Special interest communities

Design for online growth

Nadia Röning
Abstract

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Special interest online communities refer to groups of people who share a concern or passion for something they do and learn how to do it better as they interact regularly, with some of the interaction being technology mediated. The Uppsala University ACM-W Student Chapter is an online community, run by a student group, that promotes gender equality in Computer Science and Information Technology at Uppsala University.

This thesis investigates what makes a website an online community by determining how community building works and how it could be used productively. The Uppsala University ACM-W Student Chapter’s ambition is to be a successful online community and attract both short-time members and long-time members to engage in their organization. It should also be easy to keep international contact with similar chapters through the website. Hence an evaluation of the chapters website (uu.acm.org) was conducted for this thesis, involving interviewing members of the chapter. The focus of the evaluation was to investigate how well the UU ACM-W chapter’s current website support community engagement, but also how the website can be redesigned to better support community engagement.

Results from the evaluation showed some functionality problems with the website and that the way the chapter support communication and collaboration could be improved. Based on the results, concrete design proposals were introduced to the chapter’s members in order to evaluate if they could be useful for improving the website. Furthermore, ideas on how to establish a strong online platform that might contribute to online growth for special interest communities, such as the Uppsala University ACM-W Student Chapter, were given.

In conclusion, the selected approach was suitable for the stage the chapter was in, and the method described in this thesis is one tool for helping other small-scale online communities to better understand their organization and to help them narrow down their organization’s administrative load into design solutions that ease their administrative tasks.
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1 Introduction

ACM, Association for Computing Machinery, was founded in 1947 as the world’s first scientific and educational association for computer science. They are today the world’s largest educational and scientific computing society. [1] With each passing year, more and more women consider careers in computing, a field practiced mainly by men [2]. One of ACM’s missions is to support, celebrate and advocate women in the computing field, and there is a council dedicated to this mission named ACM-W, ACM’s women in computing. ACM works with the ACM-W community of computer scientists, educators, employers and policy makers to improve working and learning environments for women [1]. Chapters establish a local presence for the ACM and the ACM-W has about 100 active chapters around the world, with one of them located in Sweden at Uppsala University [1, 3].

1.1 The UU ACM-W chapter

The Uppsala University ACM-W Student Chapter, hereafter UU ACM-W chapter, is the only ACM-W chapter in Sweden. It was founded the 20th December 2013. Their goal is to promote gender equality within the local area. The chapter has 15 members, including the chapters’ board (2016-02-01), where the distribution of gender among the members is 8 women and 7 men. Information about the chapter and its activities is posted on a WordPress website. [3] Besides the website, the chapter is present at social media platforms, such as Facebook and Twitter. Furthermore, the communication between the members in the chapter is managed through a Google mailing list.

1.2 Purpose

One of the main ambitions is that UU ACM-W should be a successful online community and attract both short-time members and long-time members to participate in the organization, at any level of engagement. It should

also be easy to keep international contact with other chapters through the
website. In this thesis I will therefore describe and evaluate a method for
eliciting requirements for designing small-scale online communities for special
interest groups.

The outcomes of this thesis are 1) a design hypothesis, i.e., a prototype,
of a website that better supports engagement in the UU ACM-W chapter, 2)
an evaluation of the design hypothesis, and 3) a proposed set of requirements
that can be used when designing community websites.

The approach described in this thesis might also help other special interest
communities, similar to the UU ACM-W chapter, to establish a strong online
platform and to understand how to better support community engagement,
which in turn might contribute to online growth.

1.3 Research questions

The overarching research questions for this thesis are the following:

• What makes a website an online community?
• How should a website be designed to best support community engage-
  ment?
• How can the quality of an online community be determined?

These overarching questions are addressed in this case study as:

• How well does the UU ACM-W chapter’s current website support com-
  munity engagement?
• How can the UU ACM-W chapter’s website be redesigned to improve
  the chapter’s online presence and better support community engage-
  ment?

1.4 Delimitations

This thesis will not study the UU ACM-W chapter’s website after the design
ideas from the second iteration has been evaluated and implemented on the
website.
2 Background

This chapter is divided into four sections. The first section describes the concept of online community and the definition of community of practice. The second section outlines aspects that are important to consider when designing to improve the online presence. The third section highlights important aspects of selection criteria for measuring usability. The last section gives a brief description of the selected method that will serve as a reference when eliciting requirements for designing small-scale online communities.

2.1 Online community

An online community is a virtual community where people come together for a purpose, such as to interact with each other, exchange information or simply converse. Besides the UU ACM-W chapter, small close-knit groups as well as websites with millions of users can be classified as online communities. What defines them is a regular interaction over a period of time, with at least some of the interaction being technology mediated. [4]

2.1.1 Community of practice

"Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" [5].

Some characteristics are decisive for a community to be classified as a community of practice. It needs to have an identity defined by a shared domain of interest. The members in the community needs to have a commitment to the domain and a shared competence. By exerting their interest in their domain, members participate in common activities and discussions where they help each other and share information. Some meet regularly in person while others may be connected primarily through the mediation of computer bulletin boards and networks. [5]

Members in a community of practice are practitioners meaning that they
share a folder of knowledge, a folder that contains experiences, tools and ways to deal with and solve problems. People who have the same interest or job do not necessarily count as a community of practice. To be consider a community of practice people need to learn from and interact with each other, while working towards a common goal. [5] The UU ACM-W chapter works for gender equality in computing and thereby classify for a community of practice, as the chapter members’ goal is to promote gender equality at their department, while also functioning as a forum for exchanging experiences and by that members can learn from other members.

2.1.2 Gender equality as a goal: approaches and engagement

The UU ACM-W chapter’s mission is to promote gender equality at their department by encourage women to get involved in activities that promote female participation. But what is the foundation of the chapter’s purpose? The earliest calculators or computers were women and computer science was once stereotyped as female. With abilities like patience, persistence and attention to detail, women were perceived as the best for the job. After the 1950’s, a new light was cast on the perceptions of female computers. Being a field associated with nerds, geeks and hackers has granted a negative image on computer science, and is thought to be one of the reasons why women have chosen not to enter the field [6]. However, once taken a introductory course in computer science, women often follow through with later courses and many of the females achieve leadership roles in clubs within the field [7].

Through time, different strategies have been employed to promote gender equality, and some approaches have shown successful progress in this direction. Support groups specifically designed to promote gender equality have shown the strongest evidence of strategic and sustainable changes in gender relations. [8] It has been demonstrated that the use of gender target support groups, similar to the UU ACM-W chapter, helps to change the attitude towards computer science [7]. And by introducing skill development strategies to strengthen women’s leadership capacity, support groups have had an empowering impact on women’s capacity to make decisions. Further-
more, support groups also contribute to attract more women to the field of computer science. [9]

Strategies employed to promote gender equality are however not enough to create engagement. Engagement is built through trust and when common ground is established. Developing connections with people can create trust and that is what contributes people to work together towards a common goal. While connections between people are built, a community is created, and while building community, connections between people are created. Important to note is that improving one aspect benefits the other. [10]

2.2 Critical design challenges

Cultivating an intra-organizational network that contains a blend of content and collaboration opportunities might not be enough to become successful. The success of communities varies. Some struggle to become successful while others might become successful because they have rich content that attracts new members. [5] The designers face several problems when developing an online community, e.g., there might not be enough content on the website to attract members, or there might be uninspired discussions or low engagement [11]. Even an established online community must attract new members to replace others who might leave.

Another important part of the design challenge is to encourage potential members with the motivation to contribute, so that the community can flourish and expand. [5] This section describes how the online presence affects the success of a certain community, and highlights different ways to improve its online presence.

2.2.1 What is online presence?

An online presence is any occurrence of an individual or organization-driven identity that can be found through an online search [12], e.g., a website or a blog. So why do we need online presence? According to Sterling [13], three out of four would use a search engine to locate or find a local organization, restaurant or the nearest barber etc. Being visible and making your orga-
nization known is therefore an essential part of attracting new customers. But it takes much more than being visible on the web and an appealing website to cultivate the success of a certain organization through its online presence [12].

