LAPPEENRANTA UNIVERSITY OF TECHNOLOGY

FACULTY OF TECHNOLOGY MANAGEMENT

DEPARTMENT OF INFORMATION TECHNOLOGY

Designing features for supporting social interactions in online communities

The topic of the master's thesis has been accepted in the Departmental Council of The Department of Information Technology, August 4th, 2009.

Work supervisor: Professor Kari Smolander

Examiner: Professor Kari Smolander

      M. Sc. Sami Jantunen

Lappeenranta, October 10, 2009

Erno Vanhala

erno.vanhala@gpiste.org

ABSTRACT

Lappeenranta University of Technology

Faculty of Technology Management

Department of Information Technology

Erno Vanhala

Designing features for supporting social interactions in online communities

Master's thesis

2009

83 pages, 8 figures, 3 tables and 1 appendix

Examiners: Kari Smolander

                          Sami Jantunen

Keywords: online community, social interaction, feature development

This Master's thesis studies the development of interaction and socialization in online communities. A large number of online communities fade away even before they really get started. In many occasions the reason is that the community does not give anything new, or even if they do, the delivery does not satisfy the users. In this thesis guidelines were developed to help to see important things, which might be forgotten when developing an online community. The thesis goes through the characteristic of an online community and human behaviour related to them and also compares behaviour in the Internet and real life. In addition, usability is an important part of the online communities and thus it is also covered in this thesis. As a result of this thesis an 8-step guideline was developed to ease the design of an online community. Guidelines were also applied to two real life cases which are described as one part of this work.

TIIVISTELMÄ

Erno Vanhala

Designing features for supporting social interactions in online communities

Tämä diplomityö käsittelee vuorovaikutuksen ja sosiaalisuuden parantamista verkkoyhteisössä. Monet verkkoyhteisöt kuihtuvat ennen kuin ne edes kunnolla pääsevät jaloilleen. Usein syynä on, ettei yhteisö tarjoa mitään uutta tai jos tarjoaakin, ulosanti ei ole käyttäjän mieleen. Tässä työssä kehitettiin ohjeita, joiden avulla verkkoyhteisön kehityksessä tulee huomioitua asioita, jotka saatetaan usein ohittaa. Työ käy läpi verkkoyhteisön ominaisuuksia ja ihmisten käytöstä verkossa yksinään sekä verrattuna käytökseen reaalimaailmassa. Tämän lisäksi käytettävyys on tärkeä osa verkkoyhteisöjä, ja siksi myös sitä on käsitelty tässä työssä. Työn tuloksena jo olemassa olevien tutkimusten pohjalta kehitettiin 8-osainen ohjeistus auttamaan verkkoyhteisön suunnittelua. Lopuksi ohjeistusta sovellettiin kahteen case-tapaukseen, joista tässä työssä on kuvaukset.

PREFACE

Never have I written anything like this before. After I had finished my bachelor's thesis I thought it was good, but I soon realised it could have been done better. So when I started working with this thesis I wanted to put all my learning into the practise and write a better thesis.

Of course there is no way I could have done this without help from friends, colleagues and loved ones. I thank my examiner and supervisor, Kari Smolander and examiner Sami Jantunen. Heidi-Maria gave also useful perspective. Yet, the biggest thanks go to Marianne. Once again you have supported me in a way no other can do.

"You must always believe you will become the best, but you must never believe you have done so."

-Juan Manuel Fangio

Table of Contents

ABBREVIATIONS

ACM	Association for Computing Machinery
API	Application Programming Interface
CAPTCHA	Completely Automated Public Turing Test to tell Computers and Humans Apart
CMS	Content Management System
EU	European Union
FOC	Firm-Hosted Online Community
HCI	Human-Computer Interaction
HTML	Hyper-text Markup Language
ICT	Information Communication Technology
OCR	Online Community Research
PROFCOM	Product Internationalization with Firm-Hosted Online Communities
UI	User Interface

1 INTRODUCTION

Humans are inherently social: they live together, work together, learn together, play together, interact and discuss with each other. This kind of socialization is a normal phenomenon in real life and therefore it seems only natural to develop interactive systems to support and extend this social behaviour. A community is a group of people who have a shared interest, a purpose or a goal. They get to know each other better over time and get familiarized. That is how one can become a member of a community – by interacting with other members. (Preece, Rogers & Sharp 2002, p. 105; Preece 2000, p 28.) According to Kosonen (2008, p. 43) online communities are commonly understood as a certain form of social organising, an online network where people, who share an interest in specific subject, interact inside certain boundaries, and which relies on communication technologies.

There are tons of online communities available in the Internet. Some of them flourish, some have tight closed environment for just a few members, some have millions. Yet, most of the communities fail. There is no silver bullet to ensure the success of an online community.

In this thesis I open up what kind of members online communities have and how they behave. The communities have three essential base components (content, members and technology) and even more important, they have a purpose. Three components can be seen as sides of a triangle. This model is introduced in chapter 2.1. In this work I will concentrate mostly on the member side of the online community triangle. Because online community members depend on the content and the technology, these two parts will also be present in this study. The technology part has already been studied in my previous work (Vanhala 2008) and more information about selecting

the right platform can be found there.

1.1 Research question

Members are the only part in the triangle that is alive, thus, it is the part that has its own thoughts and decisions. One should never forget the technology and the content parts, but on the other hand, the best technological solutions do not guarantee success. Community members can live in a community which does not have the latest technological innovations. If the quality of the community doesn't meet the members' expectations, they will leave. But if members feel special and think about the community even when they are offline – then the community is a good place and members will remember it. (Reed 2008b; Reed 2009c; Reed 2009d.)

The most important part of this work is to study what kind of features could help users to join the community (and stay there) and members to interact with each other. The research question is therefore the following: *What features could be designed for supporting joining, staying and social interactions in online communities?*

1.2 Structure of the study

This study is divided in five chapters. This first one describes the main structure of the thesis. The second chapter talks about what online communities are, what kind of people use them and how they behave. Guidelines and advice are listed and discussed in the third chapter. In the fourth chapter one finds two case descriptions where the advice, talked in the third chapter, are put in to use. The last, sixth chapter, concludes this thesis. The research question is answered by development of the advice in the

chapter 3 and by putting them in use in the chapter 4.

To get as much as possible from this thesis one should read it completely. Although, if one is familiar with online communities, the third chapter also works alone, or with the case studies.

1.3 Terminology

This study has some information, which needs to be clarified before continuing. Here is listed and described a few terms to ease the further reading.

CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart) checking is a way to notice the difference between a human and e.g. spam-bot. Captcha checking is implemented for example in a way that user has to calculate some basic math problems, like 3 times 5.

A *content management system* (CMS) is a computer application used to create, edit, manage, and publish content in a consistently organized fashion. Online communities can be built over a CMS and all the community's produced content can be handled in a CMS. Using a CMS benefits in a way that one can separate the content, the structure and the design.

Critical mass is the necessary number of community members that is required before an online community can work on itself (Microsoft 2009). For example, you probably need at least 8 players when starting a baseball game, thus the critical mass is 8.

Mashup is a term describing a web application which uses two or more web application programming interfaces (APIs) provided by another web service, like Google, Amazon, NASA or Microsoft (Hintikka 2007, p. 40). For example Google maps' web API is often used in mashup applications.

Web 2.0 is neither a model nor a technique, but a term or a concept to gather new practices in the designing of www-service, programming, marketing, producing and also in strategy. Central blocks in Web 2.0 are, for example, RSS-feed (which is a short, often updated message like news topic), blogs, sense of community, collectivism and a implementation of pc software in a web-platform. (Hintikka 2007, p. 8-10.)

2 ONLINE COMMUNITY FEATURES

Kim (2000, p. 7-8) tells that in terms of social dynamics, physical and virtual communities are much the same. They both include a web of relationships among people who have something in common. In that sense a web community is just like any other community – it just happens to exist online. Being online has both advantages and disadvantages. The Net removes time and distance boundaries and makes it easier for people to maintain relationships and deepen connections. The Internet brings out the best and worst in people's behaviour: On the one hand, relationships can be deepened in a fast way, but on the other hand it is nearly impossible to avoid troublemakers. (Kim 2000, p. 7-8.)

According to Preece (2000, p. 10) online community consists of four basic elements:

1. Shared *purpose*, such as an interest, a need or a service providing a reason for the community.

2. *People* interacting socially as they try to satisfy their needs or perform roles.

3. *Policies* being tacit assumptions, rituals, protocols and rules that guide people's interaction.

4. *Computer system* supporting social interaction and acting as a facility.

The purpose for an online community is important. Kim (2000, p. 15) encourages community builders to ask what type of community they are building, why they are building it and who they are building it for. When the purpose is clear, one should consider people, because they are the pulse of the community (Preece 2000, p. 82). There is no community without them. Communities also need policies to direct

online behaviour (Preece 2000, p. 94). Finally some computer system is needed as a back end.

Based on models created by both Preece and Kim and models introduced by Arrasvuori, Kehikoinen, Ollila & Uusitalo (2008, p. 3) and Hoadley & Kilner (2005, p. 33) I created a simplified model to describe the components of an online community. It is described in the following chapter.

2.1 What creates an online community

There are three essential components and one base requirement that are always needed when talking about online communities. These are shown in figure 1.
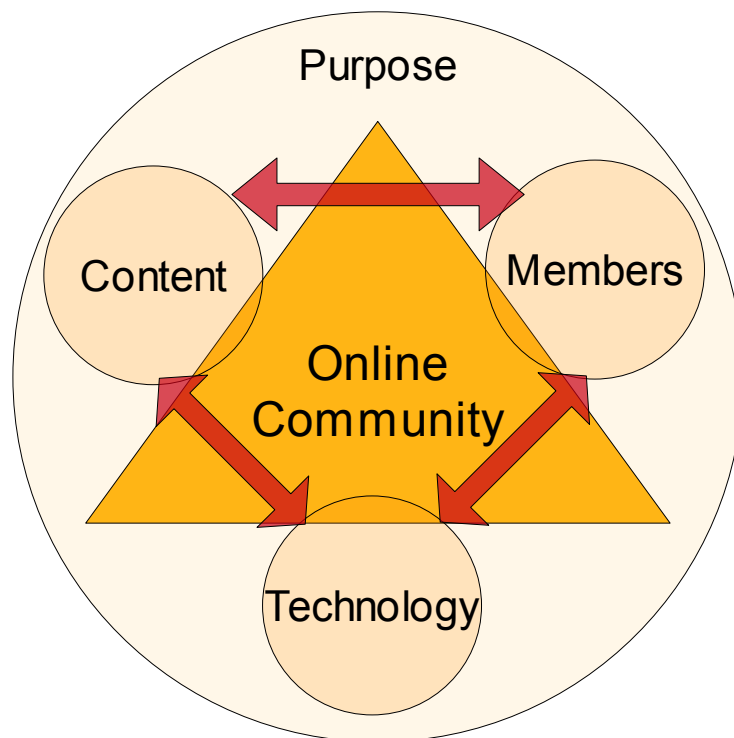

Figure 1. Essential components of and one requirement for an online community.

Actually it is no different whether speaking about an online community or a traditional community: they both have all these components and requirements. A community cannot exist without a purpose whether it is online or traditional. There has to be some spark that creates the need for a community. Also the community has to have all the three components to make sense. Without members there cannot be a community at all, without content members have nothing to discuss, research or compare and without technology there is no way that an online community could exist. First two parts are similar to the traditional community, but the technology part is a bit different. In traditional communities the technology could be understood as a place for gathering (for example a concert or a church) or a way to send and receive messages (for example a phone or a mail).

Figure 1 presents two-way interactions between content, technology and members. It could be also seen as two cycles. In the first cycle members create content, content is stored by technology and technological features ask members to join. In the second cycle content gathers members, members use technology to collaborate and technology gives content.

