
EDUCATIONPLAZA – TEACHERS’ PROFESSIONAL DEVELOPMENT

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Introduction

New skills and literacies are needed in education to meet the challenges of rapid technological change. Existing models of in-service training for teachers do not provide an adequate means of reskilling teachers in a timely enough manner to address these challenges. In this study we explore the professional development of teachers working in communities of practice that make extensive use of social media and digital habitats to create dynamic learning environments. As online habitats for communities of practice have grown in popularity, facilitators and “stewards” are faced with the complicated task of choosing appropriate tools and methods to support formal and informal learning objectives. Of particular concern is how to appropriately implement and use available technologies to support learning and promote community-wide participation and engagement. Although several previous studies have addressed these and related issues, there is a need for a continuous effort due to the constantly changing nature of technology and its possible uses for supporting lifelong learning and professional development. This study focuses on the construction of four networking communities of practice for teaching and learning and how they are sustained. The communities are maintained under the umbrella of Menntamiðja (Education Plaza), hosted at the University of Iceland School of Education, which opened formally in October 2012. The Education Plaza is intended to provide a framework for multiple communities of teachers, helping them to identify common themes and to connect them to other key players, including educational researchers, policy makers and practitioners/professional associations). This study will provide valuable practical and theoretical foundations for emerging dynamic practices relevant to teaching, learning and research using new technologies, social media and networking.

The rapidly changing nature of the Internet and Web 2.0 tools are creating new forms of social interaction and production (e.g. the open-source software development) which require new skills and literacies [see e.g. 1]. The pronounced rate of change is leaving educational systems and schools lagging far behind changes that are being observed in the labour market and in people’s daily lives, as has been the case with waves of technological innovations in the past. The discrepancy between technology use within educational systems and outside of them is a particularly critical issue at this time because of the increasing importance of knowledge intensive work and processes in all societies and for teachers’ education and professional development. This adds a layer of complexity to teachers’ ongoing professional development: In addition to having to stay current in content knowledge and didactics, teachers now also have to have an understanding of technology and how it affects learning [see e.g. 2]. Furthermore, teachers do not only need knowledge and competence in all three of those areas but also insights and experiences on how they can be effectively intertwined. For example, it is not sufficient that a special education teacher know how to operate a new technology device (e.g. tablet computers such as iPad); she must also know teaching methods that will be effective for certain learners with special educational needs, and know mathematics well. There needs to be an appropriate blend of these three dimensions and with rapid technological change and development of new content knowledge, constant exploration and sharing of information and best practices is needed.

UNESCO has recognized the need to increase media and information literacies among teachers and published policy frameworks and core curriculum for this purpose [3, 4]. One objective in the Icelandic government’s current policy on information and communication technology (ICT), “Iceland the Online State” (Netríkið Ísland), is to expand the number of skilled ICT leaders in schools [5]. To meet this objective, the University of Iceland – School of Education (UISE) is working with the Icelandic Ministry of Education, Science and Culture (MESC) to provide increased opportunities for continuous teacher professional development, particularly in the area of ICT. The question arises which methods may be employed for this purpose. We believe that new ways need to be developed placing more emphasis on communities of practice and use of social media. This Education Plaza (Menntamiðja) project has been launched to explore such ideas.

Social networking – communities of practice – digital habitats – online plazas

Educational researchers are increasingly paying attention to social networking as new technologies are influencing how information is created and shared and how people connect and socialize [6]. Recent studies

provide insights into how social networking can impact cooperation, learning and development among students and educators [7-13]. A 2011 issue in IRRODL is dedicated to the design and delivery of social networked learning [6]. The issue also focuses on connectivism, an evolving theory that addresses learning in complex, social, networked environments where knowledge development forms a cycle, starting from an individual with personal knowledge going through a network to an organization and back to the individual, "allowing learners to remain current in their field through the connections they have formed" [14]. "A social network is a social structure made of individuals (or organizations) called "nodes," which are tied (connected) by one or more specific types of interdependency" [15]. In his book "From teams to knots", Engeström [16] presents activity-theoretical studies of collaboration and learning at work. Engeström focuses on teams and points out that they are becoming increasingly distributed in space and knowledge and innovation-driven. He introduces the notion of "knots" or knotworking where collaboration between partners is vital but taking "shape without rigid, predetermined rules or fixed central authority" (p. 20).