2.2.2 How to improve the online presence

Before the times of the Internet, there were two methods for attracting new customers: either through direct advertising or through word of mouth [14]. With the availability of the Internet, there are new opportunities for achieving better online presence. Demopoulos [15] suggests three different ways that will help to improve the online presence, as listed and described below:

**Social Media Sites**
A strong, professional social media identity is important. The benefits that will be given are better communication with the customers as well as increased traffic and customers interest. Being visible on e.g., Facebook, LinkedIn or Twitter provides opportunities to answer customer questions and direct them to the website. The key is to regularly post information that is relevant for the organization.

**Video Upload Sites**
Uploading videos on sites like YouTube and Dailymotion gives the possibility to feature the organization in an online video. It might also give the opportunity to refer to the website in its video description. The videos should be topical and not evident advertisement.

**Creating a Blog**
Another creative way of showing that the organization is not a faceless enterprise is by creating a blog. The content in the blog should be updated at least once a week and the answer to any comments should be honest. A blog might also provide the organization with unsolicited feedback, that might help the organization to discover things that could be changed or done better.
2.2.3 Online platforms

It is hard to predict the best recommendations for online platforms since technology is always changing. Online communities can either have synchronous or asynchronous platforms. Synchronous platforms allow users to interact with each other at the same time from different places, e.g., through video-conferences or text chats. Asynchronous platforms allow users to participate in a discussion, blog or mailing list from different times and places. This kind of platform is generally the most flexible for participants that reside in different time zones or cannot come together at the same time. [16]

2.3 Community evaluation

The descriptions in this section are based on Preece’s’ article, *Sociability and usability in online communities: Determining and measuring success* [17].

Online communities expand and change constantly depending on their enrollment. What may be critical in the beginning of a community might not be noteworthy later on. According to Preece, achievement is controlled by three key elements: usability, sociability and their influence on the interactions of community members. Designers have practically no power over community members, aside from in some e-commerce communities where collaboration is constantly overseen. On the other hand, designers can do much to set the tone of a community by designing or selecting software with good usability which is also cultivating suitable sociability.

The relationship between usability and sociability in design of online communities is therefore essential for their success. The sociability and usability framework assists in structuring the process of identifying determinants and deciding on measures. As in any software improvement it is key to have an elaborated understanding of users’ needs, i.e. requirements, and these are required to determine functionality and usability. Online communities cannot control social interaction. They can however, influence it by the policies they create and how they manage them. With a carefully outlined plan and well-defined policies, the community might also grow. This chapter will take a closer look into how the usability and sociability framework affect the
success of a certain online community.

2.3.1 Determine the quality of a website implementation

In order to determine the quality of a website implementation, the designer needs to understand the concept of online presence, and how the presence affects the quality of a website design, i.e. information presented on the website needs to be clear and reflect the community’s purpose and goals. A website can achieve all of its potential if it delivers several required features that contribute to a better online experience. [18] These features, which will be explained in the next subsection are *Purpose, People, Policy, Dialog and social interaction support, Information design, Navigation,* and *Access.*

Wenger [19] highlights the need for user-specific information architecture and rigorous protocols for the posting of information by members of communities of practice. As Wenger suggests, the design of the website can serve as the vehicle for the functions of the community of practice itself. It is therefore essential to study what makes an online community successful before defining what is required for an effective website design. It is understandable that an interested member might not reflect over the website design at first glance if he or she seek to find information about a community with a certain goal.

2.3.2 Measuring community success

Usability refers to ”the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use” (ISO 9241-11) [20].

Preece states that the measure of success of an online community is its ability to facilitate sociability. Websites for online communities of practice, such as the UU ACM-W chapter’s website, need to facilitate user’s participation in the community. By studying what characteristics make an online community successful, usability test planners can develop effective usability measures. Preece describes three key components that contribute to good sociability:
Purpose
The community should provide a reason for individual members to belong to the community. With a shared focus on an interest, need, information or support, this might be accomplished. The organization’s purpose therefore need to be clearly defined and easily accessible in the website.

People
As the members in the community might have different social or organizational needs, the community should provide opportunities for different roles that the members might engage in, such as leaders, moderators, etc. The organization should make sure that these roles and how to engage in them are well defined in the website.

Policy
The community needs to have social policies that support the community’s purpose. They need to be understandable, socially accepted and practicable. It might be necessary to introduce more formal policies, e.g., registration policies and ethical codes. Therefore the community need to make sure that the organization’s policies are easily accessible and clearly defined in the website.

Sociability measures focus on design criteria for the purpose of the organization, its members, and the policies the community establishes. As sociability might be considered as a new genre of usability, Preece makes the following distinction: “Whereas usability is primarily concerned with how users interact with technology, sociability is concerned with how members of a community interact with each other via the supporting technology.” Preece identifies four usability components that focus on software’s role as a medium and a place for social interaction:

Dialog and social interaction support
Dialog and social interaction support is about measuring whether the system supports feedback and about how long it takes to send or read a message. It also checks whether an action has been executed successfully (or unsuccessfully) and how much the users remember about dialog and social support, as
well as for how many errors they make.

Information design
Any information associated with the community should be clear and consistent. It is about how long it takes to learn how to find information (e.g. Help), but also about how long it takes to achieve a particular information-oriented goal. Observations about the users running into any errors when accessing the information should be noted.

Navigation
Navigation is about measuring how easy it is for the users to navigate through the website or to find what they want in the community. The information should be consistent and measurements are taken to see if the users get to where they want in a reasonable time, and how many and what kind of errors the users make. People learn when they discover patterns, and a consistency between the elements in the website is the key to help the user recognize and apply patterns, which contributes to satisfaction.

Access
Access is about how easy it is for the users to find information, downloads and run online community software. The requirements must be clear and measurement is taken for how fast the user can download and run a software. Any observation of problems that the users might face should be noted.

Defining how sociability factors drive these components is required, not only for the design of website features, but additionally for establishing methods to evaluate the design and for composing usability measures for each iteration of a website.

Hummel et al. [21] explored ways to facilitate participation in online communities. In their study they found that the number of interactions between members’ increases if there are enough members and opportunities for feedback. Inspired discussions and easy to use features contribute to increased participation. Effective usability test methods should therefore include testing of these components.
2.4 Usability evaluation on the web

There are several methods for measuring usability. Different methods are suitable for evaluating different parts of the usability concept. The purpose of usability evaluation is to determine usability problems with the website or to receive usability measures. Further, the goal is to define how well the design fulfills the users’ needs. Evaluations made to assess if the websites standard have been achieved, in order to decide whether to modify for improvement or adopt the website are known as summative evaluations. This chapter will describe the meaning of formative and summative evaluation and why it is important to include them in usability testing. Furthermore, usability testing techniques that will be used for evaluating the UU ACM-W chapter’s website are described.

2.4.1 Formative and summative methods

Formative evaluation is any usability evaluation that takes place before or during a project’s implementation with the aim of improving the project’s design and performance. In this case the project is the UU ACM-W chapter’s website that is in its early phase of implementation. Formative evaluation contributes to a better understanding of the website, and reveals information about what works, what does not and why. It also gives a better understanding of the users’ needs, which makes it easier to improve the website’s design and performance. There are several techniques for measuring whether the design fulfills the users’ needs. Surveys such as questionnaires and interviews are common tools associated with usability testing, used for collecting data about the users’ satisfaction and needs.

Community engagement is especially important in formative evaluation, as participants in a chapter might facilitate access to data or other findings that are not accessible from others. Once the data are gathered, it should be used to evaluate the usability of the website, give recommendations for improvements and/or implement the recommendations. The recommendations should then be tested in order to measure the effectiveness of the changes.
Formative evaluation complements summative evaluation, and it is therefore good practice to include them both into usability testing. Summative evaluation gives a better understanding of whether the goal has been achieved. This method is often used in the end of an operation cycle and helps decide whether to adopt the project or modify for improvement. That is, summative evaluation methods might provide unintended findings that need improvements. \[26\] Such measures and findings are often obtained through focus groups: a technique that helps uncover key findings and recommendations for further improvements \[27\].

2.4.2 Questionnaire

Questionnaires are a series of questions designed to retrieve specific information, and are one of the most common and popular tools to gather data from a large number of people, or a specific target group. The benefit with questionnaires is that they are easy to distribute, and that they generate quick responses when there is a need for eliciting specific information. Also the data can be transferred immediately for analysis and the time required to analyze the data is usually reduced compared to other testing techniques. \[23\] There are several aspects to think about when designing a questionnaire, as described below.