2.2 How does an online community work

Hintikka (2007, p. 23-24) presents a model to describe a feedback loop of an online community. Figure 2 is based on that model, but this work focuses only on three parts of the model. The transactions part will be totally left out and user profile part is going to be handled only in the user information collection point of view. Advertising is not covered in this work.
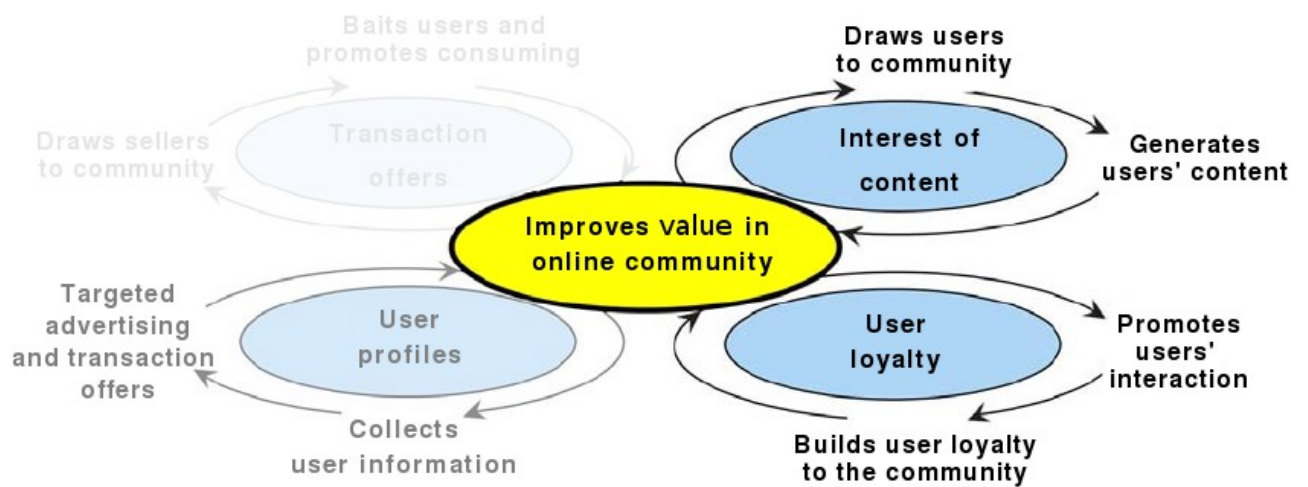
Figure 2. Feedback loop of community value (modified from Hintikka's, 2007, work).

Figure 2 shows how content, generated by the community members, amplifies collaboration and then loyalty towards the community. When the service gets more member profiles, members communicate more with similar people. All this (and the business side) draws more users to the community and different sub-areas grow their own loops. (Hintikka 2007, p. 23-24.)

2.3 Roles in online communities

As being individual humans, the community members are different, they have roles. Each member of the community is a different type of person. Some of them like to talk a lot, some less (but produce more meaningful text) and some do not like to talk at all.

Since the very first online communities, there have been roles in them. It is in the human nature that not everyone speaks as much as others. Actually in online communities not many members even contribute anything. The "90-9-1-rule" applies in most of the online communities. It means that 90% of the community users never contribute, 9% contribute a little and only one percent of the community users is responsible for most of the contribution (Brandtaeg et al. 2008, p. 3).

What roles are there in online communities? There are no single all-classifying categories available, but many researches have introduced their own role divisions. A few of them are listed in table 1.

Table 1. Social roles suggested by various authors (Turner & Fisher 2006, p. 3).

Author	Roles
Brush, Wang, Turner & Smith (2005)	Key contributor, Low volume replier, Questioner, Reader, Disengaged observer
Golder & Donath (2004)	Newbie, Celebrity, Lurker, Flamer, Troll, Ranter
Kim (2000)	Visitors, Novices, Regulars, Leaders, Elders
Turner, Smith, Fisher & Welser (2005)	Answer person, Questioner, Troll, Spammer, Binary poster, Flame warrior, Conversationalist
Waters & Gasson (2005)	Initiator, Contributor, Facilitator, Knowledge-elicitor, Vicarious-acknowledger, Complicator, Closer, Passive-learner

This study is not going to use all the roles or terms listed above, but a smaller and a clearer model. In figure 3 all the roles above are put in one matrix with the criteria of

quality of post and the number of posts on the axis.
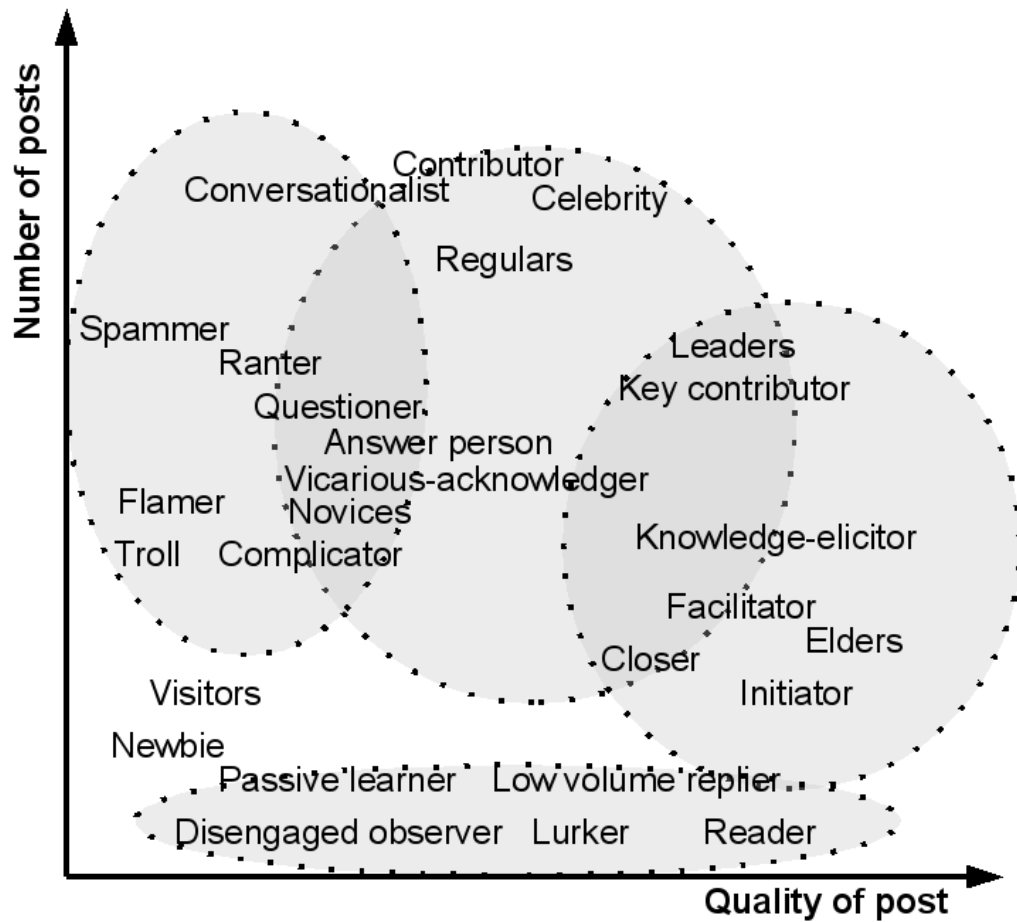
Figure 3. Connection between quality and quantity

As one can see there seems to be 3 or 4 different kind of groups. In this work I have used 4 groups: firstly, there are the ones, who only watch, read and learn, but do not contribute. Let us call them *lurkers*. Then there is a group with high quality of post, but the quantity is not the highest. They are the *leaders* of the community. Then there are members who make quite a lot posts with good quality. They are the *contributors*. Then there is yet another group left. The *chatters* post often or not so often and the quality also varies from spam to basic questions and chat kind of posts.

A lurker could also be thought as being a reader, a disengaged observer or a passive learner. Leaders include also features from key contributors, initiators and elders. A contributor has abilities from regulars, contributors and celebrities. Chatters' main area is just to discuss (off-)topic things, but there could be seen a little bit of a flamer, a troll or a spammer as the posting rate is high (Nolker & Zhou 2005, p. 4). However, the posting quality might be low.

2.3.1 Leader

According to Kim (2000, p. 145), different communities require different kind of leadership. Kim defines leader's role as a support provider, host, greeter, cop, event coordinator, teacher and merchant. Leaders give support by answering questions and helping members to solve their problems. Leaders can also be hosts and merchants running the community smoothly and fueling the economy of the community. They also work as greeters and cops by welcoming new members and by punishing disruptive members. As leaders' responsibility is to keep the community clean from spam and dirty material, they could sometimes be seen unpopular (Combs Turner & Fisher 2006, p. 14). Finally, leaders also plan, coordinate and run events and provide tutoring (Kim 2000, p. 145). The leaders' job is to balance things and at their best, leaders enable and encourage participants to share resources, knowledge and information (Combs Turner & Fisher 2006, p. 14). It could be said that the words of the leader have weight.

Not all communities need all the leader activities mentioned above. The smaller the community is the less there is a need for different leadership skills, but communities always need leadership in some way. If the size of the community increases, there is a need for more leadership. (Kim 2000, p. 145.)

The chances for a community to survive without a leader(s) are slim. Leaders are persons who get respect but also have to deal with unhappy situations sometimes, and not all community members are going to like them. According to Rosen et al. (2007, p. 265) leaders must go beyond simply by acting as good role models. They must also articulate a vision of collaboration, clarify expectations and reward members. A good leader is a valuable resource for an online community, not all members can be leaders.

2.3.2   Contributor

Golder & Donath (2004, p. 9) describe contributors (celebrities in their research) being prolific posters who put great effort contributing to the community. It is also notable that because they post so often, everyone knows them. Contributors also make only a small percentage of all members, but they are the biggest group to create content. Although they create content, the quality is not as good as the one of the leaders. Waters & Gasson (2005, p. 4) describe contributors quoting examples from existing material. A contributor, however, creates more reliable material than a chatter. To put it simply: contributors are the ones who define what the community really is (Golder & Donath 2004, p. 9).

2.3.3   Chatter

According to Nolker & Zhou (2005, p. 4) chatters talk a lot, but only to a few people and the majority of conversations are direct. They also observed that a high volume of the community members may not be supportive of the community. When the members do not contribute to the main topic of the community they could be listed as

chatters, that is, they discuss off-topic things. (Nolker & Zhou 2005, p. 2.)

2.3.4 Lurker

Most of the online community users are lurkers. In the research made by Nonnecke et al. (2004, p. 2), a lurker is defined as a member who has never posted in the community. There are also other definitions. It could be said that the member is a lurker if he or she has not posted anything in three months (Nonnecke et al. 2004, p. 1). There are several researches made which point out that the percentage of lurkers can vary from 0 to 99 percent (Nonnecke & Preece. 2000, p. 1).

What kind of a member a lurker really is if the only participation is in the form of reading and viewing existing material? Can you even count this lurker as a member of an online community? Research made by Nonnecke et al. (2004, 6-7) indicates that only one fifth of the lurkers felt that they belong to a community they are using. On the other hand, almost three quarters of the posters felt belonging. However, when asked if lurkers are members of an online community, one third of the posters thought they are. In both groups approximately eight percent thought that lurkers are not members.

What comes to receiving benefits from being a member, over 40 percent of lurkers thought that they get less than expected and only 8 percent felt that they get more than expected. Posters felt less than 20 percent and almost 40 percent, respectively. Approximately half of both groups thought they benefit as much as they have expected. (Nonnecke et al. 2004, p. 5.)

Lurkers say that the main reason for not posting is that just reading and browsing is

enough (Nonnecke et al. 2004, p. 3). According to Combs Turner & Fisher (2006, p. 3), although lurkers are silent and do not contribute any material, they are still consumers of the content and make up 80-90 % of participants of an online community. Nonnecke et al. (2004, p. 7) say that there has been two studies showing that 64% and 71,5% of members of two communities thought that it was important to allow lurking. Why wouldn't it? If a community has gathered its critical mass, there probably will not be any need for denying the "participation" of lurkers. If the community is funded by advertising it is important to allow the biggest group to read the material of the community – and to see the ads.

When a community is young, just established, it is important to gain members and thus achieve the critical mass. If the number of members is very low, the community will probably die, but if the number keeps increasing and reaches the critical mass, the community begins to feed itself. If the critical mass is not met, the community starves, members leave the community and finally it dies (Iriberri & Leroy 2009, p. 15). Here it is a problem, if majority of the members are lurkers: the community does not get enough quality content and then there is nothing to lurk.

