachers are given agency for defining the particular learning goals, methods, pace and measures to evaluate the achieved results. Besides that teachers become researchers themselves through reflecting upon and understanding better their practices of ICT use. The sensitivity of practitioner research carried out by individual teachers to the complexity of their own specific educational situation is both its strength and a potential limitation [Cassidy et.al, 2008].

In the inquiry process emphasis shifts from predetermined, institutional contexts, to the set of concerns that educational practitioner confronts in his/ her professional life. Professional experience here is the resource for designing the inquiry process [Murray, 1992].

For the study to be carried out, the action research method will be applied, thus providing framework for cooperation among practitioners and researchers to plan, implement, monitor, and measure the PLC`s development process. The methodology will be built on the experience from previous action research studies [see e.g., Pearson & Somekh, 2006; Phelps & Graham, 2004 & 2010; Lim, 2007, Beck & Jamissen, 2011].

The Activity Theory [Engeström, 2008] and the Clarke and Hollingsworth`s [2002] interconnected model of teacher professional growth informs the theoretical framework of my study.

1.1 Context of the Study

Locating my study in Latvia is particularly challenging, taking into consideration that the neighboring country Estonia is world known for its success in “internetisation” of the society [Kalmus et al., 2008] as well as extensive teacher ICT training programs. Although recent research reveal that Latvia is among the countries of EU with the highest frequency of teachers` ICT-based activities [EC, 2011]), the overall integration of ICT in educational settings is somehow sporadic and Latvia has not elaborated requirements for media literacy aspects to be incorporated in school curriculum [Golubeva, 2010], which leads to the idea that teaching with and about media in Latvian educational policy is not considered being important. In comparison with other European countries, Latvian society is notably lagging behind in media literacy skills [Golubeva, 2010]. Therefore it in the particular country`s context is even more important to establish cooperation among scholars and practitioners to carry out exemplary projects to support teachers in their way towards improved use of ICT.

Two studies [Baltic Institute of Social Sciences, 2011; Analītisko pētījumu un stratēģiju laboratorija, 2010] indicate that Latvian teachers have rather positive atti-

tude towards ICT use in teaching, but they feel that their digital skills should be improved. The level of use of different media during the lessons seems high – 67% of teachers report to “use media”, but here it is understood also as clippings from magazines, newspapers, printed handouts from the internet etc. Both studies reveal that teachers use the digital materials mainly as substitutes to print materials.

My preliminary data from interviews conducted in Spring, 2013, indicate teachers` dissatisfaction with the ICT training activities available to them basically because of the above mentioned “one-size-fits-all” [Hofman & Dijkstra, 2010] problem, so there is need for different approaches and more personalized solutions that allows the skills` improvement to be contextual [Lavonen et.al, 2006].

2 Research Methodology

For my study I have chosen the action research (AR) approach with me as the researcher taking active part in the development of the community of practice. AR involves all the elements that can support the participatory enquiry and community of practice being “a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes. . . It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities” [Reason & Bradbury, 2001, p.1, cited in Reason, 2002, p. 169]. AR is cyclic by its nature: first round of observations, reflection, planning and acting is followed by second round, third round etc. (Fig. 1).

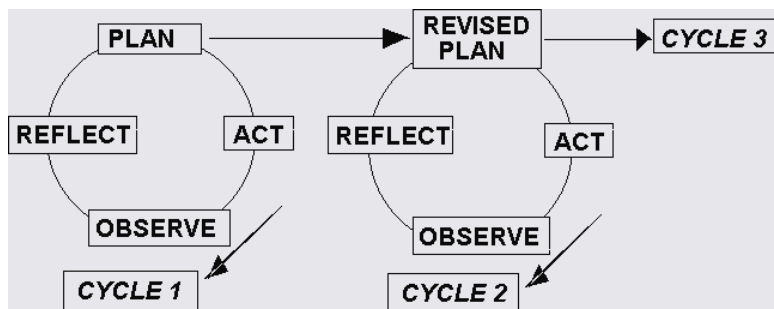


Fig. 1. Action research model [Source: Riding et.al, 1995, adopted from Carr & Kemmis, 1986]

In contrast to traditional research where the researcher is solely responsible for determining research design, AR approach invites practitioners into the research process [Heron & Reason, 2001]. Consequently, the responsibility and ownership of the process and results belongs to the participants of the research [McKernan, 1988], who decide how to implement best the new knowledge or skills in their professional work.

Kemmis [2010] emphasize that AR directly supports and stimulates transformative action. The transformation can be attributed to either teachers` practices which is called the technical AR, their understandings of the practices (practical AR), and the conditions in which they practice - the critical AR [Kemmis, 2009].

The biggest challenge is to transform the deep experiences of AR participants to relevant data for a scientific reflection [Kemmis, 2009]. In real life sometimes it is extremely complicated, as the researchers note [Pearson & Somekh, 2006] to identify a product of AR project, or behavior apart from participants felt experiences, that would serve as scientific data. Speaking about the role of theory in AR, as Kemmis [2009] emphasizes, the attempts in AR not to bring practitioners` practices into conformity with some theories, in contrast, theory should give practitioners more control and confidence over their practice. Levin [2012] adds that the research questions for AR must be based both on experiences from the real life and schools` environment.

3 Current State of the Study

For the action research project I have a partner – a secondary education institution (grades 7 – 12). School has about 40 teachers and is located in a middle sized town 100 km away from the capital of Latvia, Riga. 14 interviews with teachers have been conducted so far to learn the different practices of ICT use both for personal and professional purposes. The AR project will start with a meeting of the initial AR group in beginning of October 2013. Hence in the current situation I cannot provide any concrete activity plan, because it will be designed and agreed with the AR group in a few weeks.

So far from interviews I see that most of the teachers face practical challenges and difficulty to work with specific devices, e.g., data cameras, IWBs, use videocameras for creation of learning materials etc. One way how to develop the AR project could be that we split the big team in smaller groups of 2-3 teachers with similar needs and interests to carry out smaller scale targeted projects (e.g., using particular device, elaborating audiovisual learning materials) as it has been done in other studies [Phelps & Graham, 2004 & 2010], differentiating the learning process inside the community. With the school`s principal we have agreed on developing a partnership between the school and my university to involve colleagues to contribute to improvement of teachers` skills. School – university partnership has been developed in several AR projects before [see, e.g., Phelps & Graham, 2010; Wall et.al, 2009], and in-service teacher education and staff development is among the most popular goals for such partnerships and is welcomed by schools and teachers who see the benefits of such collaborative assistance to their every-day activities [Catelli et.al, 2000].

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