**Design a questionnaire**

The design of a questionnaire can come in different forms and the questions can be classified into three structures: closed, open-ended and contingency questions. In closed questions the participant is asked to choose among a set of possible answers that are closest to the participant’s point of view. Questions of this kind often ask for “Yes” or “No” answers. They may also ask the participant to choose among several categories or that the participant uses a frequency scale or an agreement scale. The advantage with closed questions is that the participant is restricted to a limited set of answers that are quick and easy to answer, and easy to compare. \[28\]

Open-ended questions are not followed by any choices and the participant
must answer with a comment, such as a word, number or a text string. The
analysis of these responses is generally slower than analyzing closed questions
responses and open-ended questions are often used when the administrator
wants the participant to express their ideas in their own language. [28]

Contingency questions can be both closed and open-ended, but are only
applicable to a specific target group. The questions ask the participant to
answer the question if he or she applies to the target group, otherwise the
participant is instructed to skip to a later section. This kind of questions are
good when the administrator want to collect detailed data from a specific
target group. [28][23]

**Question and response format**
The shorter the questionnaire is, the better, since most people are time-
poor. A well-designed questionnaire should not take longer than 10 minutes
to complete. Long questionnaires might risk reducing the response rate. In
most cases questionnaires are administered from a distance, meaning that
the administrator cannot answer or explain what he or she means. This
emphasizes the importance of clear questions. [23]

Many questionnaires start by asking for background information, such
as gender, age and experience. The background information is useful when
it comes to finding out the range of sample groups. After that the general
specific questions are asked. These questions should aim to investigate the
evaluation goal. The questions can be asked in several ways and formats.
Formats make it easier for the participant to be able to answer a question
and might also upheld the participants enthusiasm. [23] Some commonly used
formats are listed and described below:

**Check boxes and ranges**
Check boxes and ranges are useful when the question asks for a specific
answer, such as gender where there are two options. Some people feel that
giving out their exact age can be sensitive information. In these cases check
boxes with range are useful since it allows the participant to specify the age
in a range, such as 21-30 or 31-40 etc. [23]
Likert Scales
Likert scales, also named rating scales, are useful for measuring opinions, attitudes and beliefs [23]. The participant is then allowed to specify their level of agreement or disagreement on a symmetric scale, like the one illustrated below:

```
Bad  Not Bad  Neutral  OK  Good
```

Question 1 □ □ □ □ □

Share the questionnaire
Questionnaires can be shared through email or posted on a website, but can also come in paper form. Email based questionnaires are easy to use for a specific target group. However, email based questionnaires are often limited to text while web-based questionnaires are more flexible since they can include features, such as text boxes, pull-down menus and help screens. [23]

Analyze the data
When the responses are collected it is time to analyze the answers. The first step is to identify any trends or patterns. Techniques such as bar charts can be used to display data graphically or cluster analysis can be used to display if there is a relationship between the answers. Questionnaires are often combined with other techniques, such as interviews. This in order to confirm the conclusions obtained from the interviews with a questionnaire. The questionnaire is usually then sent out to a wider target group. [23]

2.4.3 Semi-structured interview
An interview can be thought of as a conversation with a purpose and is a method for collecting data in which quantitative or qualitative questions can be asked. Quantitative questions are closed, whereas qualitative questions are open-ended. Semi-structured interviews use both closed and open ended questions. [29] [23] In semi-structured interviews there is usually a basic script to make sure that the same topics are covered with every interviewee. The interviewer starts with the pre-planned questions and probes the interviewee to
say more until no new relevant information is forthcoming, unlike structured interviews that do not allow the interview to divert from the agenda. Before conducting a semi-structured interview there are several things to prepare, as described below:

**Number of interviews**
The first thing to do is to define the target group. It is often possible to recruit participants within the intended target group. Relevant informants for the community under study are people who have a great understanding of the system that is to be tested. How many to interview depends on the available resources and time. The optimal condition is when saturation is achieved, meaning when additional interviews do not provide any new or additional insights. It may be sufficient to start by conducting a few interviews with key informants from the community. That is if the semi-structured interviews supplement other data collection techniques. Otherwise more interviews should be considered.

**Preparing the interview**
The questions should be clear and easy to understand, written in such language so that the participants will understand them. The questions should also be adapted to the step of the design that is being evaluated. It is often hard to estimate how long a semi-structured interview will take. A good idea is to review the questions with a colleague or a friend, not only to estimate how long the interview will take but also to see if the questions are easy to understand.

**Procedure**
In the beginning of the interview, the participants should receive a brief introduction about the purpose and how the result will be used. It is important that the participants feel comfortable and understand what is expected of them. The participants should be encouraged to see themselves as co-developers and not as subjects. If the interview should be recorded, it is important to ask for the participant’s written or verbal consent.
Data analysis
The notes taken under the observation will be helpful when summarizing the
data and the recording may be transcribed if the observation was recorded.
The main themes and ideas that emerged from the observation should be
noted and classified as important topics. Other data such as unexpected
behavior when the participant interacts with the system should be noted.
This kind of data might point out differences in how the system is supposed
to be used and how it is really being used. This information is equally
important as the participants’ thoughts about the system. The comments
are important data since they reflect back on the participants experience of
the system. [30]

2.4.4 Focus group
The following descriptions in this subchapter are based on Simon’s article,
How to conduct a focus group [31], with several added sources.

A focus group is a useful way to identify opinions, impressions and per-
ceptions of a small group of people on one or more topics in a short period
of time, usually an hour or two [32]. Focus groups use a facilitator and a
semi-structured interview process to prompt discussion among a group of
people [33]. The group can be representative of the target group, or they
may represent subsets of the target group. Focus groups can be used in a
self-contained manner for the purposes of exploring new initiatives or for
understanding participant’s own perspectives on a project. [31] There are
several things to prepare before conducting the focus group, as listed and
described below.

Define the purpose
The definition of the gathering should be clear and specific. The more defined
the purpose is, the easier the rest of the process will be. [32] Considerations
such as; why should the focus group be conducted and what kind of infor-
mation exist for a particular purpose. [31]
Establish a timeline
A focus group does not develop over night and the planning of the actual session should be done several weeks ahead. There should be enough time to identify the participants, develop and test the questions, choose a location, invite and follow up with participants and gather the materials for the sessions. [31][32]

Identify the participants
This step involves identifying the typical user. Defining the right target group can do this. A focus group should consist of six to twelve participants. Less than six participants tend to limit the conversation, since there is not enough diversity to spark energy and creativity. Determining how many participants are needed can be done by developing a list of key attributes to seek in participants based on the purpose of the focus group. An invitation could thereby be sent out to each potential participant. [31][32]

Generate the questions
Due to the time limit, four to five questions are appropriate. One or two introductory or warm-up questions could be included before going into more serious questions. The focus group should be open-ended and lead from general to specific questions. It is important that the questions are clear and reflect the purpose statement. [31]

Planning script
There are three parts to a focus group script: An opening section followed by a question section and ended by a closing section. In the opening section it is time for the facilitator to welcome the group, explain the purpose and context of the gathering, and give a short introduction to what a focus group is. The question section is where the questions are discussed. The closing section wraps up the focus group by thanking the participants, explaining how their input will be used and giving them an opportunity for further input. [31]
Select a facilitator
A suitable facilitator should have good insight into the project and preferably be a staff member, volunteer or member of a committee or task force. Hire an outcome to moderate the session can be very time consuming, since he or she has too put down a lot of time learning how the organization is handled. Another disadvantage can be that the members in the organization do not feel very comfortable sharing information with someone else that has not been involved in the organization. The task could also be divided, where one person moderates the discussions and the other one records the session.

Location of the session
There are several things to keep in mind when choosing the location. The setting needs to support transportation, parking and be accessible for people with disabilities. It should be inviting and cozy in order to encourage conversation. The participants need to be able to view each other and the setting should be large enough to fit everybody. Once the location is decided, it should be reserved if necessary.