After the critical mass has been gained and the community is alive, lurkers should be welcomed to the community. Takahashi, Fujimoto & Yamasaki (2003, p. 2) point out that lurkers propagate information and knowledge gained from an online community to others outside it. Takahashi et al. also believe that increasing the value of an online community could be done by increasing the number of lurkers who propagate the community.

2.3.5   Summary of types

In this study community members are divided into four different groups. Main differences between these groups are the quality of posting and the number of posts, as Figure 4 describes.
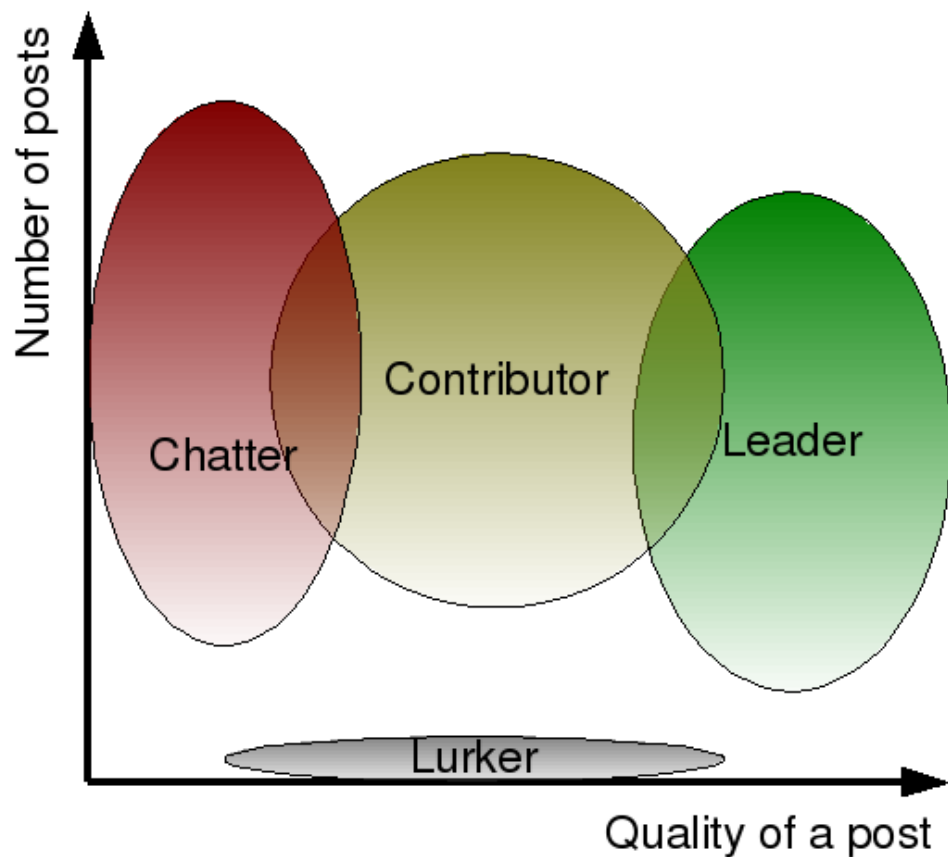
Figure 4. Posts of different roles

As said earlier, lurkers are the biggest member group. They post only a very little or not at all. Leaders' purpose is to guide the community and, thus, their posts have good quality, but the post count can vary from very few to even the size of the lead

poster. The bigger the community the more the leaders have job to do. Contributors create most of the quality content and chatters keep talking on and off-topic things.

2.4   Community roles as professions

The previous chapter talked about different types of persons. If a member is a chatter, he probably will not put it to his personal merit – neither if he belongs to a leader group. The thing member can write down as his personal merit is if he has a title or a profession in the community.

There are probably at least two community specific roles in each online community. Someone has to start the community and act as admin (and probably also a leader). And then there are rank and file members. It would not be bad to have a little bit longer chain of community roles to support the growth of the community.

What benefits are there then if the online community has different kind of community roles? For example, if the community has a role "elder" for members who are highly respected and long-time veterans in the community, it would be easy to trust their words, would it not? For example, eBay[1] has a feature to show how many deals a member has made and what kind of feedback the other party has given. The more closed deals with positive feedback, the more you could trust the person.

It is also important to think about roles before the community opens. Kim (2000, p. 118) points out that time flies on the Net and social dynamics evolve in days rather than weeks or months as it would be in the physical world. Although Web 2.0 is a

---

1   www.ebay.com

paradise for beta application, it is not wise to start an online community without thinking about the roles members can have by joining the community.

Community roles – which can be seen as professions – build more trust between community members. They also give members the tools to see who could be the person to give the right answer when they ask important questions like is something allowed in the community. The weight of the moderator's or elder's word is bigger than some rank and file member's.

2.5 Life-cycle

Iriberri & Leroy (2009, p. 13-15) use a model consisting of five stages of an online community life-cycle: inception, creation, growth, maturity, and death. Stages are presented in figure 5.
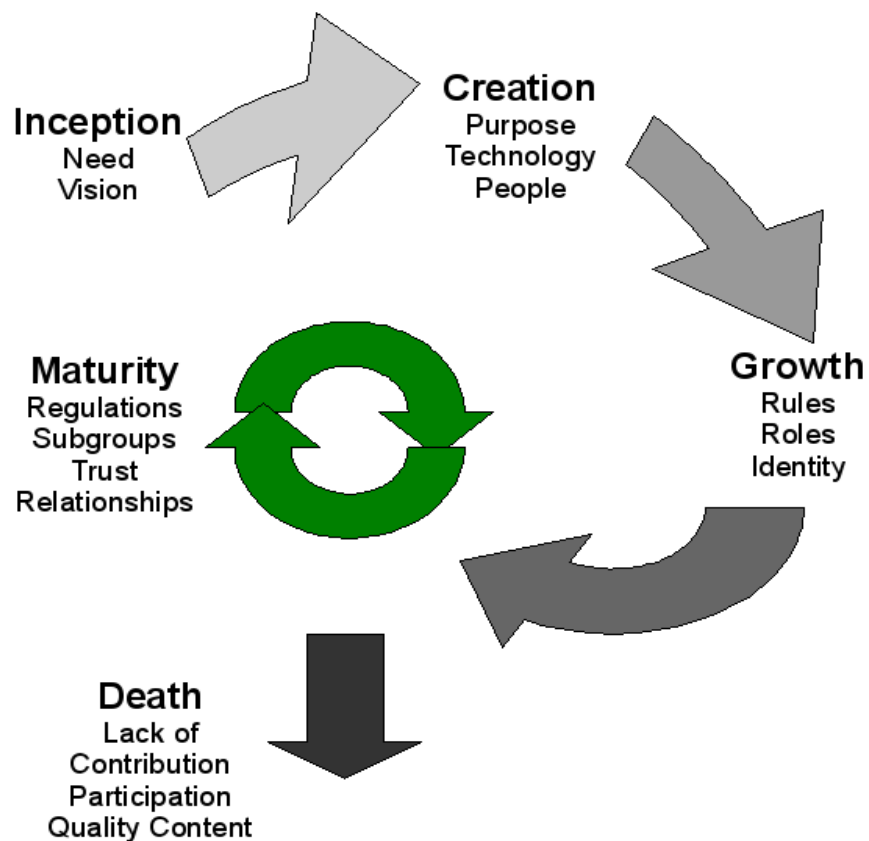
Figure 5. Online community life-cycle (Iriberri & Leroy 2009, p. 14)

In an online community, the needs and desires of its users and management evolve along with the life-cycle stages of the community. Community developers need to understand how the community life-cycle works and identify these needs in each stage to develop the community and encourage participation. (Iriberri & Leroy 2009, p. 13.)

Iriberri and Leroy (2009, p. 13) continue by saying that the beginning of an online community life-cycle is the *inception* where the idea emerges when people have the need for some kind of information, support, recreation or a relationship. When the

vision is clear, there is a need for some basic rules, which help the community to maintain its focus.

The *creation* phase begins when all the necessary components, like discussion boards, are selected. Also the initial group of members can start interacting with each other and spread the word for the community. (Iriberri & Leroy 2009, p. 14.)

The *growth* state starts when enough members have joined and the identity for the community begins to develop. Members select roles for themselves: some of them are going to be leaders, some lurkers; some will contribute information and some will use it. (Iriberri & Leroy 2009, p. 14.)

According to Iriberri and Leroy (2009, p. 14), in the *mature* state an online community gains more members and they are forming subgroups and discussion in the community moves also more off-topic. The community is strengthened, trust and lasting relationships begin to emerge. While new members join in and bring new ideas and discussions, old members may leave the community. The cycle of interaction is formed in this way and provides the "life" in the community.

Some communities are successful, but others might not be. If the community faces poor participation, lacks quality content or has only few contributions, it means death to the community (Iriberri & Leroy 2009 p. 15). Of course, death comes finally to every community.

It takes a lot of work to create and maintain an online community. As Reed (2008a) says, building a community has an easy start, but it is hard to establish a foothold.

Reed adds that people fail to see that setting up a community and making it successful are two totally different things. Worthen (2008) writes in his Wallstreet journal blog post that when companies establish online communities, they should focus on identifying and reaching out to potential community members instead of getting the best software. Another thing that pops out is that 30% of the companies put only one part-time worker in charge of the online community (Worthen 2008). There should be more effort to put in member fishing and content creation than just technology building.

2.6 Loyalty on the web

To put loyalty into a right context one should think the following statement by Nielsen (1997c): "If you build a good site, users may come; but if they only visit once, you lose." If the outcome does not meet the expectations, the customer is dissatisfied. If customer's expectations are reached, the customer is satisfied and if the outcome exceeds expectations, the customer is highly satisfied (Kotler et al. 2006, p. 144). One-time users are pretty much useless for online communities.

Devaraj, Fan & Kohli (2003, p. 190) found an interesting – and a surprising – discovery. According to their research customers' loyalty was significantly higher toward online stores than conventional stores. This is a bit strange when knowing the fact that a competitor is only within one click. Krug (2006, p. 19) might have the answer. His studies have indicated that users are not willing to start the search again and again. When they have found a working solution to their problem, they use it. Krug also points out that who says competitors' services would be any better?

Vatanasombut (2004, p. 67) tells that when community developers empower their

members they get more commitment and the level of members' intention to remain with the community increases. Vatanasombut continues by describing that empowerment is achieved when members are not tied to a specific way of doing things, but they have their freedom and they can decide the best way to solve their problems. It is also important to remember that trust becomes before commitment. If the user does not feel that he could trust the community, there will not be any commitment either (Vatanasombut 2004, p. 68).

Lee (2006, p. 305) enlightens the fact that online customer interfaces should not only attract customers to visit the site first time, but also make the customers visit the site again in the future. Ensuring customers repeatedly visit on the site is important for online communities, because the value of the community is determined by the number of loyal customers. If the customers are not willing to visit the site again, its value might become zero regardless of its technical superiority. (Lee 2006, p. 305.) Nielsen (1997d) sums up the old fact that it is almost always much cheaper to retain satisfied customers, and turn them into profitable business, than it is to attract new customers. This is especially true if they are only one-timers.

2.7 People in the web

Krug (2006, p. 22-27) lists three things people do when they are on the web: They scan pages rather than read, they do not make optimal selections, but accept and they just more get through than figure out how the site really works. According to Nielsen (2008b) users read only about 20% of the text on the average page.

Although the user does not always think as the following, designers should still remember the fact that: *in the web the rival is always within one click*. It has been

reported that the users say "If something is hard to use, I don't use it often" and "If a site doesn't work, I may give it a second chance; if it still doesn't work, I am never going back". (Krug 2006, p. 9, 18; Nielsen 1997b.) Vatanasombut (2004, p. 68) also adds that if there are changes in offline policies, the online division should be prepared to changes, too.

2.7.1 Differences between online and traditional media

The first thing to notice is that web users do not read the pages word by word, they just scan them through quickly. Nielsen (1997a) made a study to see what kind of text would be better. The results show several things that should be noticed, when making the text as scannable as possible. Here is a list of things to help the user to scan text.

