

Cooperative Learning through ICT: the Case of the Swedish Teachers Abroad

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ABSTRACT

In this paper we will present the initial stages of a project where knowledge sharing among a group of teachers is targeted using an approach in which a community of practice is initiated and nurtured based on cooperative design principles. The resulting process of transforming a formal organization into an informal community of practice is presented. We outline our approach that has both social and technological components that we believe will enable us to help a community form and thrive in a sustainable manner.

Keywords

Communities of practice, knowledge, teachers.

INTRODUCTION

Learning has been an important aspect in organizations for a long time. Transferring knowledge between organization members, especially indirectly from past to future members, has been approached in a number of ways. While the initial approaches were based on storing and capturing (in databases), the more recent approaches are based on nurturing “communities of practice” within the organization, as suggested by Wenger [4], where various types of expertise is discussed and developed. On the way, a passage from canonical, formal institutions to non-canonical, informal, member-driven communities is not a straightforward process [1] [2].

Communities of practice can be characterised as an informal source of knowledge. Well functioning communities of practice support knowledge sharing among practitioners, thereby supporting the process of learning from others' knowledge and experiences.

As organizations grow larger, their communities of practice are more and more spread out. In such a context, information and communication technologies play an important role. Communities are often based on voluntary association and contribution, and it would be very hard for a member to provide such contribution using software that they dislike. As such, the technology used in many communities is often built or managed by the community itself. However, it is hard to expect for that technology to appear spontaneously. Often, a solution based on participatory design practices is employed in the design of such technologies, in order for the members to regard the result as their own.

Organizations employing teachers should not be very different in regard to knowledge sharing from other organizations. However knowledge sharing among teachers rarely comes in the attention of research or of the organizations themselves.

In this paper, we will report the initial results of our work to develop a methodology for managing both the transition of an organizational structure to a community of practice and the technology involved in that process. Unlike existing approaches,

like [4], we are thus paying attention to both the community and its technology support, designed and appropriated in a participatory manner, at various stages of community development.

In our work we have chosen to focus on teachers as a group of practitioners when developing methods and technologies that support knowledge sharing through the use of communities of practice. Teachers are a group of professionals that seldom have one single office. They typically work both from their home and their school. Also, in school they may not even have an office. Teachers spend most of their time in the classroom during an ordinary work day, leaving few moments for social encounters and chats with their colleagues. Teachers thus have special problems in regards to developing and maintaining communities of practice. If teachers are to benefit from well functioning communities of practice information and communication technologies may provide a viable solution.

Our case in developing a methodology is an organization employing globally-distributed teachers who teach the Swedish language in various universities around the world. Our research focuses on the informal context whereby such individual and professional knowledge is acquired and disseminated and on the situations where the sharing and distribution of knowledge occur.

Supporting communities of practice

One solution to support teachers in finding out about daily matters, about teaching material and other things that are important for their work, would be to initiate and foster a community of practice in which teachers could help each other, ask and answer questions, turn to for advice or solutions. We will show that the group of teachers described in this paper has the prerequisites needed for a strong, active community and we will try to point out why such a community has not emerged previously.

Our aim became to actively help the teachers to sparkle and sustain an online community. We provided them with technology adapted to their needs and we have made some initial studies of how the community is formed. Our hope is that together with the teachers, this community will become a place for them to share knowledge.

One of the main issues in trying to encourage a knowledge community to form is to stimulate people's contribution, thereby stimulating extra work that people need to contribute in order for the community to thrive. We are approaching this with principles from the management of change as well as from our previous work in the area of non-waged intrinsically-motivated work [3]. Challenge is an important ingredient of such work, therefore challenging teachers to contribute on specific topics and organizing contests are some examples of how to start. The initial terrain of such voluntary contributions is also of major importance, thus the community place needs to be populated

with and connected to good quality material in the knowledge domain.

Starting the community is only an initial step. In our experience, the presence and help of researchers, as well as the enthusiasm for the novelty can give false initial impressions of success. One of our ambitions is to stimulate a community that thrives in the long term and after us researchers have left the setting. We think of this with the ecological notion of sustainability. In one of our initial models of IT design for sustainability [3] we are addressing this issue by anticipating and encouraging a number of members at every stage of community membership (and learning). This model was developed and tried out in a student organisation where, as is the case with an important part of the Swedish teachers, membership in the community is rarely longer than two years which of course makes the sustainability issue even more challenging.