Summarizing observations
After the focus group it is time to summarize the observations. The first thing to do is to listen to the tape if the session was voice recorded. It is recommended that the facilitator review the session with someone else in order to capture fresh impressions in an easier manner. The observation and impressions should be noted and merged with the notes that were taken soon after the session was over. It helps to avoid memory lapses if the transcription is reviewed shortly after the session. The summary of the focus group will help to search for trends, such as comments that seem to appear repeatedly as well as unexpected comments and reactions. The final summary should include all information about the background and purpose of focus group, details of the session, results and conclusions.
Probing
During the session, the participants might signal that they have more to add by using nonverbal cues such as stopping in mid sentence, continuing looking at the facilitator after a statement or other facial expressions. The facilitator needs to recognize these cues and encourage the participant to finish their sentence [33]. Due to this it is necessary to end the focus group session with follow-up questions, or probes, to gain different aspects of people’s experience and thoughts. [34] A focus group might also be combined with other research methods, such as interviews to reveal information that was not brought up in the session. People may not be more honest in interviews than in groups, but it might help provide basic background information that offer participants to say things they would rather not reveal in the group. [35]

3 Method

Due to the purpose of this study, a combination of a formative and summative evaluation was deemed as a suitable evaluation method. This chapter describes how the questionnaire, interviews and focus group were conducted. The interviews and the focus group were conducted with an insider perspective, conducted by one of the members in the chapter. The author therefore had in-depth local knowledge that was used in the evaluation.

3.1 Questionnaire

The questionnaire aimed to investigate why the members in the chapter choose to engage, as well as investigate if their expectations of the chapter have been fulfilled. Further, the participants were also asked if they had any ideas on how the chapter could be improved in order to better support community engagement.
3.1.1 Questionnaire design and questions

For the questionnaire, both closed and open-ended questions were used. An online questionnaire was created using SurveyMonkey\(^2\), an online tool for creating surveys. Before the questionnaire was shared with the members of the chapter, Mikael Laaksoharju, Associate Senior Lecturer at Uppsala University and Virginia Grande, research assistant at Uppsala University, but also an active member of the chapter, reviewed it. This helped to make sure that the questions were easy to understand and relevant for the case study. The questionnaire was written in English to make sure that everyone would understand the questions. Furthermore, the questionnaire consisted of 9 questions, including asking for background information, such as gender and education level. Open-ended questions were used for 5 of the questions, where the respondent needed to answer with a comment. For the remaining 3 questions, likert scale questions were used in order to keep up the participants’ enthusiasm. A full overview of the questionnaire can be found in Appendix A.

3.1.2 Analyzing the data

A link to the questionnaire was shared with the members of the chapter through email. Of the chapters’ 15 members, 5 answered the questionnaire. All of the participants were students at Uppsala University and the table below gives some demographic data of the participants, such as gender, the program the student was studying and what degree the student was pursuing.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Program</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Computer Science</td>
<td>Bachelor</td>
</tr>
<tr>
<td>Female</td>
<td>Computer Science</td>
<td>Phd</td>
</tr>
<tr>
<td>Female</td>
<td>Information Technology</td>
<td>Master</td>
</tr>
<tr>
<td>Male</td>
<td>Information Technology</td>
<td>Master</td>
</tr>
<tr>
<td>Male</td>
<td>Information Technology</td>
<td>Phd</td>
</tr>
</tbody>
</table>

\(^2\)https://www.surveymonkey.com
The responses were first analyzed separately and then all together in order to see if there were any trends or patterns in the participants’ answers.

### 3.2 Interview

Semi-structured interviews were employed to this part of the case study. The purpose of the interview was to analyze the design of the UU ACM-W chapter’s website with respect to how it is designed to support collaboration and communications. The interview also aimed to investigate the following research questions:

- How well does the UU ACM-W chapter’s current website support community engagement?
- How can the UU ACM-W chapter’s website be redesigned to improve the chapter’s online presence and better support community engagement?

#### 3.2.1 Interview questions and scenarios

The participants were allowed to interact with the chapter’s website during the interview. The interview consisted of 2 warm up tasks and 5 scenarios with 15 questions, all written in English.

Mikael Laaksoharju, Associate Senior Lecturer at Uppsala University and Virginia Grande, research assistant at Uppsala University but also an active member of the chapter, reviewed the interview. This helped to discover possible problems prior to the interviews and to see if the questions were easy to understand by someone in the organization. Mikael also made sure that the interview was aligned with the research topics.

**Warm up tasks**

The purpose of the warm up tasks was to make the participants feel comfortable with the questions and using the computer. The participants were not informed that this was the warm up tasks.
Warm Up 1

<table>
<thead>
<tr>
<th>Task description</th>
<th>Open a web browser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>Open a web browser that you usually use.</td>
</tr>
</tbody>
</table>

Warm Up 2

<table>
<thead>
<tr>
<th>Task description</th>
<th>Go to UU ACM-W chapter’s official website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>Search for the UU ACM-W chapter’s website and enter the website.</td>
</tr>
</tbody>
</table>

Scenarios

For each scenario, the participants were allowed to use a computer in order to interact with the UU ACM-W chapter’s website while they were asked questions regarding the website’s functionality. The purpose of the scenarios was to investigate what the possibilities are to improve the usability and sociability of the chapter’s website, by its defined purpose, needs and policies. Each scenario could also be categorized depending on the questions concerned. The questions could either be measuring how the website supports dialog and social interaction, information design, navigation or access. Each interview took about 40 minutes to complete.

Scenario 1

<table>
<thead>
<tr>
<th>Usability</th>
<th>Dialog and social interaction support, Information design, Navigation, Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociability</td>
<td>Online Presence</td>
</tr>
<tr>
<td>Research question</td>
<td>How can the online presence be improved?</td>
</tr>
<tr>
<td>Question (1-3)</td>
<td>Was it easy to find the website? If yes, why? If no, why not?</td>
</tr>
<tr>
<td></td>
<td>Do you think that the URL is complex? If yes, why? If no, why not?</td>
</tr>
<tr>
<td></td>
<td>Do you know if the chapter is present at any social platforms? If yes, how do you think these are linked to the website? If no, why do you think that is?</td>
</tr>
<tr>
<td>Scenario 2</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td><strong>Usability</strong></td>
<td>Dialog and social interaction support, Information design, Navigation, Access</td>
</tr>
<tr>
<td><strong>Sociability</strong></td>
<td>Purpose</td>
</tr>
<tr>
<td><strong>Research question</strong></td>
<td>How do the chapter’s website support community engagement?</td>
</tr>
</tbody>
</table>
| **Question (4-8)** | Do you use the website? If yes, how do you use the website? If no, why not?  
What do you think that the purpose of the community is?  
Do you think the purpose is well defined at the website? If yes, why and where are the purpose defined? If no, why not?  
Does the website support communication between the members? If yes, how? If no, why do you think that is? |

<table>
<thead>
<tr>
<th>Scenario 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Usability</strong></td>
<td>Dialog and social interaction support, Information design, Navigation, Access</td>
</tr>
<tr>
<td><strong>Sociability</strong></td>
<td>People</td>
</tr>
<tr>
<td><strong>Research question</strong></td>
<td>How does the chapter’s website support community engagement?</td>
</tr>
</tbody>
</table>
| **Question (9-10)** | Do you think that the community provides opportunities for different roles that the members might engage in? (Such as, chair)  
Do you think that this is well defined in the website? If yes, why and where are this defined? If no, why not? |
Scenario 4

<table>
<thead>
<tr>
<th>Usability</th>
<th>Dialog and social interaction support, Information design, Navigation, Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociability</td>
<td>Policy</td>
</tr>
<tr>
<td>Research question</td>
<td>How does the chapter’s website support community engagement?</td>
</tr>
<tr>
<td>Question (11-13)</td>
<td>What do you think that the community’s social polices are? If any, do you think they are understandable and socially accepted? Do you think that they are well defined in the website? If yes, why and where are they defined? If no, why not? Are there any guidelines for registration policy? If yes, where?</td>
</tr>
</tbody>
</table>

Scenario 5

<table>
<thead>
<tr>
<th>Task description</th>
<th>Probing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question (14-15)</td>
<td>What other features might you include in the website to improve communication and collaboration? Is there anything else you would like to add?</td>
</tr>
</tbody>
</table>

3.2.2 Recruited users

The interview was conducted with four participants, all members of the UU ACM-W’s chapter. Two of the participants were female and the other two were male. One of the participants was one of the co-founders of UU ACM-W chapter and had therefore prior experience with the chapter. Two participants had been very involved within the chapter the last year and the last participant was only a member and had not been so engaged within the chapter. All of the participants were students at Uppsala University and the table
below gives some demographic data of the participants, such as gender, the program the student were studying, what degree the student was pursuing and how engaged the student had been within the chapter.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Program</th>
<th>Degree</th>
<th>Engagement level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Computer Science</td>
<td>Bachelor</td>
<td>High</td>
</tr>
<tr>
<td>Female</td>
<td>Computer Science</td>
<td>Phd</td>
<td>Medium</td>
</tr>
<tr>
<td>Female</td>
<td>Information Technology</td>
<td>Master</td>
<td>High</td>
</tr>
<tr>
<td>Male</td>
<td>Information Technology</td>
<td>Master</td>
<td>Low</td>
</tr>
</tbody>
</table>

3.2.3 Procedure

In the start of the interview session the participants were given a brief introduction about the purpose of the interview and how the results would be used. The participants were clearly informed that it was not their knowledge that was to be tested. During the interview session the participants were also being observed for unexpected user behavior and for comments regarding the website.