- Highlighted keywords, like links
- Meaningful sub-headings
- Bulleted lists
- One idea per paragraph
- The inverted pyramid style, starting with the conclusion
- Half the word count (or less) than conventional writing

Web users are usually in a hurry, web is used to save time and there is no need to read everything. Surfers know that they are only interested in a small part of the content and by scanning they find what they want. (Krug 2006, p. 22.)

Secondly, web users do not make the optimized decisions, they accept the first

suitable option. Once again web users are in a hurry and optimizing takes time, accepting is more efficient. Another thing to notice is that it is not crucial if the web user makes a wrong guess, one back-button click to get to the previous page is enough. If the site is badly designed then guessing could be as good as optimizing. (Krug 2006, p. 25.)

In linear media, like TV and newspapers, people expect to have experience for themselves, they are willing to follow the author's lead. In non-linear online hypertext it is the opposite. Users want to have their own experience. They want to have it by constructing content pieces from several sources, they create mashups in their heads and now they can do it even with software solutions. (Nielsen 2008a.)

2.7.2 Usability

What is usability and why should one think of it when designing online communities? Nielsen (2003a) enlightens us by telling a few things. Basically usability is a quality attribute that assesses how easily user interfaces (UIs) are used. The term usability has five quality attributes: **learnability**, **efficiency**, **memorability**, **errors** and **satisfaction**.

In the web environment learnability means how easily users can perform their task when they use the design for the first time. After learning it, efficiency means how fast users can then accomplish their tasks. Memorability describes how easily users can re-establish proficiency when they have not used the design in a while. Errors tell us how much users make mistakes, how severe they are and how easily they recover from them. Satisfaction means how pleasing it is to use the design. (Nielsen 2003a.)

It is important to devote some time for usability in the traditional software, but it is even more important when developing a web-based solution. Nielsen (2003a) tells that "on the Web, usability is a necessary condition for survival". If a website is not easy to use, people move to another website. If the website does not state its purpose and what it has to offer, people leave and find a better place to satisfy their needs. If the information on the site is hard to read or does not answer users' questions, they can leave and find a better place. Users do not read manuals on the website (Nielsen 2003a). If something cannot be found, it does not exist.

One might think that when an online community has, for example, rules, search and a discussion forum it is enough and users can navigate and handle the content. A bad usability creates problems – especially on the web. When the user has had enough, he might leave your community for good.

For example, when having an intranet online community, usability is a matter of employee productivity. The faster the user can succeed in his task, the less time – and money – is wasted pondering difficult instructions or just being lost. (Nielsen 2002.)

2.7.3   Writing style in the web

Nielsen (2003b) says that "saying less often communicates more". A usability study shows that when the word count is being halved, the usability is improved by over 50% (Nielsen 1997a; Krug 2006, p. 45). By doing that one gets content that has less noise, useful content jumps out better and the page gets shorter. Thus, user has no need to scroll (so much), but he can see more at the same time.

Besides that there are too many words, there are also too much instructions. Sites should be designed to have no instructions at all, instead they would be self-explanatory. When there is a need for instructions, they should be written as short as possible (Krug 2006, p. 47).

Krug (2006, p. 45) also mentions that any wordmongering should be taken off from the sites. Frontpage should not have anything wordmongering, like self praising, neither should sub sections have their own frontpage full of text just because they can. These kind of long introduction text is just like chatting, but web users have no time to read it (Krug 2006, p. 46). Nielsen (2003b) encourages writers to write only things that benefit customers. If users do not need it, then there is no reason to write it.

2.8   Summary

In this chapter it was presented that an online community needs to have at least: purpose, technology, content and members to function properly. One should be sure that all these are present in the community. Without them no community can function. Also this chapter suggested 4 member roles: leader, contributor, chatter and lurker. Online communities have different kind of members, some of them talk a lot and some do not talk at all. It is good to see that not all behave by the same token. A good community encourages all these groups and gives them the possibility to interact in the way they want.

Online communities have to go through several stages: inception, creation, growth,

maturity and death. The community developers should see that it is not possible to jump over a stage. They all have to be gone through and the community has to face the problems and rewards of the different stages. The more the community can get regular members the better. Different studies have shown different results how loyal people are on the web, but at least they have the means to change their target of interest very fast. The user interfaces and usability have much to do with how good people see the community. Developers should never neglect the design of the easy-to-use UI. One should also remember that the writing style is different in the web.

3 HOW TO CREATE A GOOD BASE FOR SUPPORTING SOCIAL INTERACTION

This chapter talks about how to support social interaction in online communities. There are guidelines to help developers to see what an online community should have and how it could present its better parts.

3.1 Online community development stages

Eskelinen (2009) presents a model (figure 6) of online community development. The model has six stages: assessing needs, defining purposes, planning sociability designing usability, putting into practice and nurturing. The first five stages can be thought as an endless circle, one can repeat it several times, and nurturing is always present when discussing online communities. The research in this document focuses mainly on planning sociability and designing usability, but in the case studies putting into practice stage is also covered.
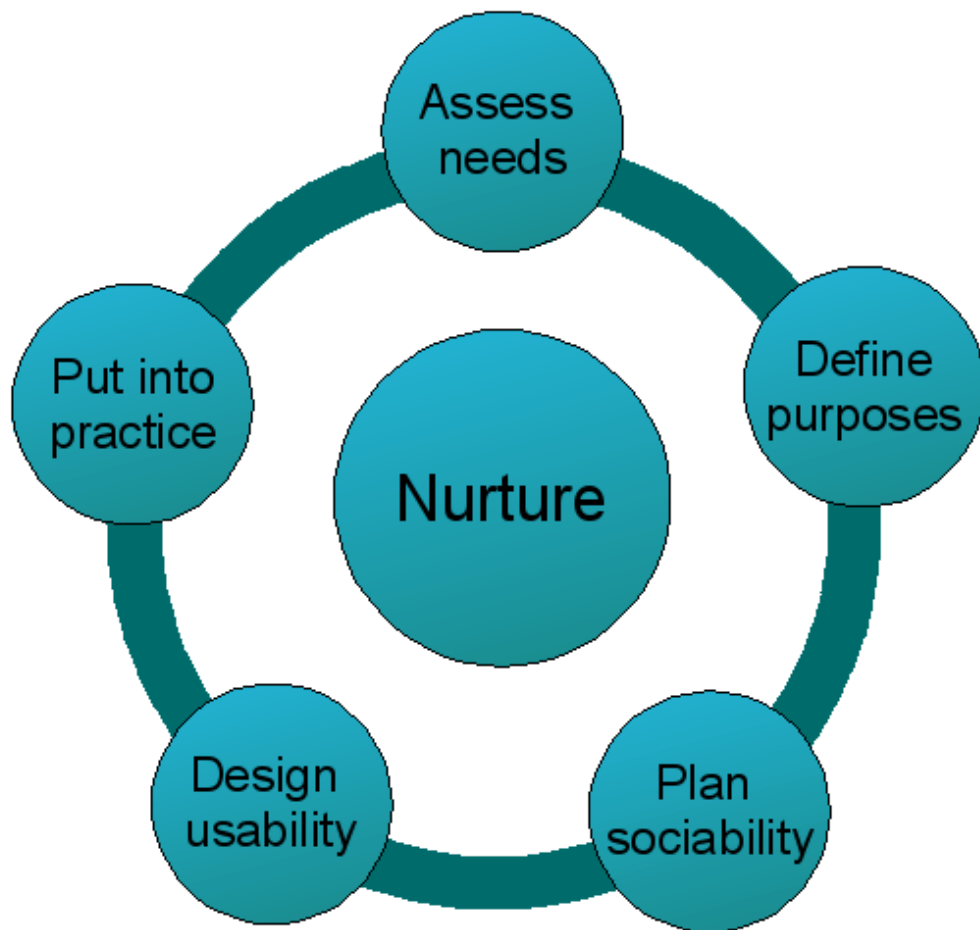
Figure 6. High level conceptual model for online community development (Eskelinen 2009)

Eskelinen (2009) lists eight things that sociability covers: people, profiles, places, policies, security, events, roles and purpose. These are discussed better in a distributed manner in the following chapters. Designing usability part includes enabling practice, mimicking reality, building identity and actualizing self (Eskelinen 2009). Also these parts are discussed later on in this study.

3.2 Ways to persuade people to join

The following parts will describe three existing and popular online communities. Listed features are based on a survey done in August 2009. After short descriptions there is a discussion about how these communities encourage people to join.

3.2.1 Facebook

Facebook helps you connect and share with the people in your life (Facebook slogan).

Facebook[2] is an online community which gives its members a possibility to create friendship connections, discuss with friends and share, for example, thoughts and images. Facebook gives options to set what other people can see in your profile. Facebook has its own "wall", which gathers all the activity around a member. The wall can, for example, show what quizzes a member has done or what images he has uploaded. Besides the wall, Facebook offers a homepage which lists what friends have done, who have commented on them or what quizzes they have taken. Non-Facebook users can see what members are doing – if a member has set the privacy policy to allow anyone to see his profile. There is also a policy to show member activity only to friends. All in all, a membership is required to form a friendship, to see what people in Facebook are doing or what they comment on each other.

---

2   www.facebook.com

3.2.2 IRC-Galleria (IRC-Gallery)

No slogan, but a longer site's aim description.

The Finnish online community IRC-galleria[3] is very similar to Facebook. Its main purpose is to enable members to share images and videos, comment them and write diaries or blogs. In default IRC-galleria sets members' images viewable for everyone, but one cannot see the comments until you have logged in. Also images can be hidden and commenting can be disabled. IRC-galleria supports lurking, but also encourages for membership. It gives members tools to create and upload content and enables communication with other IRC-galleria users. Lurkers can only watch images, which are available for everyone.

3.2.3 Last.fm

Last.fm recommends music, videos and concerts based on what you listen to (Last.fm slogan).

Last.fm[4] has a different strategy than the previous ones. It offers a tool to keep track on your music listening. Of course, you cannot use it without an account, because there has to be some identification. With registration one can have statistics about what artist, albums and songs one has played. One can also listen to Last.fm radio, which can play the same songs one has played with music players like Amarok, Spotify or Windows MediaPlayer. Last.fm does not offer an option to hide one's account. One can only hide the recent activity and the real-time data. There is a

---

3   irc-galleria.net
4   www.last.fm

possibility to comment on other members and request them to be friends. One can see whether friends are listening to something or not. Last.fm also offers musical compatibility meter to see if one has a similar taste than some other Last.fm member. Members have also neighbours – users that have similar taste of music. To build relationships or even to have own music statistics one has to have an account, but Last.fm supports lurking by giving people an access to see listening charts of Last.fm users.

3.2.4 Summary

Facebook is all about friendship and sharing thoughts, images, quizzes and feelings with friends. IRC-galleria focuses on images and commenting. Last.fm does not have as good image or commenting tools as the other two, but its main focus is to give charts and build interaction through musical events and similar taste of music. Table 2 lists these things.

Table 2. Features in different online communities

Feature \ Service	Facebook	IRC-galleria	Last.fm
Supports lurking	Weak	Yes	Yes
Privacy settings	Strong	Yes	Weak
Commenting	Strong	Yes	Yes
User images	Yes	Strong	Weak
Profile features	Strong	Yes	Weak

These online communities all have a very different front page to ask people to join them. Facebook has the most simplified front page: It only asks one to sign up or to log in. IRC-galleria lets one to check other members' images and sub communities.

The commenting is restricted and IRC-galleria asks one to sign up or to log in when the aim is participation. The front page of Last.fm shows much music activities: forthcoming events, popular videos and hot artists. Nothing flashes and asks one to sign up, but after one tries to do something, like listen to Last.fm radio, the site asks one to log in or to sign up.