Social networks have been described as bottom-up, people-centric, user-controlled, context-driven, decentralized and self-organizing with the connections as the main focus [17]. In contrast, Mayfield claims that a community of practice (CoP) tends to be more top down than social networks - more place-centric, topic-driven, centralized and architected with a focus on content. A CoP shares a common goal which could be supported e.g. with online technologies [18]. Wenger, White, and Smith [19] have examined how technology can facilitate community building and vice versa and point out that "technology for community use has become an important area of practice and one that needs to be developed and nurtured to yield its full potential" (Wenger, White, & Smith, 2009, p. 4). They introduce the concept "digital habitat" referring to the part of a community's habitat¹ which is enabled by a configuration of technologies. A growing number of communities have a significant part of or even their entire habitat online. A question arises how such habitats can be architected and what should be the theoretical foundations for its design. Wenger and others have created a CoP focused on CoP's which has its digital habitat in an online "square" – called CP square <http://cpsquare.org/>. Wenger et al. point out that communities are now facing larger and more complex technology choices for the creation of their digital habitats. They describe the important role of „technology stewards“ or „tech stewards“ who adopt „a community's perspective to help a community to configure and use technologies to best suit its needs“ (p. 24). Such people are more insiders of a community than a typical IT support staff member. They scan, try out and choose community technologies and help adapt them to everyday use. Another similar/related role described more recently by the CP Square organization is a community coach. Practical guidelines are provided by Wenger et al. on how to build and cultivate CoP's with the aid of various activities and technological tools depending on the community orientation: Meetings, open-ended conversations, projects, content, access to expertise, relationships, individual participation, community cultivation, and serving a context. Conole, Galley, & Culver [20] presented a case study of a social networking site, Cloudworks designed to promote academic practice. They applied design-based research and studied emergent patterns of user behaviors. The site was used in several ways. Some can be aligned with the orientations provided by Wenger et al.: Events/conferences (~meetings), expert elicitation and consultation (~access to expertise); resource aggregation (~content). However, additional ways were academic in nature and included debates, reviews, courses, and reading circles.

Professional development of teachers is an important educational issue and closely related to school effectiveness and education reform. Research has shown the important role that collaboration and professional interaction between teachers plays in their personal development and professional satisfaction [21, 22] as well as for improving school effectiveness [23]. Active CoP's provide teachers with support and encouragement for trying out new ideas and help boost their confidence [24-26]. However, many teachers are often not aware of professional development opportunities and have limited possibilities for professional interaction and networking with other teachers. Geographical isolation is e.g. a factor in Iceland in regard to professional development and interaction. It is difficult for teachers from small schools and distant areas to participate in training workshops and professional meetings which are generally held in the capital area [27].

Jakobsdóttir, McKeown, and Hoven [28] have described how teachers can use ICT and new information and communication technologies for their continuing professional development as they are becoming more familiar with social networking tools and aware of the communities to which they have access and can contribute. However, few Icelandic educational researchers have paid attention to community building online. Jakobsdóttir [29] described tools and methods in a blended environment to create a learning community of graduate students studying ICT and media in education. An early method for networking was using a postlist, to which student

¹ Wenger et al. (2009) compare a digital habitat to the ecological concept of a habitat - an area with features required for the survival and reproduction of a species.

cohorts were added and where they remained as members after graduation. Communication was mostly one-way with information sent out about events and opportunities or requests for participation in surveys. A few years ago a web was set up sponsored by RANNUM (Centre for Educational Research on ICT and Media which is headed by the prime investigator in this application) employing NING (<http://utmidlun.ning.com>) to facilitate social networking and community building for teachers, researchers and students of ICT and media in education. However, as Conole et al. describe in their study, it is a challenge for a CoP to grow the number of core contributors and include activities that foster use and engagement. This is the experience of several members of RANNUM who have been active in promoting the uses of wikis and social media in education. However, recent examples indicate how useful social media can be to learn about new technological developments and their relevance for education. This spring a group of three graduate students taking a course module organised by the primary investigator in this proposal started a Facebook group focusing on the use of tablet computers in education. A few weeks later over 400 teachers and educators across Iceland had signed up for the group and have engaged in lively and rich discussions and information-sharing. Since the group started and at the time that this is written, the number of participants is over 1300.