3.2.4 Analyzing the data

After the interview the answers was summarized for each person. The purpose of summarizing the answers individually was to see if there were any differences in their behaviors, opinions and comments. All the individual answers were then summarized to deduce general trends and common problems.

3.3 Focus group

The focus group was conducted after the redesigning the website in order to check if the design proposals could improve the websites shortcomings.

3.3.1 Questions and design proposals

The focus group consisted of 7 scenarios (can be found in Appendix B: Agenda) written in English to ensure that all of the participants would under-
stand them. For each scenario, some new design ideas were presented with an explication of how they could either improve the online presence, or the way the chapter handles communication or collaboration. The new design ideas were also compared with how the current website looks and functions. The participants were then given some questions to discuss for approximately 5 minutes. After that, the participants’ ideas and thoughts were presented for the facilitator. The scenarios and exact words that were used for the focus group can be found in Appendix B: Agenda. Each scenario took about 10 minutes to complete and the whole session took approximately one and half hours.

3.3.2 Recruited users

The focus group was conducted with six participants, all members of the UU ACM-W’s chapter. It was important that enough participant were recruited in order to avoid limited conversations where there is not enough diversity to spark energy and creativity. Three of the participants were female and the other three were male. Four of the participants had participated in the interviews that aimed to analyze the design of the current website. The other two had recently become members of the chapter, with the ambition to become quite involved within the chapter. All of the participants were students at Uppsala University and the table below gives some demographic data of the participants, such as gender, the program the student was studying and what degree the student was pursuing.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Program</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
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<td>Computer Science</td>
<td>Phd</td>
</tr>
<tr>
<td>Female</td>
<td>Computer Science</td>
<td>Phd</td>
</tr>
<tr>
<td>Male</td>
<td>Computer Science</td>
<td>Phd</td>
</tr>
<tr>
<td>Female</td>
<td>Information Technology</td>
<td>Master</td>
</tr>
<tr>
<td>Male</td>
<td>Information Technology</td>
<td>Master</td>
</tr>
</tbody>
</table>
3.3.3 Procedure

Virginia Grande, research assistant at Uppsala University but also an active member of the chapter, reviewed the focus group. This helped to discover possible problems prior to the focus group and to see if the questions were understandable by someone in the organization.

In the start of the session the participants were given a brief introduction about the purpose of the focus group and a context of the gathering. In the end of the session the participants were given a feedback form. The purpose of the feedback form was to give the participants a chance to say things they would rather not reveal in a group, but also to gain different aspects of their experience and thoughts. During the session the participants were also being observed for nonverbal cues, such as stopping in mid sentence, continuing looking at the facilitator or other facial impression. When such cues were discovered, the participants were encouraged to finish their sentence.

3.3.4 Summarizing the observation

The focus group was conducted in a seminar room at ITC, Information Technology Centre. ITC is located at Uppsala University in Uppsala. With the participants’ verbal consent, the entire session was voice recorded. Shortly after the session, the recording was checked and merged with the notes that were taken under the session in order to avoid memory lapses.

4 Results and analysis

In order to evaluate the website, a usability evaluation was conducted. The usability evaluation was divided into two iterations. In the first iteration the UU ACM-W chapter’s website was evaluated by conducting a questionnaire and by interviewing the chapter’s members. In the second iteration, design proposals were created and introduced to the UU ACM-W chapter’s members in a focus group, with the aim to evaluate if the new design ideas could be useful for redesigning the website. This chapter will describe the results and analysis from the iterations.
4.1 First iteration: Survey evaluation

This subsection represents the results gathered from the questionnaire and interviews. Furthermore, an analysis of the results gathered from the survey is given.

4.1.1 Result of the questionnaire

The questionnaire aimed to investigate why the members in the chapter choose to engage in the chapter activities and organization, as well as to investigate if their expectations of the UU ACM-W chapter have been fulfilled. Furthermore, the participants were asked if they had any ideas about how the chapter could be improved in order to better support community engagement. The result from the questionnaire is described below.

General findings

The participants’ overall impression of the chapter, where 5 is totally positive, the participants returned an average rating of 3.3. The members found that the events organized by the UU ACM-W chapter had interesting topics, and that everyone seemed supportive. The main reason why the members choose to engage in the chapter was due to the chapter’s purpose and for opportunities to meet new people with the same interest, but also to gain experience from organizing different events.

Two members emphasized the importance of the long-term problem of gender equality and the general predominance of a generally patriarchal culture in computing. This was an issue that they wished to solve by participating in such projects within the chapter. However, they had low expectations of the chapter as a vehicle for such cultural change. In response to a question that asked the participant to rate his or her overall expectations of the chapter, the average rating was 3.5.

An important challenge for the organization is to attract potential members with the qualities that are needed and with motivation to contribute. This is so that the community can flourish and expand. The lowest scoring area pertained to the question that asked the participant to rate if he or she
would like to become more involved within the chapter, which received an average rating of 3.2.

However, the numerical values should be taken with a pinch of salt since the response rate was very low.

**Feedback**

After the interview the participants were asked if they had some ideas on what changes would most likely improve the chapter. These are their thoughts:

- Tool for easier communication within the chapter.
- Collaborate more with similar chapters and universities.
- More PR (public relations) work to attract more members.
- Stronger web presence that informs what projects the chapter is working on.
- Regular meetings within the chapter that might contribute to easier progress planning.

### 4.1.2 Result of the semi-structured interviews

After the data was compiled from the interview notes it was compared with the website to generate a list of issues and recommended solutions. Below is the result from the interview.

**Sociability and Usability**

The interviews focused on investigating how the chapter could improve its online presence, but also how the chapter could better support community engagement. The results have therefore been divided into four categories i.e., online presence, purpose, people, and policy, depending on the question’s intention.

**Online presence**

The availability of the Internet opens up opportunities for achieving better online presence. Being visible and making the community known is an essential part of attracting more members. Research shows that three out of four
use a search engine to locate or find a local organization [13]. Therefore the participants were asked to search for the chapter’s website with the help of the Internet. The participants thought that it was easy to find the UU ACM-W website, three used Google to search for the website, while one typed the URL (uu.acm.org) directly. All of the participants found the URL short and simple. However, some highlighted that the URL’s name is not consistent with the chapter’s name, since the letter W, which stands for women in UU ACM-W, is missing. Furthermore, not everyone had used the website previously. But those who did, mentioned that they only use the website to post some activity or to check for information about a certain event that might easily get lost in email conversations. They also found it easy to interact with the site and navigate to different tabs in order to find information that they were seeking.

It is important to have a strong social media identity that eases the communication with members, but also to increase traffic and member interest. All of the participants knew that the chapter is present at social platforms such as Facebook and Twitter, mostly because that had been mentioned in a meeting or event. Some noticed that the Twitter account short-link was displayed on the website, but not the Facebook link, which they thought was strange.

Purpose
The community should provide a reason for individual members to belong to it. Therefore, the participants were asked what they thought the purpose of the community was. All of them mentioned that it is a good opportunity to meet people that are interested in the same thing, such as computing and gender equality. Some also mentioned that inequality is not that obvious for people at the university, and for some this might not be an issue. But by participating in the UU ACM-W chapter they hoped to inspire people and to spread awareness. However, the participants did not think that the purpose was well described in the website and that it should be more articulated on the Home page, but also under the tab Ideas, where they thought that the information was very outdated and did not really describe what the chapter
is doing. Under the tab *Bylaws* the reader can find out what the purpose of the chapter is, but most of the participants found that the text was too formal if someone just wants to find out the purpose of the chapter.