These sites have a different approach to persuade people to join. IRC-galleria is open, it lets lurkers to check members' image galleries which are community's main competition asset. On the other hand, lurkers have a pretty good idea what kind of community IRC-galleria is and whether it is worth joining or not. IRC-galleria provides yet more services for the signed up people. Last.fm does not even have a login or sign up screen in the front page. It has only small links to show that login is possible. Lurkers can also see members' charts, but cannot have their own. The biggest competition asset of Last.fm is the possibility to have own charts. Most parts of the site require registration. After these two Facebook seems like a closed cabin. Facebook allows lurking, but it is not used as much as in IRC-galleria or Last.fm. But if all friends are already in Facebook, can one afford to shut off? Facebook (2009) tells, that they have over 200 million active users. That is one way to attract people to join: to show that millions have already joined, social pressure does the rest.

So here is the first piece of advice how to support social interaction in online communities: *Site needs to be attractive, useful, approachable and UI should encourage users to visit the site for the first time, but also again in the future.* Nielsen (2003c) advices not to make sites hard to find, but also says that sites that offer emptiness make users go away. He also points out that UI should always show the navigation and the search to demonstrate that the site is approachable and users will find what they are looking for. The site should also make clear that it has even more useful material and there is no reason for user to go elsewhere (Nielsen 2003c). To be

successful any online community needs to reach and maintain a critical mass. To achieve the critical mass people have to realise that they benefit from joining the community (Foth 2004, p. 2).

3.3   How to encourage people to contribute

First of all: inactivity breeds inactivity. If a community has no members, no content or no activity, no one will bother to participate. When a community is opened it should already have these three key elements. (Reed 2009a.)

After the online community has drawn people's interest it should also encourage them to contribute content to the community. The way to do this is to engage members with each other and the evolution process of the community. Members should feel like they own and develop the community. There is also a way to award the contributors. For example, one of the members who has contributed more than known threshold could win some prize or even money. One simple way is to give stars to the member profile when there is much good contribution. Although one should make sure these stars do not dominate the community, but encourage contribution. (Foth 2004, p. 3; Girgensohn & Lee 2002, p. 139; Nielsen 2006.)

Online communities increasingly rely on a member contributed and moderated content rather than editor based one. To motivate members to contribute and to perform moderating tasks, some sites use social comparisons, which show how members are compared with each other. Contributing to an online community requires one's own time and therefore people must be motivated by intrinsic factors, like a desire to achieve status within a community. For example, Amazon[5] lists its top

---

5   http://www.amazon.com/review/top-reviewers

reviewers. (Harper et al. 2007, p. 148.)

Rashid et al. (2006, p. 958) made a research about how showing a value of contribution increases the amount of contributed material. For example, one could articulate that commenting new software features has an effect on which way the feature will be developed. Also if the community is evolving to another stage, members should be asked to contribute their thoughts, what are the pros and cons of the plan.

Rashid et al. (2006, p. 958) also confirmed in their research that people seem to like to help more willingly users who have similar thoughts. The study shows how the members of a movie rating online community participated when they saw what their contribution meant to the community. The contribution rate increased when the members saw that it would benefit the community. The study also showed that for the members community subgroups and similarity are more important things than the whole community or dissimilarity (Rashid et al. 2006, p. 956, 958). By showing why the participation and the contribution counts members get the feeling they are doing something important. That could be used, for example, in a way that members see content created by another (similar) member, not administration.

DiMicco, Millen, Geyer, Dugan, Brownholts & Muller (2008) made a research to see what things motivate members to participate in a large company. They found three motivators: 1) The constant theme was that members felt that connections on a social level gave them personal satisfaction. 2) Members thought that their career could benefit from participating. 3) Members found motivating that they could campaign for their ideas and projects.

The effort needed for contribution should be kept to a minimum. If the community has content rating, it could be done with natural-language review and/or star rating. The latter is much faster. Participation could even be a side effect. In those situations the user has to do nothing, but the community still gets contribution. The sites like Amazon and CDON.COM[6] use this kind of approach when they show "people who bought this xxx, bought also these xyzs". (Nielsen 2006.)

It could also be good to give users a template for contribution, so that they do not need to create all from the scratch. Users like to modify existing models rather than create something totally new. (Nielsen 2006.)

In a nutshell: *User should see the value of contribution to get excited to contribute. The contribution should be as easy as possible.*

3.4 Quality content

One thing to consider when trying to get members to contribute to the community is to discourage low-quality contributors. Not all contributions for an online community are valuable, but too many low-quality contributions can drive away valuable members, who think the community is not worth participating. Spammers are motivated to contribute worthless material, when they get response, but if the link between the low-quality material and the feedback is disconnected, spammers are tucked away. This is what happens, for example, in Slashdot[7], where spammers' messages are then hidden when they get few negative points. (Cosley et al. 2005, p. 13.)

---

6   www.cdon.com
7   slashdot.org

There are several online communities that do not require anything else than writing a message (with or without a name) and clicking a post button. The quality of the content in these kind of communities can vary a lot. Powazek (2001, p. 53) asks community designers to "bury the post button", meaning that the more clicks it takes to get to the post button, the better the post will be.

Powazek (2001, p. 54-55) had two different sites: first one required only 3 clicks to post a message and the content was shorter and more irrelevant – off topic – than on the other site. The comparison site required reading all article pages and only after that it was possible to post a comment. Instead of 3 clicks, one had to click, for example, 9 times when the article had 7 pages, add comment and post click. The posts on this site were on topic.

It is also studied that loyal and active members can be rewarded by giving positive feedback. The recognition from the community administrator may reward and encourage users to write even better quality content. However, rewards should not be measurable credits, because they can lead to a greater number of contributions at expense of the quality. (Malinen 2009, p. 7.)

In a nutshell: *Give members a possibility to rate the content and even disable low quality content. Also remember: the easier it is to post, the more the quality of a post varies.*

3.5 What to do with user profiles

User profiles are an integral part of online communities. A key to a successful community is to have user interaction between members (Reed 2007a). User profiles can include a large amount of user-contributed content. The more users have populated profile information fields the more they have created friendship links with the other community members. (Lampe et al. 2007, p. 435, 441.)

Online communities try to form connections between members. Allowing members to give much information of themselves provides a better chance that they link with each other. In the physical world people can meet and interact in person – see each other's behaviour – but online the thing is to check the other member's user profile. The profile tells things about the member in the context of the community. The profile can reflect both what members say about themselves and what they do within the community. (Lampe et al. 2007, p. 435; Kim 2000, p. 80-81.)

Trust is the foundation of a robust and healthy community. Profiles help to foster trusting relationships between members. The profile, which has more fulfilled information, is more trustworthy than a profile having only a user name. For example, net auctions like eBay, build trust between members with profiles. The users get more credit to their profiles, when actions have gone good. (Kim 2000, p. 89.) For example, real names and discussion about offline topics create trust between members and increase the sense of membership (Malinen 2009, p. 3).

User profiles should be fulfilled after registration. If too many and too private questions are asked already in the registration, people might think it is too much and leave without registration. For example, if an e-mail address is asked, it should be

somehow clarified that the address is not going to end up in the hands of spammers. The privacy policies must be honoured. Then there is another side of the coin: If you make it too easy to join a community, people are more likely to join casually and then just forget to participate. (Kim 2000, p. 92.)

Kim (2000, p. 104) lists a few guidelines to be kept in mind:

- **Ask questions that strengthen community's purpose.** Besides questions about basic name, location and hobbies, community should have community specific questions. If the community, for example, works around pizza, it would be a good choice to have a question asking favourite toppings. Other members could then find soul mates in this area.

- **Explain why you are collecting information.** On the Web, a full disclosure is good business to help members to know why personal information is asked and what is planned to do with it. These questions should always be thought when asking information from members. Another thing to remember is to be sure that members know whether the information they give is private or public.

- **Encourage members to have a personal tag line.** One of the fastest ways to get to know someone's feelings, is to read a tag line in his post. Members can have, and change, the tag line to reflect their thoughts.

- **Let one part of the profile contain free-form input.** The best profiles are a mix between structured information and free-form expressiveness.

The member profiles are a great asset, but only if they are updated frequently. When people can see member profiles and they notice profile being incomplete, they get a

negative impression. Another problem is to keep fulfilled profiles up-to-date. If there is information of a last movie seen, there has to be updates quite often. To solve these kind of problems, the community needs to encourage to update the profiles. This could be done by, for example, showing some recently updated profiles or links to them or by highlighting highest-quality profiles. (Kim 2000, p. 107-108.)

In practice, for instance, Last.fm forms "neighbours" automatically based on what kind of music one listens – what kind of profile he has. Members can then form friendship more easily when they already know that they have similar taste of music. On Facebook one sees always (if not blocked) when friends update their profiles. This encourages keeping one's own profile up-to-date.

In a nutshell: *User profiles are an important part of online communities. Community should not require too much information, but should give a chance to describe widely, for example, one's hobbies, life style and give a possibility for a tag line of some kind.*

3.6 Visiting and interaction

Reed (2007b) suggests one could use suspense to promote interaction in an online community. Soap operas and other TV shows have had a "cliff hanger" endings for years, why not online communities, too? Articles and blog posts could create a continuum to draw people to one's site again and again to see how the story continues after the "cliff hanger". This also gives community members something common to discuss and speculate.

When one has created an announcement, for example, in a blog post one should pay

attention that the announcement is not too exaggerated (Reed 2007b). When people read the actual article it should be as good (even better) as the announcement has told. Otherwise people will not take one's announcement seriously anymore and may visit the site no longer.

According to Tu (2000, p. 1665) even small things can decrease the social presence and willingness to interact. Tu's study shows that talking too much and too fast creates a pressure on the slower typist. Fast writers' domination creates a negative impact on other's participation. On the other hand, when the users used emoticons and paralanguage to convey their feelings and emotions, the message they gave was more stimulating, sensitive and expressive (Tu 2000, p. 1665). So, it matters how user interact. They can use chat with only text-based expressions or they can have more sophisticated methods to exchange thoughts, messages and information. The better ways users have expressing themselves, the better is the interaction and the more sensitive the content can be.

In a nutshell: *Give members something they can speak about and give them tools to interact with. Encourage members to show their emotions in their messages to avoid misunderstanding.*

3.7   Suggestion and recommendations

In real life, if one needs recommendations, his friends probably are the best ones to recommend things to him. On the Web it is easily possible to have a system to show what one's friends have bought or used. It is also possible to have "collaborative filtering", which makes the use of the collective knowledge in a member database. With these systems one can get suggestions and recommendations depending on how

much he has friends and how much he has used the existing services thus giving the system the possibility to create automatic profile besides his own creation. (Kim 2000, p. 99.)

Last.fm recommends artists depending on what one listens to and it also lets members to recommend artists and songs to other members. Facebook recommends members to be one's friends. It also recommends things that one's friends have thought to be useful, like to become a fan of an artist. And as told earlier, for example, Amazon suggests productions based on the same kind of purchases of other users.

In a nutshell: *Besides members' own suggestion to each other, the community can create its own recommendations based on user's profile and behaviour.*

3.8   Freedom and growth in an online community

According to Preece (2000, p. 220) the first thing to consider is whether the communication is synchronous or asynchronous. Traditional web sites, e-mail and message boards are examples of asynchronous systems (Preece 2000, p. 135-137). In these systems interaction is not immediate, but it could take hours, days or even weeks to get feedback. Synchronous systems, on the other hand, provide means for faster interactions. Chats, instant messaging or virtual worlds support communicating in real time and waiting for a week or so is not an option (Preece 2000, p. 135). Nowadays "basic" web sites have also synchronous parts, like the messaging system of Facebook.

It depends on what kind of online community one is building, whether to use a synchronous or an asynchronous system. The basic technology selections make also the initial usability selections and start sociability planning (Preece 2000, p 220).

3.8.1 Joining and leaving

Completely open communities are easy to join in. Then there are online communities, which require registration and communities you need to be invited in. Preece (2000, p. 96) tells that totally open communities may face a situation where people post spam and flaming messages. By requiring registration the amount of spam could be decreased. The effort required to fill in the registration form and the time to wait until the registration is complete is not worthy if person's only agenda is to send one spam message.

Leaving the community is as natural as joining. Usually there is some way to delete one's account, like Facebook has (Leijel 2009). When one has not given any specific information of oneself account could just be forgotten to be deleted. Sometimes even in some communities the inactivate accounts are deleted.