Language Plaza (LP), Science Plaza (SP), Special Education Plaza (SEP)

Three projects- plazas participate in the current study:

The Language Plaza (LP) - Tungumálatorg. (<http://tungumalatorg.is/>) With the support of the Ministry of Education, Science & Culture (MESC) in Iceland and funding from various Icelandic, Danish and Nordic agencies, LP was formally opened on November 16, 2010 (version 1.0). The LP is an online community supporting language teaching and learning in Iceland. It provides useful, relevant information for teachers and parents, and there is an emphasis on creating and supporting a community of teachers and parents to exchange ideas, opinions and experience to learn from each other. The intellectual properties are published under the licenses of Creative Commons and the community is open to everyone. The LP has received funding and support from several sources. Currently a contract has been made for operation, support and funding from the Local Authorities' Equalization Fund (Jöfnunarsjóður), University of Iceland – School of Education (UISE) and Reykjavík municipality. Þorbjörg Þorsteinsdóttir is the tech steward of the LP.

The Science Plaza (SP) - Náttúrutorg. (<http://natturutorg.is/>) Science Plaza is a project which was inspired by the Language Plaza and is being developed to meet needs for more cooperation amongst science teachers, expressed in Svava Pétursdóttir's thesis², but Svava is the tech steward for the SP. The project received funding in 2011 from the Fund for Educational Innovation and Development (Sprotasjóður) and The Palmi Jónsson Nature Protection Fund (Náttúruverndar-sjóður Pálma Jónssonar). The aim of the SP is to provide opportunities for sharing teaching ideas and resources through an online community of practice, alongside physical meetings. A further aim is to develop participant pedagogical content knowledge, empowering teachers towards more varied teaching methods, increased practical work and use of ICT in science teaching.

Special Education Plaza (SEP) – Sérkennslutorg. Inspired by the two earlier plazas, plans were made to create a Special Education Plaza (SEP) with the main purpose to strengthen the society of special teachers in the country. Hanna Rún Eiríksdóttir has worked closely with the leaders of the LP and SP under their guidance as well as from the project leader Sólveig Jakobsdóttir. The project received funding from Fund for Educational Innovation and Development in 2012 to develop the SEP. Through the project website (<http://serkennslutorg.is/>), SEP can communicate information regarding teaching special needs students, including teaching methods and teaching materials. SEP can be a forum for exchanging views and advice about practical methods and materials that have proven their merits in connection with teaching special needs children. It will be attempted to enhance the cooperation of teachers by enabling them to communicate their experience. SEP is designed to be useful for all school staff members who are involved in the teaching students that have special needs or are disabled in various ways.

These are the first three plazas and more are in the making, including an ICT plaza, an Extracurricular Activities Plaza and a Mathematics Plaza. They provide online venues and support and facilitate CoP's for teachers to share their ideas with colleagues and interact professionally. Teachers who are geographically and professionally isolated can access information more easily and interact with a wider community of teachers. This kind of collaboration is self-initiated, bottom-up and user-generated, but is supported by current public policy and the government. It provides teachers with new knowledge and professional support which can further their personal

² *Using information and communication technologies in lower secondary science teaching in Iceland* (2012) EdD thesis, University of Leeds, <http://etheses.whiterose.ac.uk/3343/> .

and professional development. Through the plazas, teachers can find new teaching ideas and share their own ideas and experiences with others. They can pose questions and discuss issues of concern with colleagues and can do so irrespective of time or space (an example of how technology can facilitate community building). The opportunities for professional development via the plazas differ from the traditional professional development approaches which rely on the short-term transmission model, such as summer workshops or one-off in-service meetings. The plazas allow for on-going collaboration which is closely linked to the school context and, as such, they extend professional learning communities. Teachers can implement new ideas in their teaching and discuss the outcomes with colleagues when it best suits them. The development and positive progress has caught the attention of UISE which saw the potential of linking it more strongly with teacher education and research & development. As a result, a formal collaboration is being formed to provide a framework for these initiatives.

Education Plaza – Menntamiðja

Menntamiðja or EducationPlaza is a collaboration venue, which is meant to build bridges between actors in the education community and facilitate cooperation in school development. The aim is to formalise grassroots projects that have emerged in connection to LP, SP, SEP and other similar projects. Different plazas or portals around certain areas of education are the basic units of Menntamiðja and where the core activities take place (see Figure 1).