Our hope is that a community of practice in this teachers' group would bring a number of benefits including a better interaction between the members, a strong support for new members of the community and a leaner learning curve for them. We hope that by sharing experiences and information, best practices will be better disseminated, that "rework" and "reinvention of the wheel" will be reduced and that new ideas and solutions will emerge.

SETTING: THE SWEDISH TEACHERS ABROAD

While the project has three target groups of teachers, in this paper we will present the experience around one of these groups, respectively the teachers of Swedish at universities abroad. The Swedish language is taught in about 200 universities in 42 countries around the world (except for Africa). The greatest concentration of university-level Swedish instruction is found in Finland, Germany, the United States, Russia, Poland and the Baltic countries. Swedish is often included in degree programs in Germanic languages, Scandinavian studies or the equivalent. The number of students that take Swedish courses is in the region of 4.000 around the world (excluding the Scandinavian countries).

Beside the interest of certain universities in teaching Swedish language and/or culture, the Swedish government has a plan of promoting Swedish language and culture abroad. The vehicle for this promotion is a governmental body called the Swedish institute (SI). It supports teaching of the Swedish language in a number of ways, from sending teachers to universities that cannot afford to hire one, to publishing books for such teachers, organising courses and seminars but also by providing all these teachers with information.

Most of the teachers are employed by the respective universities and are non-Swedes that have a degree in this language or are Swedes living in the respective country. In a smaller number of cases, these teachers are recruited with the help of SI in Sweden and would work in a foreign university for a number of years. As in certain countries (mainly East Europe and Russia) universities are interested in teaching Swedish but they cannot afford a Swedish teacher, SI employs about 50 teachers from Sweden and sends them to such universities for 2-3 years at a time.

Methods

During the first period of time we used a number of methods in order to understand the work of the people in the group and their needs. Our initial plan was to use user-centered methods like field studies, observation, user workshops and interviews. But in this group such methods were impossible to be used in a large scale as the people are geographically distributed. The limited time and resources of the project did not allow for extensive

travels or conferences where the teachers could have been invited.

We decided instead to use such methods in those moments when a number of them would be in Sweden for a conference, a seminar or for holidays, while during the rest of the year we would use methods where email and phone would be enough. We could, in this way, interview a number of people while in Stockholm and we could organize a participatory design workshop with 25 of them during a summer school that they were attending. Additionally we have spread a questionnaire over email and reviewed the yearly reports that they normally send to the Swedish Institute. The questionnaire that contained mainly open ended questions provided us with interesting information about what it means to be a teacher of Swedish at a university abroad.

We also used any of the research team members' travels for meeting the local teacher of Swedish, if one existed at the respective location. Such occasions were used for extensive interviews where the focus has been on how knowledge is handled and how they work together with other people. Another area of interest in these interviews has been the use of technology for finding and using information.

An interesting resource in understanding the life and work of these people have been the four employees of the Swedish Institute in charge of supporting Swedish teaching abroad. Initial meetings provided good background information on the group and demographic information. The fact that they have worked with the target group for a long period of time meant that they could provide us with interesting details regarding their challenges, problems, solutions and habits. In order to collect that information we organized a workshop with the SI employees where we tried to create fictional characters representing the different types of people that make up this target group. These fictional characters have helped us identify their needs and suggest ideas on how to proceed with the project.

Finally, we organized a participatory design workshop with 25 teachers during a summer school they were attending. Based on the findings from the questionnaires, interviews and the workshop with the SI people, we suggested the creation of a web-based community space where they could "meet" and "discuss" those issues that are of interest to them. We then asked them to think about what they would like to do in such a place, what sort of functionality they wanted to have and how that should work. The result of the workshop has been our primary source of inspiration of the next step, the design of a prototype web site.