3.8.2 Moderating and policies

Moderators can have a great influence on the community, but it is also time consuming work (Preece 2000, p. 222). There are several ways to do the moderating. You can have a few moderators, but as said, it takes time to moderate an online community. Cosley et al. (2005, p. 11) suggest that one way to deal with this problem is to let the members maintain the community. Member-maintained communities have less reliance on the key individuals than if there would be a need for

moderators.

The contributors should be aware of the opportunity of maintaining the community and moderating the content (Cosley et al. 2005, p. 11). There are examples of how member-maintained moderating works. Slashdot allows members to give a comment +1 or -1 rating and readers can choose to see only highly rated comments, i.e. avoid the low quality content. Amazon encourages members to review, for example, books and movies. Users can then give feedback to the review simply by answering the question "Was this review helpful to you?". This kind of moderating is a low cost activity (Cosley et al. 2005, p. 13). MovieLens[8] encourages members to add movie information to its database. When one member adds information for a movie, another one is asked to verify it.

As a summary, there are three or four types of moderating policies. The most obvious is to drop out all the moderating. The next thing is to have moderators to clean the community and help the members to stay on track. Then there are member-maintenance-based communities, where the most responsibilities of moderating are moved to members. The last one is similar to the second on, but is different in a way that all the contribution has to pass moderator (expert) validation.

---

8   www.movielens.org

3.8.3   How to achieve a critical mass and sustainable growth

When starting an online community, the first goal to achieve is to get a critical mass of members. The critical mass means a number of members that can fuel the community by themselves. As said in chapter 3.4 "inactivity breeds inactivity" and when achieving a critical mass it is important to show forthcoming members that the community is alive.

After the community has got its critical mass, it is time to achieve sustainable growth. In this phase the community has already active members creating the high quality content and chatters talking with other members.

When the need of a community is determined, it is possible to start creating content. Before the community is launched it needs three things: 1) content, 2) members and 3) activity (Reed 2009a):

1. *Community* cannot function without any content. People are interested in what the community has to offer, so it is good to create content reflecting the spirit of the community. When there is good quality content it encourages people to become members and interact. (Reed 2007a.)

2. First *members* include the owner of the community and probably his colleagues and/or friends. After that it should be decided if the community could have paid members in the beginning or could the first members be recruited by some sort of "beta user program", where some lucky guys would win the membership for themselves and few of their friends. Of course, both of these ways could be used simultaneously.

3. Even if the community has content and members it does not look interesting

if there is no *activity* in it and about it.

In a nutshell: *Registration helps to avoid low quality content. Moderating is a part of online communities and the community can encourage members to moderate the content. The community could first have "invite only" based member gathering and content creation. After activity is created around the community it should be moved inside the community and the place should be open for everyone.*

3.9   Measurement and metrics

When there is a need to see whether something is going well or not there has to be some way to measure the current situation compared to the previous one. This applies also when dealing with online communities. One has to have some metrics to see whether the community is feeling well or if there are problems.

Reed (2009b) advices not to use member count as a metric, but to favour other, better, ways. Reed lists ten metrics, which cover a variety of measurable areas of online community success. With these metrics one can see if the community is feeling well.

The first thing on Reed's list is **the number of posts within each discussion thread**. The more there are posts in a discussion thread, the more the community is engaged. Another important thing is to check how many individuals are active in each discussion. If same members happen to be in almost every discussion, then it should be considered if these power members are even harmful for the community. Encouraging quieter members to get involved would be a good idea.

The second item on the list is **the overall number of new contributions**. Reed advices to check the quality of the posts. If the community gets hundreds of new posts a day it might be more vibrant than a community having only ten new posts a day, but on the other hand, the quality of the posts might be much higher in the low quantity community. One should always weight up quantity and quality.

As a third thing on Reed's list is **the length of user contributions**. Of course the length of the contribution depends on the goals of the community, but most times the longer the post is the more the community benefits from it – if the content itself is acceptable. Members who are not engaged with the community will not spend time writing long posts, so if there are no long posts, members are not interested and one's alarm bells should ring.

The amount of time members spend on the community is the fourth item on the list. Members should spend more time than just seconds. If so, the community has a problem. Either the content is not attractive or there are problems on the usability. One can never spend too much time on the usability.

The fifth metric on Reed's list is **the number of searches taking place in your community**. By checking the search phrases one can easily see what people are looking for. If one's community has the feature people are searching, it should probably be emphasized in some way. If they are looking for something that does not exist, that might be an area community could expand upon.

The sixth item on the list is **the number of conversations taking place in private**. When members are building personal relationships with each other, they use private

messaging instead of public content. Discussing in private is a good sign of growing trust and true friendship.

The seventh thing to consider is **the number of search terms being used to find your community**. It is important to track how visitors come to the community. The more different key words they use, the more depth there is in the community's content.

Reed's list has **the number of links your community is picking up from external websites** as the eighth item. In most cases the more the community is spoken about externally, the better it is. It tells that people are interested.

The frequency and extent of moderator intervention is the ninth item on the list. Ideally members of the online community would sort out their problems and disagrees, but sometimes there is need for moderators to step in. The less the moderators have to be in action, the stronger the community is.

The last item on Reed's list of metrics for measuring the health of online community is **the subject matter of discussions**. Once again the more members talk about personal subjects, the deeper is the community feeling and thus the community is stronger. A hard thing to quantify, but yet very relevant.

Reed (2009b) advices not to compare (too much) one's community to the competitors. It is not the point to have a similar community with the others. It is more important to focus on one's own doing, use unique features and offer something different, and use the metrics described above to measure the state of the community.

In a nutshell: *Measure the health of the community. Do not compare it to the rivals, but focus on to see how the community is doing inside and how it is thought outside.*

3.10 Summary

To sum up all the advice let's review a bit them all. Before the community is launched there should be activity around it. After the community is opened it should be approachable. The UI should encourage users to visit, not only for the first time, but also again in the future. Besides the attractiveness of the UI, the community should show the value of the user contribution. Thus, the attractiveness of the community, and participation, increases even more.

A registration is an easy way to avoid low quality content. One should always weight up between the quality and the quantity. The easier it is to post, the easier the quality varies. When the community has good tools to moderate content, the contribution could be made as easy as possible. Moderating could be done by admins or by community members or by both. When members have a way to rate content, it helps the moderators' job and gives members a feeling they can affect.

User profiles have much valuable information. One should not force members to give all the information, but give them a possibility to describe themselves and reward fulfilled profiles. In addition, one should give members a possibility to communicate with each other privately and encourage them to show emotions to avoid misunderstanding. The community could recommend members and content based on users' profiles and actions.

When the online community is up and running, one should take care that it stays healthy. That is done by measuring the community. One should not compare it to the rivals, but focus on to see how the community is doing inside and how outsiders see it.

4 CASE DESCRIPTIONS

The previous chapter described the advice developed for supporting social interactions. In this chapter the advice are being used in two cases. In the first case the community already existed, but needed redesigning. In the second case the community was developed from the scratch. Both communities were developed with Drupal[9] as their backbone. Drupal is a CMS and it can handle the necessary community features, like discussion forums and blogs, needed when building an online community.

4.1 Case OCR

The website of the PROFCOM research project is named Online Community Research[10] (OCR). The PROFCOM project aims to produce an online guidebook containing practical guidance in Firm-Hosted Online Community (FOC) development and important aspects regarding FOCs from multiple viewpoints (Lappeenranta University of Technology 2007, p. 1). The OCR site is a meeting place for researchers and other people interested in FOC development and research. The aim is to create opportunities for a dialogue between researchers and companies.

It was the topic of my bachelor's thesis to get the site up and running. During summer and autumn 2008 the OCR community was shaped to its form. Now it was time to think it more deeply and try to find ways to design features for supporting social interactions. Besides that the layout was changed to better reflect the academic presence and to emphasize the things that were thought to be important.

---

9   drupal.org
10 http://tbrc-community.lut.fi/ocr/

4.1.1 Starting point

The OCR community had been up and running for a year when the redesign process started. The site has got a little content and visitors. Although the site is working, some bugs have been found and some parts of the site are being totally inactive. So there is a clear need for improvements.

Basic requirements had already been defined in 2008. The site needed to have an eBook section to include all the research content and guidelines that are being developed. A blog and a link sections are also a part of the community. The latest section added to the community was documents, which includes all the publications created during the research.

4.1.2 Interviews

Besides the known bugs and fixing them, five interviews were also conducted in order to get ideas what users would like to have in an online community. The questions handled information searching and sharing, co-operation methods and problems in them. The aim was to gain knowledge on how researchers see online communities. When analysing the interviews I was looking for tips and pieces of information from the recordings to show what kind of features a community like OCR should have and what features would not be liked. The questions can be found in appendix 1.

Five persons were interviewed and some of their thoughts were surprisingly similar.

For example, when asking what they would want to know about the researcher all of them answered that some kind of a list of publications would be one needed piece of information. According to them, during the research process it is important to know what other people know and this is one thing that OCR can offer.

When asking how they find information and material, most of them used databases like ACM[11]. When they find suitable material, they look references and find then new material and also researcher home pages, which can be a good source for material. Half of the interviewees used blogs to get the information. For example, there was knowledge, not available in any other channel, available on blog post on firm's Intranet. Chats with colleagues were also important source of information. It was also mentioned that the research and publishing process is quite slow and by writing a blog post one can give the researched information available faster. In this light OCR could provide a forum for this kind of information sharing.

Another problem that came up during the interviews was the information that is not available for free. Many databases are chargeable and beyond the reach of Google. OCR could also help in this case by giving, besides full text, also shorter descriptions of researches in a member's profile. In addition it was said that there is not enough time to check all the interesting papers and many times the paper turned out to be less important than it was thought. This is definitely a place for OCR to help researchers by giving them ready-to-use and good quality information.

When asking what kind publishing methods the interviewees use, the average answer was e-mail, yet it was seen as an old-fashioned way to distribute material. Instant messaging was used a bit, also few blog posts were written to show people that

---

11 portal.acm.org/

progress has happened. In one case the problem was that online communities could not be used for distributing material, because one person used one community and the second used another community. Third did not participate in any community. The only way to reach all of them was to use e-mail. One interviewee pointed out that he must always think who uses Messenger, who has Skype account and who is reachable only via email. This makes one wonder if the OCR community could provide a neutral publishing platform in this area?

Besides problems with publishing, the interviewees told that many times the information circles only inside the research group. The only thing coming out is a paper every now and then. One interviewee told that people are not willing to give any information about half-ready publishing because of afraid of someone stealing their ideas. It makes me wonder if there is a certain analogue between research and software engineering or music industry. Software developers write blogs about their products and musicians give information what kind of an album they are going to release. Is it really risky for researchers to write a blog? As one interviewee told: The Internet is seen as a medium which gives too much information, even an overdose. It should be seen as a medium which gives the user a possibility to select what information he wants to have to avoid the overdose.

Although the interview questions were talking about online behaviour, also offline actions were mentioned by the interviewees. When asking what ways of collaboration one would like to see on the Internet, one answer was that there should be more offline communication. Project groups should arrange more seminars. Also one interviewee mentioned that it is easier to form a relationship online after it is formed offline.

When asked what would motivate to share thoughts, the answer was almost always the same: feedback. The value of feedback turned out be very important to the interviewees. When researchers write something they expect to have feedback and communication – all what OCR aims to give. Also it was told that new material motivates to read and comment it. When the community has something that gives benefit to the user, it also motivates to communicate more.

The last question dealt with obstacles to participation. One interviewee told that communication takes time and it is not always seen that important. People have nowadays so many communities to participate in that some prioritisation has to be made. But as another interviewee told: the user has a possibility to choose what he wants and what not to avoid the overdose. Of course, when the first reaction to participation is "Do I have to?", then something is done wrong. There is still a problem about how to understand the work done in online. One interviewee told that not all see it as work at all! How could they understand it could benefit many to write, for example, a research blog?