The number of interactions between the members increases if there are opportunities for feedback, meaning that inspired discussions and easy to use features contribute to increased participation. The chapter’s website should therefore support communication between the members in order to increase participation. The way the chapter handles communication is mostly through a Google mailing list. However, the website does not mention how the communication is handled or that anyone could subscribe to the mailing list to join the chapter’s discussions. One participant requested that the website should provide better information or directions about how one could join the mailing list. Another participant mentioned that the mailing list might work for now when there are not so many members in the chapter, but if the chapter is going to grow there might be a need for another method, since the mailing list easily gets messy. The other participants also thought that the communication handled through the website was poor, since people are not able to leave comments on events and since the only outgoing communication is handled through listed events or the calendar that gives information about upcoming events or meetings. Furthermore, under the tab *Members* all the members of the chapter are listed, including the chapter’s board. However, only some of the members provide an email address for contact, which the participant thought was bad since it is not consistent.

*People*

As the members in the community might have social or organizational needs, the community should provide opportunities or different roles for its members to engage in. All the participants knew that the chapter provides opportunities for different roles that the members might engage in, but thought that it did not appear clearly on the website. The participants highlighted that it is only mentioned on the homepage that one could email the chair in order to join the chapter at any level. But it is not mentioned what the person could help with or choose to engage in. Therefore, the participants thought
that this should be better described. One participant also mentioned that it is not clear what the current officers do or what it means to be a chair for example.

*Policy*

The community needs to have social policies that support the community’s purpose. They need to be understandable, socially accepted and practicable. All the participants mentioned that they have no idea what the social policies of the chapter are and they did not think that anything has ever been written about it. One participant thought however that it was no need to mention the social policies since there has never been a need for emphasizing them and one reason for that could be that those who want to join the chapter have a common interest, but also that it should be common sense how people should act toward someone else. Furthermore, the participants were asked if they thought that there are any guidelines for registration policy. None of the participants found anything on the website that explained how one could become a member, and all of them thought that this is something that should be better described. Two participants also thought that it would make sense to describe the registration policies under the tab *Members* or that a new page named ”Become a Member” should be added.

*Other requests*

The participants were asked what features on the website would most likely improve the chapters’ communication and collaboration. Their ideas are listed and described below:

- Due to the hard way to communicate within the chapter, one participant requested that a private Facebook group might ease the communication for those who want to help with certain activities within the chapter.

- Under the tab *Members* are the chapters’ members all listed. Two participants thought that the public list of members should be removed, since those who are not that engaged within the chapter might not
want to be associated with the chapter. One of the participants also highlighted that it might look bad for the chapter if the list is short.

- Under the *News* tab are all the events posted, such as upcoming events. Even all the old events are listed by date under this tab. Two participants found that everything listed under the news tab did not necessarily have to be news since some posts were over one year old. They requested that the news should maybe be visual on the homepage and the history of events should be moved somewhere else since it can still be nice to read about what the chapter has been doing.

4.1.3 Analysis of the questionnaire and interviews

The results from the survey showed that there are possibilities to improve the online presence, as well as the communication and collaboration of the UU ACM-W chapter’s website, since it seemed like the users experienced some sociability and usability problems with the website. Of the chapters’ 15 members, 5 answered the questionnaire. In practice, this is a low response rate. However, since the chapter is quite small, the answers are reliable since they might reflect the opinions from the most active members of the chapter. The analysis of the survey is described below:

**Dialog and social interaction support**

The participants found that the website is a good platform for networking, but that it needs several improvements in order to achieve its full potential. Firstly, it should be easier to communicate within the chapter since the Google mailing list seemed as a bad choice for organizing events. However, other interested should also be able to subscribe to the mailing list if they wish to take part in the chapter’s internal discussions. Furthermore, members and others should also be able to comment on events that are published by the chapter. There is a risk for spam but it might also contribute to increased participation, interesting discussions and feedback. It might also ease the internal contact with similar chapters, since it allows users to participate in discussions that span different time zones and therefore cannot be held
synchronously.

**Information design**
The information about what the chapter’s officers are doing is poorly defined, and should therefore be better described, so that both members and others might get an interest in taking on different positions within the chapter. The website does not provide any information about what projects the chapter is currently working on and therefore it gets hard for people to get an interest to engage on different levels within the chapter. It should also be better described how one could apply for a membership, but also how one could get involved within different projects. The results from the survey also showed that the community does not describe what the benefits are by becoming a member and this is also something that should be better communicated.

**Navigation**
In general, members of the UU ACM-W chapter had a favorable impression of the website, and the participants found that it was easy to navigate and interact within the website. People learn when they discover patterns and consistency is the key to help the users’ recognize and apply patterns. The website should therefore keep its current theme and structure in order to retain the users’ satisfaction. But as technology is always changing, the structure and theme might need to be updated in the future.

**Access**
The community cannot control social interaction, but they can influence it by the policies they create and how they manage them, and with a carefully outlined plan and well-defined policies the community might grow. The results from the survey showed that the participants thought that it was hard to find certain information about social platforms at which the chapter is present. The social and registration policies should therefore be better communicated under relevant tabs so that they are easy to find.
4.2 Second iteration: Design and results

After the survey were analyzed, the findings were used to generate design proposals for the UU ACM-W chapter’s website with the aim to improve the online presence and to better support communication and collaboration. This subsection presents and describes the design ideas for the chapter’s website. Furthermore, results and an analysis from the focus group are given.

4.2.1 Design proposals

Given the results from the survey, design proposals are given. The design proposals were created using WordPress to give an illustration of how the features would look like if the new design would be implemented.

Home page

The Home page is the first page that the visitor meets, therefore any information associated with the chapter should be clear and consistent, so that the visitor might get an interest to find out more about what the chapter is doing. In the Home page, the visitor can find information about the chapter, such as the purpose and social policies, see figure 1. Since the results from the survey showed that the information about the chapter’s purpose and social policies were poorly defined, see figure 2, the information has been slightly modified with the aim to better communicate the chapter’s purpose. From this page the visitor might also choose to be redirected to the chapter’s registration policies or the chapter’s ongoing projects.
Welcome!

The Uppsala University student chapter of the Association for Computing Machinery’s Women in Computing is a student group promoting gender equality in Computer Science and Information Technology. The chapter also aims to help the members succeed academically, socially and professionally. We believe that it is important to demonstrate the importance and need for diversity in the computing world.

Membership in UU ACM-W is open to all: male and female who support the goals of the organization. Click here to find out more on how to become a member.

We are currently planning several activities. Check out Projects to find out more what we are working on.

Figure 1: Screenshot of the new Home page.
Right sideboard

The sideboard view that is visible on every page of the website has been slightly modified, see figure 2. Firstly, social media icons have been added,
where the visitor is allowed to click on the icon to follow the chapter’s Facebook page, Twitter account or Google group, see figure 1. Being visible on social platforms provides opportunities to answer questions and direct visitors to the website. It is therefore important to have a strong social media identity, as it might contribute to attract new members and increase traffic.

The page Calendar has been fully removed, see figure 3, since there is no need to have two views of the calendar of the chapter’s upcoming events and meetings. The chapter spends a lot of time to administer their networks, since they are not syndicated. The previous calendar was administered through the chapter’s Google account and therefore a new calendar widget has been installed that allows the chapter to administer the calendar directly through WordPress, and thereby saves time for the administration of the chapter. The widget’s design also gives the visitor a monthly overview of the chapter’s upcoming events and meetings.

Lastly, a widget that asks the visitor to enter his or her email address to subscribe to the website has been added. The requested subscriptions will be handled directly in WordPress and the administrator will also receive an email notification about this request. This also requires that the website is updated regularly to show the subscribers that the community is active.
Figure 3: Screenshot of the removed Calendar page.
The website should only be administrated by the chapter’s officers and a few selected members. Due to this, the metalinks that provide log in information to the WordPress have been removed, see figure 2.