Initial Findings

Out of all these methods we succeeded to collect a lot of information about the life and work of these teachers and we could draw a number of conclusions that have later been useful in the project. The first striking observation is the fact that the group is very diverse. For example, as they work in different countries they are faced with different cultures and customs. They have to find ways to deal with those cultures while still being able to do their work in the way in which they are trained. The universities where they teach are also very different both in what they require from a teacher as well as in number of students, support that the university provides to the teachers, etc. In some cases the Swedish courses are compulsory and the teacher has vast resources and support from the university while in other cases these courses are optional and there is (almost) no support or resources.

The people teaching Swedish abroad also have very different backgrounds and motivations. Some have a formal training for

the job while others are just normal Swedish people that happen to live abroad and are teaching their native language. Some are Swedish and have been trained in Sweden while others are local and learned the language in their native country. As such skills, methods and experience are at varying levels within the group. Another major difference is related to the form of employment that they have. Some of them are sent by SI for a given period of time (typically 2 or 3 years) while others are long-time employed. This brings also differences in the issues that are important to these people and the way in which they work and teach.

Big differences have also been noted with respect to the relation between the teachers and SI. While some of them have strong formal ties with the Institute, due to the fact that it is SI that employs them and sends them to a certain university, other have only an informal contact based on the fact that SI is happy to provide information, support and encouragement to anyone that teaches Swedish abroad. In certain cases there is almost no contact between teacher and SI, even if they are aware of the existence of each other.

Another strong area of differences is related to the access to technology and the skills and attitude towards it. In most West-European and US universities computers and the internet are given elements of modern education. Both teachers and students have easy access from the school as well as from home. In other countries, especially in East Europe and Russia this is not the case. Computers are few and outdated and internet connection is rather an exception than a rule. Teachers have to rely on their home internet connection (normally over modem) or on internet cafés. IT skills and attitude towards these technologies are also at different levels. Some find it rather complicated to handle a computer or to find good information on the net. Others use it a lot and have advanced skills and a very open attitude. Whatever technology we would develop, we would have to keep this in mind when designing it.

While the first impression is that the group is very diverse, we soon started noticing strong similarities. For obvious reasons, the Swedish language and culture is one major common denominator. Most people in the group are very passionate about them, about teaching them. Our investigations pointed out that they do not only teach Swedish but most of them are involved in a number of other activities related to promoting Sweden or the Swedish culture. This can include writing and publishing locally about Sweden, organizing events, participating in activities of the local Swedish community (where such exist), etc. These activities are normally not formal part of their job but are done on a more or less voluntary basis.

Even in the classroom activity we could notice that they are "ambassadors" of Swedish culture. That happens because they do not simply teach Swedish but they do it by using Swedish methods, pedagogies and customs. In a number of situations these come in strong contrast to the local culture and by using these "different" methods they provide the students with more than "yet another language". One of the teachers told us that while working in a Asian university he wanted to teach Swedish with strong participation of the students. But the local tradition is that the teacher talks and the students take notes. As such, it took him a number of months before being able to make the students say something in the classroom. What we could see is that even if circumstances for each are different, they all have similar experiences of being a teacher of a foreign language/culture in another country.

In all our investigations we noticed that it was difficult for the teachers to talk about their work and not to mention all the time the students. They are not only passive receivers of learning but are active elements of the teachers work and they define the way

the teachers plans and acts in the future. As such it is hard to talk about this group of teachers without having in mind all the time the contribution and the role of the students. It is clear that working with them is a joy and a strong motivation for most of the teachers.

The interaction with the students is even more important to them then it might be for other teachers, as they have often reported that they "feel alone". After all, they work in a foreign environment, teach a language that is not a major one, and in most cases are the only Swedish teacher at the given university. This makes it hard for them to find someone with whom to exchange information, ideas, opinions or inspiration regarding Swedish teaching. Other things, like pedagogy issues, daily problems, etc. are normally discussed with colleague teachers of other languages (mainly other Nordic or Germanic languages) or with other university staff and colleagues.

What turned out to be common within the group is a close communication between these teachers and the Swedish Institute. They turn to SI for information about Sweden, about new books, for questions or problems, etc. This is the case of both those teachers that have formal ties with SI (employment) as well as of those that do not have such ties. In fact SI is acting as a central information provider for the group.