The interviewees gave similar answers to some questions and different to the others. They all thought that it was important to get information about researchers and publications. They also ranked feedback very high when talking about what would motivate them to write to an online community. On the other hand, one interviewee wanted people to see what possibilities the Internet and online communities give, another one still waited the time when meetings could be held online and the third one did not want to waste his time online. All in all, it could be seen that there are problems with the old ways of publishing and the new "web 2.0" ways are breaking in, but it seems that it may take a new generation to adopt all these operation models.

4.1.3 Improvements

The previous version of the community had already a layout and features which were functioning properly – except few bugs – but the colour schema needed a bit updating and the site lacked content in a way that there are lots of sub-areas, but not so much content in total, so something had to be done. Navigation and UI worked already, so there was no need to redesign them, but one Drupal module was added to increase the clearness of navigation. Menu trails[12] module gives the possibility to mark the sites primary navigation bar as active when user is deeper on the site hierarchy. For example, the user surfs on the main blog page listing all the blog posts. When the user opens a specific blog post Drupal normally loses focus on the primary navigation bar and the previously selected link becomes just a link, not an "active" one. Menu trails gives an option to highlight this link as far as the user is studying blog posts. This option was used in the second version of the OCR online community.

Another thing was to compact the content. The aim was to give the user a feeling that the content is not so spread out, but tight in one or two places. This was done by reducing sub areas on the frontpages and focusing on showing important parts, like the eBook.

To encourage people to contribute has been difficult. The OCR community allows commenting without registration, but gives the user also a possibility to register his own name. The aim is to get people to comment content and thus refine it. The idea was to give more permissions to active members and thus encourage to contribute, but so far it has not worked. Now it is taken even further by encouraging users to apply a "job" as a blogger.

---

12 http://drupal.org/project/menutrails

One thing to be upgraded are the user profile pages. First, RealName[13] module was installed to give members more personality and to build more trust between the readers and the writers. RealName module replaces user account name (for example, Gessle) with his real name (Erno Vanhala), which is now required during the registration process. Besides real name, the members have now the possibility to give a better description of themselves. So far the only information they could give was a real name (which was not required and was not really used anywhere) and an open description of oneself. Now, based on the interviews and the research, several fields were added and the member can tell his profession, education, publications, open description, tag line and a link to his potential home pages.

To get people to stay on the site for a while the frontpage gives no full content, but teasers and topics with a read more link. When new content is generated so infrequently, "cliff hangers" are not a real option. If the community gets a regular blogger or two, then it should be rethought whether cliff hangers would be a good way to hook people to visit the community more often. The community is quite formal and smileys are not the most important part, but the members can still have emoticons in their posts. The OCR community does not recommend any content, based on the users' behaviour on the site, on its own, but the writers can promote their creations. With more content the recommendation could be good, but so far no Drupal module has been found to do the job.

OCR policy has been that everyone has the right to comment the content but writing, for example, a blog post, requires registration and an approval to start a blog. The benefit of the registration is the use of one's name. Now it is taken a bit further when the registered member can give a better profile of himself.

---

13 http://drupal.org/project/realname

In the autumn of 2009 the OCR site has had Google Analytics for a year and it has given information how users have been visiting the site. Also Drupal has its own tools to tell how many comments have been written or how many times spammers have tried to post unsuitable content. Google Analytics shows that activity towards the community has increased a little during the first three quarters of the year 2009.

The layout of the redesigned OCR frontpage can be found in figure 7. It shows the tightened design where the frontpage has only 4 different areas instead of 9 from the old version. The active link (Home) on primary navigation bar is also shown.

Figure 7. The frontpage of the OCR online community

The OCR site got usability improvement and, for example, better member profiles to give more information about the content writers. The site has also instructions of how one can apply rights for writing material to the community. Instead of showing a lot what the site does not have, it now shows a little what it has.

4.1.4 Discovered problems

When commenting anonymously or filling the registration form one needs to pass the CAPTCHA checking to identify as a human. A few times spammer bot has been able to trick the CAPTCHA test. First, the CAPTCHA was changed to image based and then the image was made a bit messier. Yet, it is unsure if the bots will crack the CAPTCHA test and post unwanted content. One option could be tightening the test but, on the other hand, it should be easy so real humans could pass it easily. The decision made with OCR was to change the anonymous commenting to include admin approval. So if the user does not want to register, his comment will not be available until one of the admins has accepted the comment.

Another problem encountered is the way Drupal handles several situations. For example, the attachments are sometimes a bit messy to handle. In some places it would be nice to have an attachment list at the bottom of the page, while in other places it is not suitable to have a list. Drupal gives only one all-embracing default option: list or no list. The member then has to check every time the list option if he wants to have it on his pages. Usability suffers a bit when user can forget to select the right option when it would be possible to do it automatically.

4.2 Case Älykop

The second case was the Älykop[14] project. The project operates within the forest industry, welfare and ICT sectors and the target is to get new products and services. The whole Älykop project had several sub-groups creating the content and working on the project. They had the need for a system to support their innovations,

---

14 tbrc-community.lut.fi/alykop/

discussions and publications. The result was to build Älykop online community. A screenshot of the frontpage is shown in figure 8.

4.2.1 Project restrictions

European Union (EU) funds Älykop and thus it also gives some limitations for the colours, layouts and showed logos. For example, it was said that the main colour should be lime green (RGB 170, 178, 39) and EU and other logos should be shown. All this can be seen in figure 8.

Figure 8. The frontpage of the Älykop online community

First, it was thought that every sub-group of the project would need its own community to work within, but soon it was realized that the main community should be enough. There were several basic features the project wanted to have. They needed a place to have documents, a place for articles and blogs, a discussion forum and an organization registry.

Requirement gathering and analysis were done inside the community. The project manager introduced the community to the main participants and suggested them to list their ideas and needs on the forum inside the community. Thus the community got its first members already during the creation phase.

4.2.2 How were the advice used within the community

Like in OCR, the online community was designed to work with Drupal as its backbone. No Drupal, coding nor HTML experience were needed to understand and join the community. Neither was it required when contributing material to the community.

When the Älykop site was about to be ready, the project manager began to create an activity over the community. He spoke about it and invited few people in to write and to discuss. After some content had been created he sent e-mails and invited more people to join in. The attractiveness of the community was built by placing blocks showing active parts of the site to the front page. One could easily access the content or discussion he thinks is interesting. Registration is not required when the only purpose is to read, so Älykop supports lurking. Via registration one can comment material and participate in discussions. Yet, the site has a private area where only a

handful of people has access to.

As the community is mainly for researchers and company persons, the reason to participate is a possibility to give ideas and discuss about the ICT and forest industry. The benefit is getting new ideas from others and feedback for one's own ideas.

The Älykop site tries to avoid low quality content by requiring CAPTCHA passing during the registration process. Thus, the spam bots are probably not going to bother the site that much. Also members can rate the content and this way it is possible to create "top rated" lists. Commenting on an article requires only one click, so the contribution is as easy as it could be. If it turns up creating low quality content, it could be easily changed.

It was decided that when a forthcoming member is registering he has to give his real name besides a username and therefore the user profiles have real names. The community shows automatically the real names instead of the username and, thus all the content comes from real persons, not only from nick names. The aim is to build trust between the community writers and the people reading the content. This may lead to a situation where someone does not want to register because of the real name policy. It is thought that the policy is going to provide quality content which outweighs the need of registration.

The real name is the only required additional information for the user profile, but besides it there is also a possibility to fulfil several other fields in a user profile page. One can give his education, profession title, link to his web pages and there is also a possibility to give a free form description of oneself.

In the Älykop community "cliff hangers" are not important or current just after the community has been opened. Yet, the interaction is based on the content that the contributors are creating. All registered users can comment any content they want thus creating interaction between the writer and the reader. The community also gives its members ways to use emoticons and paralanguage and this way make their messages easily understandable.

With just a little content the suggestion and recommendation systems were skipped. Of course, members can suggest anything to each other, but that material is probably external. Also the moderating part is not important right now, when all the writers are somehow related to the project. The project manager has the power to moderate the content, but yet there has been no need for that. If spammers get through CAPTCHA or the community grows a lot, then there will be a need for moderating.

The community measurement is taken care of by Google Analytics, which is a powerful and easy-to-use tool that generates detailed statistics about the visitors to a website (Google 2009). Google Analytics gives tools to check where the members are coming from, what they are looking for, how long they visit and how often. Of course, Google Analytics does not tell, for example, the number of posts within a discussion thread or the length of user contribution. These statistics can be found out inside the community.

4.2.3 Discovered problems

The only big issue that has risen so far is the not-so-simple (administration) user interface of Drupal. The more user has permissions, the more he will see boxes on

pages. Drupal does not separate a basic member user interface and an administrator user interface and thus the producers have to be careful to watch out that everything goes to the right place. According to Scollan et al. (2008) this is one of the greatest weaknesses of Drupal. It does not affect members who only can comment already existing material or post to the discussion forum, but members with more rights can see it difficult when they have the right to edit existing material.

4.3 Summary

Two cases were done with advice created in the third chapter. They both benefit from most of the advice, but of course every online community development project is an individual task, so not all the advice could be used straightforwardly. Table 3 clears what features were used to answer the guideline advice.

Table 3. Answers to the advice.

	Community	
Advice	**OCR**	**Älykop**
Ways to persuade people to join	Support for lurking. New layout has less content, so it does not confuse the user as much as the old one.	Support for lurking. Frontpage lists recent activities.
How to encourage people to contribute	When found something interesting the user has the possibility to comment the content. Commenting does not require registration. One can apply for a job as a blogger.	Users are encouraged to communicate to get feedback. Everyone has the right to comment after registration.
Quality content	All the comments have to be approved by the admins.	Registration is required. Base content is written by project personnel. Members have the possibility to rate content.

What to do with user profiles	Members use their real names and they can give information, for example, about their profession and publications.	Members have to use their real names and they can give information about their education, profession and the profile page has also free form part.
Visiting and interaction	No silver bullet solutions to make the user visit the site again and again, because new content is created so infrequently. The use of emoticons is possible.	The community has got content since its launch and members have material they can discuss about and the site lets them use emoticons in their messages.
Suggestion and recommendation	The community suggests and recommends "featured content" on the frontpage. Nothing based on users' behaviour.	The only thing related to suggestion on the site is "active discussions" and "latest writings" blocks.
Freedom in an online community	Contributing requires registration and content is checked before it is available on the site.	Action around the community was created with "invite only" policy and after that the community was opened for everyone. Contributing requires registration.
Measurement and metrics	Google Analytics and Drupal tools are used to measure visitors.	Google Analytics and Drupal tools are used to measure visitors.

With these online community features the OCR online community gives the users more information than it gave before, for instance user profiles are more informative. The new layout is also cleared and it does not give information overdose. The Älykop community also got warm welcome and has got members and content.

5 CONCLUSION

The aim of this work was to design features for online communities to support social interaction. Online communities are a pretty young topic in the area of information technology and, although there are many communities, most of them fail to achieve the level they are supposed to reach. In this work I presented eight advice to ease the pain of the online community development. The advice dealt with 1) how to persuade people to join, 2) how to encourage them to contribute, 3) how to get quality content, 4) what to do with user profiles, 5) how to increase visiting and interaction, 6) how to provide suggestion and recommendation, 7) what kind of policies online communities should have and 8) how to measure the community health. Numbers 1, 2, 3, 5 and 7 are crucial to online communities to survive. Without its members a community cannot exist. User profiles (4) and recommendation (6) are used, for example, in Facebook and Amazon web stores. Also one should not forget measuring (8), because it is the best way to see where the community is heading to.

Both cases, OCR and Älykop, suited for testing these advice in real life. Besides interviews the advice was used in the redesigning process of the OCR site. For example, both the interviews and the advice, suggested that the user profiles have to be modified to reflect the need of members and the modifications were then done. With the Älykop site, being brand new, I followed the advice and built up a community to support their needs.

These eight advice helped on focusing on the right things when developing an online community. They make one not to forget the important parts, like measurements, and they ask the designer to think about what would be the best way to handle, for example, content quality requirements.

Advice seem to work well, but the cases lack of a long-term study. Yet, it is unclear what is going to happen to the OCR and Älykop online communities in the long run. The study would need a longer time frame (and probably more cases for the accuracy) to point out how the advice work in a longer period of time.