Events
The participants thought that the name News on the page where all the events are listed was a bad name, since most of the events were not necessary news, see figure 4. The name of the page has therefore been changed to Events, see figure 5. The website for UU ACM-W chapter acts as an asynchronous platform, and a lot of time is required for the chapter to administrate its networks since they are not syndicated. For online communities, such as the UU ACM-W chapter that uses WordPress as a website and is also present at other social networks such as Facebook, Twitter and Google+, there is a plugin tool created by Automattic, the company behind WordPress, that gives the ability to automate sharing to various social networks. The implemented plugin, see figure 6, is named JetPack and allows the user to configure their self-hosted WordPress to share posts with their social networks with only one click. The plugin also provides other features, such as allowing visitors to connect to the website and leave comments on posts using their WordPress, Facebook, Twitter or Google+ account. JetPack also provides an opportunity for preventing spam on the blog, a plugin called Akismet.  

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3https://wordpress.org
4https://automattic.com
**2016 Election Results**

Our annual election meeting was held Monday, 1 February, to elect officers for the term 1 February 2016–31 January 2017. Present were six of the chapter’s voting members. Continue reading →

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**Seeking new board**

UU ACM-W is looking for a new board starting the cut of February 2016. UU ACM-W is a student group at Uppsala University promoting gender equality in Computer Science and Information Technology.

The positions that need to be filled are:

- Chair, responsible for running of the group by arranging meetings and planning projects.
- Vice-chair, acts as a helping hand to the Chair. The Vice-chair is also responsible for keeping the website up to date.
- Secretary/Treasurer, takes notes during meetings and is responsible for the economy, mainly by managing orders at events.

What does equality mean to you? Are you interested in one of these positions or in joining the UU ACM-W? For more information, do not hesitate to contact Nadia at nadia.nadja@gmail.com. Deadline: 28th January 2016.

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**IN-DEMAND writing contest**

HI ACM-W members,

Check out this writing contest:

DataDugouts (www.datadugouts.com) was designed to connect technology practitioners with startup and mobile sports and media industry companies.

The purpose of the contest is to help gauge the interest of engineers and programmers into considering those industries for employment opportunities.

The theories presented by contest participants will help both industries in their future recruiting efforts. INDE. Companies will begin to set up profiles and list internship opportunities in February.

The contest judges are the Chief Information Officers of the Dallas Cowboys and The Ohio State University athletics department.

Click the photo for information on the IN-DEMAND writing contest.

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**Figure 4:** Screenshot of the News page at the time of writing.
Spring Meeting
© 28/01/2016 • Meeting News • Media Rating

It’s time to kick off spring with an UU ACM-W chapter meeting!

Where? TTC room 1345

When? Thursday the 29th of February at 17:00

The meeting is open for everyone! You are welcome to come if you just want to listen in or if you have some ideas for upcoming events.

Hope to see you there!
Leave a comment

2016 Election Results
© 06/01/2016 • News • Media Rating

Our annual election meeting was held Monday, 1 February, to elect officers for the term 1 February 2016-31 January 2017. Present were six of the chapter’s voting members. Continue reading →

Leave a comment

Seeking new board
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Figure 5: Screenshot of the new Event page.
The page Members, see figure 7, has been replaced with the page Officers. In this page, the visitor is able to find information about the chapter’s officers and how to contact them. A description of each post has also been added so that both visitor and members might get an insight of what the officers are doing, see figure 8. The list of members has been removed since some participants thought that it might bring a negative image of the chapter if the members are few. Furthermore, the participants found that the information in the Bylaws page, see figure 9, was too formal and has therefore been removed. In the bylaws the visitor can find information about the chapter’s regulations and how changes within the chapter should be handled etc. The bylaws should however be accessible for those who want to find out more about them. And therefore information about elections has been added with a link to the chapter’s bylaws.
Figure 7: Screenshot of the Members page at the time of Writing.
Figure 8: Screenshot of the new Officers page.
Figure 9: Screenshot of the Bylaws page at the time of writing.
Projects

The page Ideas, see figure 10, has been removed and replaced with a page called Project, see figure 11. In this page the chapter’s current projects should be listed and described briefly so that others might find information about what the chapter is currently working on. The page also provides information about how to contact the chapter if the visitor wishes to participate in any project or has any ideas of their own.

Figure 10: Screenshot of the Ides page at the time of Writing.
Become a member

The participants thought that information about how to become a member was not described very well on the website and therefore a new page named *Become a member* has been added, see figure 12. In this page the visitor can find information about the membership as well as how to become member.
4.2.2 Contact

It should be easy to find out how to contact the chapter and therefore a new page *Contact* has been added, see figure 13. In this page, information about how to come in contact with the chapter is described. Furthermore, infor-
mation about the chapter’s collaborators, such as faculty and staff advisors, is given.

Figure 13: Screenshot of the new Contact page.
4.2.3 Results of the focus group

The purpose of the focus group was to investigate whether the design proposals could be useful for redesigning the website in order to achieve better online presence, but also to better support communication and collaboration. The participants’ thoughts and ideas on the design proposals are represented and described below.

Home page
The participants found that the chapter’s purpose and social policies were clearer than before, but that they could be even better communicated. They wished to have a better explanation of the chapter’s purpose in the context of what the chapter is doing and who the members are. They even felt that the Home page could be more personal by adding a picture of the chapter’s members. They also wished that some of the current projects should be listed so that the visitor gets an interest to read more about what the chapter is working on. Furthermore, the participants had some opinions on the wording in the text, such as ”click here”, that redirected the user to the chapter’s projects. They stated that not everybody usually clicks on the text-link and that it is better to have a descriptive text as a link, such as ”you can apply for membership”. The participants also felt that it could be a bit intimidating to use a single person to contact for further information and that it is better to use phrasing such as ”contact us”.

Widget areas
In the main widget area, the metalinks were removed because they provided log in information to the website. However, the RSS in the metalinks was something that the participants still wanted to be accessible for the visitors, preferably as an icon next to the social media icons. The participants decided that the mailing list should solely be used for internal chapter discussions and therefore not accessible for non-members to join. Because of this, they thought that the Google+ icon that redirects the user to the chapter’s mailing list should be removed.
The participants liked the new calendar design, but stated that it could be interesting for the visitor to know when the next meeting is, and that this information could be described in a new widget on top of the calendar. Furthermore, the participants thought that a visitor should be able to subscribe to the website as long as they are able to unsubscribe on their own. By being a subscriber the person will receive an e-mail notification every time the website become updated. The participants also thought that the subscribe widget should be placed under the social media icons, since they are related to each other.

Events
The participants thought that it was good to be able to comment on posts and share the posts. However, the participants thought that the share button should be moved out next to the comment icon, since it is only accessible for the visitor in the comment interface and therefore becomes invisible for the visitor. The visitor might therefore miss that her or she is able to share a post on social media if they never choose to continue reading more about a single event. The participants also thought that the previous meetings in the comment interface should be removed since they are misleading and out of context.

Officers
The list of members was removed since some thought that it might give a bad impression if the members are few, but also that the member might not want to be listed if he or she is not very active within the chapter. Some of the participants did not agree with this and thought that it could be nice to be associated with the chapter. After a discussion, the participants agreed that the members should be asked if they want to be listed on the website when they sign up for a membership. In conclusion to this, the participants found that Members would be a more suitable name for the page. Furthermore, to make the website more personal, the participants thought that it would be nice to add a small pictures of the members next to their names.
Projects
Some of the participants thought that the name of the page should be changed to *Activities*. The participants also thought that it could be nice to have contact information and a picture of the project leader(s) for each project/activity. Furthermore, the participants also thought that it could be nice to list previous projects/activities that the chapter has been working on.

Become a member
The participants thought that why someone should become a member could be better explained, by mentioning what the person gets out from the membership. They also thought that the page should mention how often the members meet and that a membership does not require full engagement in the chapter’s activities. Furthermore, the participants thought that it could be easier to sign up for a membership if the visitor can fill in a form instead of mailing the chapter’s chair.

Contact
Instead of sending a mail to the chapter’s chair in order to come in contact with the chapter, the participants thought that it would be better to have a contact form on the *Contact* page. They also thought that the faculty members should be moved to the page where the officers and members are listed.