While the communication with SI is often and strong, it turned out that there is almost none communication or interaction from teacher to teacher. While communication technology (email, messaging programs, etc.) exist that could make this possible, it seems that there is no strong motivation or interest in keeping contact with each other. This might also be caused by the fact that most have never met or met very shortly. After all, if one has a problem or a question it is easier to email someone at SI then to try to keep relations alive with other teachers.

Unfortunately the future of this support that SI provides is unclear, as government allocations are rapidly diminishing. The Swedish teachers are thus faced with the prospect of having this information centre removed, without any other structure replacing it.

When observing work patterns other similarities emerged. First, it can be noted that work is not limited to teaching in class. A lot of time and effort is spent on preparing the courses. It seems that new types of courses need to be prepared all the time, requirements from universities change, number of students or their motivation to learn languages as well. Because of that teachers are always looking for new, better materials to use in class, new methods or new information. It is important for them to find such things but also to know how these can be used in class, what works and what not and why. Even teachers that have a long experience in teaching still need to improve on the courses and still develop new courses.

It is in this process that teachers would normally need most contact with other teachers. They can discuss different experiences, point to each other new available materials or methods, get inspiration from each other. In our case, because of geographical isolation, such discussions are impossible to have or are limited to very few other teachers.

Trying to conclude our findings we can say that we have a group of people with similar interests but with no real community. People know to a small degree each other but not all. This is caused by the fact that they seldom meet and then only in small groups (20-30 people). Communication is limited to a small number of people that keep in touch with 2-3 other teachers they met somewhere. No IT support tool is used for communication. In the same time we noticed a strong need to communicate with each other, to share problems and experiences, to have someone

to turn for a solution or advice, etc. In the community literature this is called an “incipient community”.

As such we have decided that in this target group we would apply an active research approach. Our goal is to spark interest in a community, to provide a technical support solution tailored for them and to foster the development of the community. We will use the help of the SI people while in the same time we will try to find and encourage leaders from within the group.

As the distributed nature of the group does not allow more workshops and similar methods, we decided that it is important to enter an iterative prototyping process which will allow us to quickly test concepts and ideas in a remote way. In parallel we will try to find and use methods that bridge the physical distance barrier (remote fieldwork, cultural probes, etc.). As meeting the teachers for field observation has proven difficult, we decided that the community will gain more by interacting with and commenting on an early prototype. Our plan is to use the prototype as a tool for collecting more requirements and comments for the teachers and to be able to rapidly iterate the prototype together with our users, getting it closer the desired form.

SVENSKWEBB THE COMMUNITY SUPPORT SITE

Based on the findings we have moved to designing the prototype community web site. Although the community of teachers cannot be separated from their students, in this first version we will address only the teachers. We will consider for future versions how this community site could be extended to include these students as well.

The first version will focus on two functionalities: a Forum and a Teaching Material Review system. Both of these functionalities are part of the outcome of the participatory design workshop, in which they discussed what sorts of things they would like to do together in an online community.

We decided that the solution would take in consideration the fact that access to technology and skills in using it vary a lot within the group. We understand that our challenge is to make a system with ample functionality and configurability while keeping it simple and clear. This should be obtained by gradually adding complexity after the release of the first prototype. This should allow people to feel comfortable in the beginning and for us to add these things based on real requests and needs of the community.

We decided that access to the site should be individual, based on a user name and a password. This closed nature of the site should make the members feel comfortable to discuss any issue that they want to raise without the worry that someone else outside the group can see it.

The Forum

The members of the group repeatedly expressed the wish to have an online forum. It is considered a very important element of such a community web site as it provides a simple communication method, one that most are used with. In the same time most of those we discussed with agreed that this would not be enough for a community to unfold but it was considered central. We decided to implement a forum with clear features: simple ways to search in the existing messages or to contribute, etc.

In order to easy find messages on specific subjects a full text search function is also provided in the forum pages. All messages that have been added to the forum since the last visit of the respective person are marked with a special symbol. This is thought to help users when they want to check what is new on

the site, without having to loose time with those messages that have already been read.

New discussion threads and new messages in a thread can be added very simple. The system tags automatically the user name of the author and the date and time of the message. Messages can be both simple text or (if the user so wants) HTML. Each page starts with a very short explanation of what can be done and how.