REFERENCES

Arrasvuori, Juha, Lehikoinen, Jaakko T., Ollila, Elina M. I., Uusitalo, Severi, 2008. A Model for understanding online communities. IADIS International Conference, ICT, Society and Human Beings 2008, 22-24 July 2008, Amsterdam, The Netherlands.

Brandtzaeg, Petter Bae, Heim, Jan, 2008, User Loyalty and Online Communities: Why Members of Online Communities are not Faithful. ICST INTETAIN, January 8–10, 2008, Cancun, Mexico.

Combs Turner, Tammara, Fisher Karen E., 2006. Social Types In Technical Newsgroups: Implications For Information Flow. International Journal of Communications Law & Policy, Special Issue, Virtual Communities, Autumn 2006.

Cosley, Dan, Frankowski, Dan, Kiesler, Sara, Terveen, Loren, Riedl, John, 2005. How Oversight Improves Member-Maintained Communities. CHI 2005, April 2–7, 2005, p. 11-20.

Devaraj, Sarv, Fan, Ming, Kohli, Rajiv, 2003. E-Loyalty - Elusive Ideal or Competitive Edge? Communications of the ACM, September 2003/Vol. 46, No. 9, p. 184-191.

DiMicco, Joan, Millen, David R., Geyer, Werner, Dugan, Casey, Brownholts, Beth, Muller, Michael, 2008. Motivations for Social Networking at Work. CSCW'08, November 8–12, 2008, p. 259-273.

Eskelinen, Heikki, 2009. Guidelines for developing Online Communities - Development steps. [retrieved 23.9.2009]

From: http://tbrc-community.lut.fi/ocr/book/online-community-development-guidelines-0

Facebook, 2009. Statistics [retrieved 9.6.2009]
From: http://www.facebook.com/press/info.php?statistics

Foth, Marcus, 2004. Encouraging Residents to take Social Ownership of an Online Community Network through PAD: Participation, Animation, Design. Community Network Analysis Conference, Brighton, Mar 31 - Apr 2.

Girgensohn, Andreas, Lee, Alison, 2002. Making Web Sites Be Places for Social Interaction, CSW'02 November 16-20, p. 136-145.

Golder, Scott A, Donath, Judith, 2004. Social Roles In Electronic communities. Association of Internet Researchers (AoIR) conference Internet Research 5.0 September 19-22, 2004, Brighton, England.

Google, 2009. Google Analytics [retrieved 17.8.2009]
From: http://www.google.com/analytics/

Harper, F. Maxwel, Li, Sherry Xin, Chen, Yan, Konstan, Joseph A., 2007. Social Comparisons to Motivate Contributions to an Online Community, Y. de Kort et al. (Eds.): PERSUASIVE 2007, LNCS 4744, p. 148–159.

Hintikka, Kari, 2007. Web 2.0 - johdatus internetin uusiin liiketoimintamahdollisuuksiin, TIEKE

Hoadley, Christopher M., Kilner, Peter G., 2005. Using Technology to Transform Communities of Practice into Knowledge-Building Communities. ACM SIGGROUP

Bulletin, Volume 25 Issue 1

Iriberri, Alicia, Leroy, Gondoy, 2009. A Life-Cycle Perspective on Online Community Success, ACM Computing Surveys, Vol. 41, No. 2, Article 11.

Kim, Amy Jo, 2000. Community Building – Secret Strategies For Successful Online Communities, Peachpit Press.

Kotler, Philip, Keller, Kevin Lane, 2006. Marketing Management, Pearson Prentice Hall

Krug, Steve, 2006. Älä pakota minua ajattelmaan! - Tervettä järkeä verkkosuunnitteluun, Readme.fi, Gummerus Kirjapaino.

Lampe, Cliff, Ellison, Nicole, Steinfield, Charles, 2007. A Familiar Face(book): Profile Elements as Signals in an Online Social Network. CHI 2007, April 28–May 3, 2007, p. 435-444.

Lappeenranta University of Technology 2007. PROFCOM – Product Internationalization with Firm-Hosted Online Communities RESEARCH PLAN

Lee, Jungwon, Kim, Jinwoo, Moon, Jae Yun, 2000. What makes Internet Users visit Cyber Stores again? Key Design Factors for Customer Loyalty, CHI 2000 - 1-6 April 2000, p. 305-312

Leijel, Magnus, 2009. How to permanently delete your facebook account. [retrieved 17.3.2009]
From: http://www.facebook.com/group.php?gid=16929680703

Malinen, Sanna, 2009. Heuristic For Supporting Social Interactions In Online Communities. To be published in Proceedings of IADIS International Conference WWW/INTERNET 2009. Rome, Italy.

Microsoft, MSN encarta, 2009. Critical mass definition. [retrieved 10.8.2009]
From: http://encarta.msn.com/dictionary_1861688572/critical_mass.html

Nielsen, Jakob, 1997a. How Users Read on the Web. [retrieved 22.4.2009]
From: http://www.useit.com/alertbox/9710a.html

Nielsen, Jakob, 1997b. Changes in Web Usability Since 1994 [retrieved 20.5.2009]
From: http://www.useit.com/alertbox/9712a.html

Nielsen, Jakob, 1997c. Loyalty on the Web [retrieved 1.6.2009]
From: http://www.useit.com/alertbox/9708a.html

Nielsen, Jakob, 1997d. Why Site Tourists are Worthless [retrieved 1.6.2009]
From: http://www.useit.com/alertbox/touristvalue.html

Nielsen, Jakob, 2002. Intranet Usability: The Trillion-Dollar Question [retrieved 25.9.2009]
From: http://www.useit.com/alertbox/intranet-usability-1st-study.html

Nielsen, Jakob, 2003a. Usability 101: Introduction to Usability. [retrieved 19.5.2009]
From: http://www.useit.com/alertbox/20030825.html

Nielsen, Jakob, 2003b. Information Pollution. [retrieved 20.5.2009]
From: http://www.useit.com/alertbox/20030630.html

Nielsen, Jakob, 2003c. Information Foraging: Why Google Makes People Leave Your Site Faster [retrieved 9.6.2009]

From: http://www.useit.com/alertbox/20030811.html

Nielsen, Jakob, 2006. Participation Inequality: Encouraging More Users to Contribute [retrieved 12.6.2009]

From: http://www.useit.com/alertbox/participation_inequality.html

Nielsen, Jakob, 2008a. Writing Style for Print vs. Web [retrieved 20.5.2009]

From: http://www.useit.com/alertbox/print-vs-online-content.html

Nielsen, Jakob, 2008b. How Little Do Users Read? [retrieved 1.6.2009]

From: http://www.useit.com/alertbox/percent-text-read.html

Nolker, Robert D., Zhou, Lina, 2005. Social Computing and Weighting to Identify Member Roles in Online Communities. IEEE/WIC/ACM International Conference on Web Intelligence (WI'05).

Nonnacke, Blair, Preece Jenny, Andrews Dorine, 2000. Lurker demographics: Counting the silent. Conference on Human Factors in Computing Systems, The Hague, The Netherlands, p. 73-80.

Nonnacke, Blair, Preece Jenny, Andrews Dorine, 2004. What lurkers and posters think of each other. HICSS, vol. 7, pp.70195a, Proceedings of the 37th Annual Hawaii International Conference on System Sciences (HICSS'04) - Track 7.

Powazek, Derek M, 2001. Design for Community – the art of connecting real people in virtual places, Waite Group Press.

Preece, Jenny, 2000. Online Communities – Design Usability, Supporting Sociability, John Wiley & Sons, Ltd.

Preece, Jenny, Rogers Yvonne, Sharp, Helen, 2002. Interaction Design - Beyond Human-Computer Interaction, Wiley.

Rashid, Al Mamunur, Ling, Kimberly, Tassone, Regina D, Resnick, Paul, Kraut, Robert, Riedl, John, 2006. Motivating Participation by Displaying the Value of Contribution. CHI 2006 Proceedings, p. 955-958.

Reed, Martin, 2007a. Building a new community: Creating content before you launch [retrieved 17.6.2009].
From: http://www.communityspark.com/building-a-new-community-creating-content-before-you-launch/

Reed, Martin, 2007b. Using suspense to promote interaction [retrieved 17.6.2009].
From: http://www.communityspark.com/using-suspense-to-promote-interaction/

Reed, Martin, 2008a. The reasons why online communities fail [retrieved 17.3.2009].
From: http://www.communityspark.com/the-reason-why-online-communities-fail/

Reed, Martin, 2008b. Think of your community members as customers [retrieved 14.9.2009].
http://www.communityspark.com/think-of-your-community-members-as-customers/

Reed, Martin, 2009a. Building an online community from scratch, Power point presentreeation.

Reed, Martin, 2009b. Member count: Not a measure of community building success [retrieved 1.7.2009].

From: http://www.communityspark.com/member-count-not-a-measure-of-community-building-success/

Reed, Martin, 2009c. Member count: Not a measure of community building success [retrieved 14.9.2009].

From: http://www.communityspark.com/how-are-you-rewarding-members-of-your-online-community/

Reed, Martin, 2009d. Member count: Not a measure of community building success [retrieved 14.9.2009].

From: http://www.communityspark.com/community-building-means-making-members-feel-special/

Scollan, Becca, Byrnes, Abby, Nagle, Malia, Coyle, Paul, York, Cynthia, Ingram, Maleka, 2008. Drupal Usability Research Report., University of Baltimore [retrieved 9.7.2009].

From: http://groups.drupal.org/files/DrupalUsabilityResearchReport.pdf

Rosen, Benson, Furst, Stacie, Blackburn, Richard, 2007. Overcoming Barriers to Knowledge Sharing in Virtual Teams, Organizational Dynamics, Vol 36, No. 3, p. 259-273.

Takahashi, Masamichi, Fujimoto, Masakazu, Yamasaki, Nobuhiro, 2003. The Active Lurker: Influence of an In-house Online Community on its outside Environment. GROUP '03: Proceedings of the 2003 international ACM SIGGROUP conference on Supporting group work, pp. 1-10, New York, NY, USA. ACM Press.

Tu, Chih-Hsiung, 2000. Strategies To Increase Interaction In Online Social Learning Environments, Society for Information Technology & Teacher Education International Conference, Volumes 1-3, p. 1662-1667.

Vanhala, Erno, 2008. Online Community System Development, Case PROFCOM [retrieved 24.9.2009]
From: http://tbrc-community.lut.fi/ocr/sites/tbrc-community.lut.fi.ocr/files/Bachelor%27s_Thesis.pdf

Vatanasombut, Banphot, Stylianou, Antonis C., Igbaria, Magid, 2004. How To Retain Online Customers, Communications of the ACM, June 2004/Vol. 47, No. 6, p. 65-69.

Waters, James, Gasson, Susan, 2005. Strategies Employed By Participants In Virtual Learning Communities, HICSS, Proceedings of the Proceedings of the 38th Annual Hawaii International Conference on System Sciences (HICSS'05).

Worthen, Ben, 2008. Why Most Online Communities Fail [retrieved 17.3.2009]
From: http://blogs.wsj.com/biztech/2008/07/16/why-most-online-communities-fail/

APPENDICES

Appendix 1 – Interview questions

- Describe your relationship with online communities
- In which online communities you are participating actively?
  - Why?
- How do you look for information about online communities?
  - Where do you look for information?
  - What kind of problems have you encountered?
  - How would you improve the information retrieval?
- How do you share information about online communities?
  - What forums do you use when publishing information?
  - What kind of problems have you encountered when sharing information?
  - How would you mitigate the encountered problems?
  - How would you improve the possibilities to share information?
- How do you use the Internet about online communities?
  - What kinds of online community-related discussions do you follow?
  - What kinds of information would you like find (for example about other researchers, research topics or events)?
  - How would you improve the possibilities for knowledge sharing regarding the topic of online communities?
- What ways of collaboration would you wish to exist in the Internet among people sharing the interest on online communities?
  - How could offline communication methods be transfered to online?
- What would motivate you to share thoughts about online communities?
- What hinders your participation in knowledge sharing?
- What essential was not questioned?