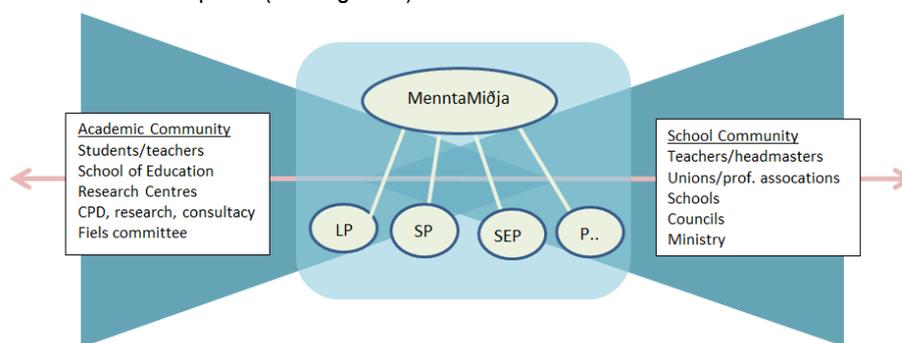


Figure 1. Overview of Education Plaza (Menntamiðja)

Its role is to provide a framework for the different activities within the plazas; to open up, facilitate and develop channels of communication for sharing of information; provide consultation on research and school development projects; facilitates requests for cooperation; and to connect the different activities and functions of actors in the school- and academic communities.

Objectives of the study

This study was started in the fall of 2012. Through a five year period we plan to record, evaluate and monitor the progress towards the following objectives:

Education Plaza - Menntamiðja – objectives

- Facilitate the creation and sustainability of communities of teachers with the purpose of strengthening professional development particularly in the areas of new media literacies and technologies.
- Strengthen internal links between community members and to other individual and associated networks, facilitate formation of teams or "knots" of collaborating members, strengthen communication and collaboration and facilitate sharing of information and knowledge building.
- Build bridges between key players within the Icelandic education system regarding teacher education, schools, educational research centres and policy making institutions (government, national, municipalities).
- Explore the use of new virtual environments, tools and technologies.
- Explore how teachers can improve their digital competences through social learning networks.

Each plaza – specific objectives/questions

- What lessons can tech stewards/community coaches learn about community building from collaborating with others and how can they facilitate, support and improve the communities involved?
- How does the effect of active technology stewarding affect community participation and learning?

- Which orientations of CoPs (Wenger, et al, 2009) contribute the most to different CoPs.
- How can the experience of building and sustaining different CoPs be transferred to other CoPs?

Method

In the study involving the Education Plaza an action research is employed, in which there is an emphasis on intervening in your own practice to bring about improvement [30]. The researchers have digital habitats that they want to prepare, test, and/or develop effectively, aligning them with the needs of the professional communities to which they are linked (see an overview in Table 1).

Table 1 Overview of research methods.

Study	Design. Participants -Main group	Data - Procedure
EP	<p>Action research</p> <p>Leaders and/or key players concerning the development of the EP</p> <p>Active members of at least 4 CoP's in a technology steward /community coach role</p> <p>Users/participants of evolving networks</p>	<p>Preparation: course on CPSquare course online (fall 2011, leadership workshops fall 2012) and leadership workshop (October 2012), development of digital habitat for the project</p> <p>Bi-monthly meetings for sharing information and developing further actions; Mapping of networks, initial and bi-annually</p> <p>Checklists -progress , user surveys and web statistics; "Tool chest" with information about technological solutions</p> <p>Progress evaluation – reports/blogs/online journals Educamp workshop(s), presentations and publications</p>
Plazas	<p>Design-based research (Mixed method)</p> <p>Tech stewards/community coaches</p> <p>Teachers</p>	<p>Qualitative methods: In-depth interviews and focus group interviews, text analysis (meeting minutes, data collected from workgroups, e-mail and web-pages), and research journal of the tech steward/action researcher.</p> <p>Quantitative methods: Social network analysis, online surveys, web site traffic.</p> <p>ICT competences assessment (self-assessment, via surveys)</p> <p>Done in connection w. continued development of the sites which can include main webs such as Wordpress, WikiSpaces and social networking sites/groups including Facebook or Ning.</p>

Pilot evaluations and Discussion

This project is still in its first phase and current results limited to formative evaluations of practice. The results here are from the first phase of pilot evaluations.

The preparation phase of the project included the CPSquare course and a leadership workshop that resulted in a shared understanding of the theory and ideology underlying communities of practice. The leadership workshop brought together a range of actors in a dialogue about communities of practice (CoP) and training for current and future stewards of CoPs. The EP was formally founded immediately following the CPSquare course and workshop and a project manager has been hired.