Teaching Material Review

During the workshop there was a clearly expressed interest in providing them with a system that would allow them to find teaching material. The most important feature they asked for was a way to comment these materials so that they could rely on each other's advice in using those materials.

It came across all interviews and questionnaires that they are in a constant “look-out” for new, better, materials for using during classes. While the university is the one that decides in most cases on the theme of the courses to be taught, it is the teachers responsibility and freedom to choose those materials that are best suited for the given course, students, culture, etc. While the number of books, video tapes, exercises, audio tapes, etc. that are available is huge, it is hard sometimes for the teachers to find them. Even if found, it is hard for a teacher to asses if that material could be used in his/her classes. As such, teachers rely on the opinion of other teachers. That is exactly what they would like this system to do for them: help them find the material and then provide information on how others have used it and with what result.

What they wanted is an amazon.com kind of recommendation system. They want to find new books, etc. but also to be able to add their own materials. They expect others to comment on the use of these materials and be able to add their own opinions and comments. Materials should be of different types: books, pages from books, web page links, video files, audio files, exercises (text files), etc. Comments should include an overall rating, a written comment but also the name/type of the course where this material was used by the one writing the comment.

In order to help them find materials in what could be a rather big number, we decided to implement a proper search function as well as to structure the material and the comments based on probable use (for teaching language, for teaching literature, etc.).

Other Design Considerations

In order to increase interaction, awareness information about who is currently online should be provided. First of all, each user has a profile page where each can enter contact information, name and university where they teach as well as any information about themselves that they consider. The system would also show on each page the number of users that are connected to the site in the same time as well as link to a list of those users.

As we understood the central role that SI plays, we decided that we should also provide on the community web site a platform for them to keep the teachers informed on any topic of interest. As such, on the first page of the site we provided a special place where news from SI can be added by the people working there.

The first page has been designed to provide two major functions: to show the functionality available on the site in a simple, clear way and to show the most important changes since the last visit. While the first characteristic is important especially in the beginning, the second is of great help for people that do not have too much time to spend on this. Our goal was to allow with one single page visit to get a clear image of what is new and hopefully to wake interest in further explorations of the site.

During the design process we have always considered those solutions that would allow not only for a successful design but also for a design that should be easily maintainable in the future. First of all, technically we have used only open source platforms, including MySQL for the database and Makumba (www.makumba.org) for the HTML/Java/SQL integration. The plan is to be able to “hand over” this site to the members of the community themselves so that they can maintain the site in the future without too much effort and without high costs.

SITE LAUNCH AND FIRST COMMENTS

After the implementation of a first version of the prototype we discussed how to prepare the launch of the site. We understood that SI would have to play a strong, active role in this. Together with them we prepared a proper presentation of the site as well as a description of its goals. We used a number of meetings where SI people would meet some of the teachers to promote the launch of the site.

We also understood that it was of great importance to provide from the beginning not only a platform but also some initial content on the site. We decided that the best would be if we could provide a number of teaching materials, in our case book descriptions that we have imported from the leading academic bookshop’s web site. This bookshop and SI have a long standing cooperation in which they produce a special catalogue of those books that are useful in teaching Swedish as a second language. It was exactly this catalogue that we imported on our web site.

After the implementation and preparation work was done we had SI sending out an email to all teachers where they announced the opening of the site and the role that they envisioned for this community tool. Each teacher that wanted access was required to send an email that would result in the creation of an account on the site. In the weeks that followed a good part of them had registered.

In these first weeks we noticed that the first things people did was to enter information in their profiles, to check out the profiles of the others and to check from time to time who else has registered. As we had no page that would list all registered users, we immediately added one where those that registered since the last visit were highlighted.

A number of people also started to use the forum and to suggest common projects of smaller scale. It was nice to see that other teachers have responded and contributed to those small projects. In the same time, as they started using the site, the users began writing us requests of improvements or of new functionality. That was exactly what we were looking for.

They wanted, for example, to be able to add images to the messages (including uploading those images). Or in another instance they wanted a simple chat system so that they could discuss with each other if simultaneously online. We gladly obliged and provided these new functions and improvements.

At the same time the people from SI stated using the site for posting the latest news regarding books, seminars, summer schools or new employment opportunities. In fact they decided to shut down an older news system on their official site that had proven not to be used by the teachers any longer.

CONCLUSIONS AND FUTURE WORK

The habitat is an important component of every community. We believe that the electronic communication system is an important component of the geographically-dispersed community habitat. Therefore nurturing a community, as we set out to do here, cannot be separated from the design of its electronic habitat. It is important to note that the habitat we have

designed together with the community is not unusual from a technology standpoint. However, our help has let the community achieve a much better integration between the site components than the one they would have otherwise achieved with off-the-shelf components, provided any of the members would have wanted to do this in the first place. “Iteration with the community around a prototype” thus becomes an important part of our community management and design methodology.

Moreover, the community website is not just a transparent infrastructure. Its central role, especially in the initial stages, can provide a very good opportunity to pose a challenge to the community. In other work [3] we wrote that the challenge of a voluntary member is an important aspect of their motivation to contribute to the community. However, it is important that especially in the initial stages of community membership the challenge should be *addressable*. The first major challenge we gave to the teachers was to work together on a small project. But the other, equally addressable, was the electronic habitat itself: When we gave the site to our teachers, we asked them to treat it as their community home, and to think how to arrange it. “Electronic habitat as initial addressable community challenge” is thus yet another component of the methodology that we are developing for nurturing communities of practice and designing their communication technologies.

The intense activity of the teachers who are not employed by SI in the community brought us to another important lesson in moving from formal organization to community, related to the mix of amateurs and professionals. In this context, amateurs are outside the initial formal organization, yet they have informal connections with it. They are not necessarily volunteers, but they are not paid by the organization. Oppositely, professionals are formal part of the organization. However, all of them have the same goals (teaching Swedish abroad in this case) and they will be naturally part of the same community. There are thus three important types of actors to take part in a organizational – community transition: management, professionals, and amateurs. This differs from traditional participatory design approaches which just consider management and employees.

We have thus tried to augment management advice on community nurturing (e.g. [4]) in several directions. *First*, we have considered participatory design practices which have led us to a different type of community shared and goals definition. Rather than with a controlled management process, we let our community define their values from within, first by observation, then by member participation. *Second*, participatory design reflection has let us identify an important type of actor in the organisation-community transition process, the amateur community member. *Third*, we set out the ambition to nurture a community with little technical and financial resources, just those provided by our university and grant. We are consciously planning to take even these resources away, and (to the extent possible) recruit amateur coordinators and technicians from within the community membership, thereby allowing the community to *sustain* itself without our help. *Last but not least*, we have emphasized the important role of technology, both as inseparable habitat and as initial addressable challenge in the process of organization-community transition for member learning. Our major claim is that community nurturing management methodology cannot be separated from technology support design methodology.

During this first part of the project we have learned a number of lessons. First, working in a cooperative way with users that are geographically distributed is an additional challenge to such a project. While we were hoping to use methods that we are familiar with, we soon understood that we would need to change and adapt those methods to the distributed setting.

This led to the decision that the best way to move forward was a fast prototype that would allow us to initiate a community place and would allow the users to contribute by having a given technology in use. As soon as that happened, the users started expressing wishes and problems and started forming their new online "space". The site also provides a starting challenge for this incipient community and hopefully will make the teachers gather around it.

It is visible how a more formal organization, as we have found it in the beginning of the project, is transitioning towards an informal community, as we had expected from the beginning. While this is happening almost without pain, we noticed a couple of instances where the SI employees had uncertainties about letting go of the partial control that they had before. While our hope is that this group will move more and more towards a cooperative community of practice, we know that SI will continue to be a strong catalyst for the teachers.

Our efforts will continue with a first evaluation of the results that we had till now. This evaluation will hopefully also point out the existing problems and the ways in which we will have to move forward. For example, we are committed to provide at the end a technology and a community that are sustainable in the long run. As such, in the following stages of the project, time and effort will be spent in finding the proper community leaders as well as those technical inclined ones that will be able to take over both the guidance of this community as well as the technology that enables it.

We hope that our design process and methods are relevant to other similar projects and that our experience can be inspirational to other researchers and developers. We also consider that our findings regarding teachers, knowledge and communities are not restricted to the group we study but can be relevant in other cases as well.

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