One of the primary aims of the Educational plaza is to promote and facilitate the establishment of new communities of educators. Development of a digital habitat for the project was started in the fall. The tools are still under development. A website has been set up to serve as a hub for sharing news and information. The project has been promoted in presentations and workshops as widely as possible within the educational community. As a result of publicity of the establishment of the EP, stakeholders of other curricular content areas and educational interest groups have approached the steering group for advice and inspiration. They have been directed to experienced community members depending on their needs. Communities have begun to form around various

interest areas including, ICT in education, the “flipped classroom”, mathematics, and extracurricular activities. These groups are in the process of evaluating digital tools and negotiating the landscape of CoPs to strengthen their professional interests.

The technology stewards report that having the backing from EP has facilitated the formation of “knots” and helped participants to identify sources of funding applications for a range of projects, strengthened links to the networks behind EP, and leading led to fruitful collaboration in providing both online and real-time professional training. The technology stewards of LP, SEP and SP have collaborated both online and in a Facebook group. Their collaboration has brought about a wide range of benefits. Their consensus after these months is that the collaboration has lessened feelings of isolation, being able to share good practice, tools and professional support. Sharing resources, insights and knowledge has made facilitating communities more efficient. Presenting work collaboratively has raised visibility and awareness of the projects in the educational community. The model seems to show considerable promise as a support structure for grassroots initiatives and will form the basis for supporting new communities of educators.

The current plazas differ in terms of their structure and orientations. The tech stewards of the plazas have experimented with ways of evaluating their activities aligned with their practice. The LP website has many strands linked to training, meetings and projects. There is, however, only a loosely connected online community but a larger face-to-face network of actors from different institutions. The evaluation of this broad project is fragmented around the different strands. There is still clear evidence of successful examples of bridge-building where actors from various institutions have used the project to collaborate and share knowledge and experience. An example is a trainee teacher who completed her training with the technology steward, bringing new methods and tools into schools. Teachers in the school were quite taken with the trainee’s input and the tutor from the university persuaded the trainee, who was final year, to train a group of first year trainees. SEP is currently focused around content aggregation and publication and has not undergone systematic evaluation yet. In this paper the evaluation of the science plaza is presented, but the evaluation of the SP is supposed to pilot practices for all the plazas and future projects.

The SP has been active for over a year and after that year the activity and usefulness of the community was evaluated with a survey, a focus group and an analysis of online activity. The SP community is focused mainly around three activities with several orientations, meetings, content aggregation and community building. Meetings and an online Facebook community give access to expertise and support community building. Content aggregation takes place in both venues and is collected and published through the community website. To begin with, inset training was organised in one area. The participants were invited to participate in a Facebook group and encouraged to invite others who might be interested. With this snowballing method, the number of members grew to 108 over a year. The membership rose with increased publicity to over 150 members. First the members were mostly lower-secondary science teachers but soon university lecturers joined and their students, along with upper-secondary teachers. This variety in membership has led to fruitful exchanges of ideas and resources.

Contributions to the Facebook group were counted by hand, entered into a spread sheet, counted and categorised. The community has been active over the evaluated period, members posted 226 times, 103 of the posts were “liked” 251 times. Activity peaked at the start and end of semesters but dropped significantly during the summer holidays. A core group of active members are responsible for most of the activity, but a survey revealed that even though a large cohort does not have visible activity, they monitor contributions closely (see table 2). Of 30 respondents to a survey 48% said they visited the group every time they saw new activity there, 24% said they visited the group 2-5 times a week, and a further 28% visit the group weekly. Focus group with 9 members revealed that members value the group and find it useful even though they do not contribute. This suggests that the community is bringing together different actors, a core group of teachers that have expertise to contribute, and a peripheral group of teachers looking for learning opportunities and expert knowledge.

The contributions to the Facebook group were of a wide variety including, asking for advice or provoking discussions about teaching practices and practical work, sharing links to online resources, advertising or reminding peers of available training and courses.

Facebook groups may be user-friendly but quantitative evaluation of activity in the group proved to be laborious and the usefulness of the data gathered is in our opinion questionable. Showing evidence of good practices and

successful learning may prove to be more useful in community development, exploring what in the practice of the community brought it about. This will be an on-going quest in these projects.

The work so far has promising indicators and the intention is to support upcoming teacher communities and optimising the use of available funds for the support of teachers leading to the ultimate goal of more equal and effective education for our pupils.

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