4.2.4 Analysis of the focus group
The results from the focus group revealed that the design ideas need further adjustments in order to fulfill the members’ needs, before they could be implemented on the website. Of the six participants, four had participated in the interviews that aimed to evaluate the current website. The results from the interviews were used to generate the design proposals and it was well reflected in the group discussions that two of the participants had not been involved in the interview study. Their opinions contributed to in-depth exploration of the design ideas since they had different points of view of the
proposals, which was good for the study since it contributed to interaction among the participants. In their reflections they needed to establish the intended purpose of the website and how they wanted the communication and social concerns to be handled, before they could discuss the design ideas. A common agreement between the participants was therefore established that the website should be more personal by posting pictures of the members on the website, and that the mailing group should solely be accessible by the chapter’s members.

The participants did not always have a shared opinion on a certain design idea, but managed to reach a common agreement. Important to note is that some people might have a stronger personality or attitude that affects the others to withdraw their opinions or thoughts and instead agree with the person that has a stronger personality. Therefore, it is important to take all opinions into account and listen to how the discussion between the participants evolves and how they reach their final conclusion or decision. For this study, such signals could not be seen. It is however hard to know what is going on in the human mind. Therefore, a feedback form was handed out to the participants, where they could write their own opinions and thoughts of the study, but also things that they would rather not reveal in a group.

5 Discussion

An online community is not much different from one in the real world, the communication just happens to exist online. Like the members in any community, virtual or in real life, the members need to interact with each other in order to build a network, while working towards a common goal. This is how community building on the web works, but why does it work? Being online offers opportunities for people to maintain connections and deepen relations, but also to meet like-minded people that one might otherwise never meet. Community building is a flexible way for people to communicate, share knowledge and experiences in a discussion, blog or mailing list from different times and places.
The result from this thesis shows that the main reason why members choose to engage in the chapter is due to its purpose and goals, but the results also showed a low engagement to become more involved within the chapter. This indicated that the website did not support community engagement very well. In order to design a website to best support community engagement, the community’s purpose, social policies and events must be well reflected in the sites description. In that way other like-minded might stumble by the website and find an interest to join the chapter. This thesis also emphasized the importance of engagement. Members’ engagement is the key to keep the community going and growing. It is equally important as the chapter’s online presence, as being visible on network platforms is an essential part for reaching out to people and attract new members. To maintain the quality of the community, the members need to create sustainable policies within and for the community that are reasonable to live up to and maintain. The members must make sure that the website remains updated and that the information on the website is clear and consistent but also reflects the projects the chapter is currently working on. This part must not take much time from the chapter itself to administrate. The new website design aim to give the members a tool for better communication between the members and to increase traffic and member interest.

Members engaged in a community is often engaged because they want to make a change, raise awareness of a certain issue or simply converse. The community should be a vehicle for such purpose. Each new design idea is a feature transformed from a certain or several problems that was observed or collected during the investigation. In the beginning the members had low expectations of the chapter being a vehicle to solve the long-term problems of gender equality within the culture of computing, which is very bad because this is one of the main reason the UU-ACM W chapter exist. This emphasized the need to create tools for the community so they can easier communicate, plan activities and marketing events. Important things that can not an administrative burden in the progress planning.
5.1 Method analysis

The investigation was divided into two iterations. In the first iteration the UU ACM-W chapter’s website was evaluated by conducting a questionnaire and by interviewing the chapter’s members. This part was needed to give the chapter’s members a better understanding of the website in order to detect flaws with the website’s design and performance. The methods used here brought up the users’ needs which made it easier to proceed for improvement. In the second iteration, design proposals were created and introduced to the chapter’s members in a focus group, with the aim to evaluate if the new design ideas could be useful for redesigning the website. This iteration was a complement to the first in order to better understand if the goal has been achieved. That is, did the design proposals reflect the results gathered from the first iteration. This part is needed in the end of an operation cycle because it helps to decide whether to adopt the project or modify for improvement.

There exists other usability methods that can be used to achieve similar results. However the methods here were carefully selected since they provided the information that was needed for this investigation. This approach was suitable for the state that the organization was in, i.e. being quite new and still under development. Due to the chapter being in this state, the chapter needed to establish how they wanted the communication to be handled before the website could be evaluated. A questionnaire combined with interviews was therefore a suitable option for collecting this kind of information. Besides analyzing the website’s shortcomings, holding individual interviews was beneficial for perceiving an overview of how the individual member would like the website to be used. By understanding how the members wanted the website to be used it was clearer how the community should be administrated, which in turn contributed to understand the organization better.

Being a member and having inside knowledge of how the ACM-W chapter was running had a big impact on the selected approach for this evaluation. Having an insider perspective and knowing how the chapter was running saved a lot of time for the investigation since it was easy to recruit members
for the interview and focus group. The participants could also feel relaxed during the sessions because they knew the person who was interviewing and moderating them. By being a facilitator and moderating the session, it was important to keep a natural body language in order to make sure that my reaction or body movement would not affect the result and answers to questions that were asked during both the interviews and the focus group. It is important to note that a focus group can take a variety of forms and there is no best approach. However, the content and questions should be consistent with the purpose of the investigation and the information that gave rise to it.

However, having an inside perspective does not always have to be an advantage for the investigation. As the members knew the moderator, the interviews and focus group could tend to be too relaxed. This emphasizes the importance of being objective in the investigation and making sure that the participants do not tend drift too far away from the subject in their discussions. My own experience of the chapter has resulted in having an picture of how the chapter is working and of course having a vision of the end result. Therefore it is important to not weight in own feelings in the investigation and collecting of the data. The result should reflect the members’ common view of how they want the chapter to be running and not my own. The moderator must therefore understand and accept that the end result might not reflect their own vision. But this is also why we use different tools and methods, such as focus group, to help us proceed in this kind of projects.

Members in a community are joined and engaged for a certain purpose but this does not mean that everyone in a community share the same ideas and thoughts. In the end of the investigation it seemed liked a reasonable option to gather the members that had been participating in the first iteration to see if their thought and opinions had been heard and transformed into design solutions for the website. Other members of the UU ACM-W chapter that had not been participating in the first iteration were also required in order to highlight new thoughts and opinions of the design solutions, but also so that the discussions might inflict with new perspectives of the design solutions. As the website aimed to work as a tool for communication and
collaboration between the members of the UU ACM-W chapter it was important that the members reached a common agreement on the final design solution. Conducting a focus group was therefore a great fit for this task since it provided a tool for testing the reality of assumptions that go into the design of the usability and sociability aspect.

5.2 Conclusion

In the end, was the selected method a good approach for this kind of investigation? This investigation was rewarding for the chapter since it gave them the opportunity to better understand how they wanted communication and collaboration to be handled, but also the organization itself. In conclusion, the selected approach was suitable for the stage the chapter was in. The method described in this thesis is one tool for helping other small-scale online communities to better understand their organization and to help them narrow down their organization’s administrative load into design solutions that ease their administrative tasks, such as recruiting new members and marketing events on social platforms. All important things to be able to grow as a community.

5.3 Future work

The results and requirements gathered in this investigation could be useful for future work in the field of usability and sociability, where other special interest communities seek to achieve better online presence. Usability definitions, for instance the one adopted by ISO, all stress the importance of finding representative users when evaluating. Also, for methodological reasons, a larger number of participants give more reliable results. The present study had deficiencies in one of these aspects. The number of participants in each study was very small. However the chapter is roughly small and such opportunities were not available in this case. The results presented here might therefore need to be validated in a larger study. The design ideas implemented after the final phase in the operation cycle should also be tested
in order to measure the effectiveness of the changes.
References


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6 Appendices

6.1 Appendix A: Questionnaire questions

Figure 14: Screenshot of the online questionnaire.
6.2 Appendix B: Focus group

Agenda

Welcome,
A focus group is a way of identifying opinions, impressions and perceptions of a small group of people on one or more topics in a short period of time, usually an hour or two. In this focus group session we will analyze the design proposals I have created for the WordPress gathered from the interviews and questionnaires. We will go through 7 scenarios where I present some new design ideas. Each scenario will take about 10 minutes. I will start by showing you how the website looks today and then show and explain how the new design ideas improve the way the website handles either communication or collaboration. The aim is also to improve the online presence. I will give you some questions that you may see as guidelines in your discussions. You may discuss for approximately 5 minutes and then we will go through your thoughts and ideas together.

With your consent, this focus group will be voice recorded (ask for the participants approval). This session will take approximately one and a half hour, so let’s start.

Scenario 1: Home page
The content in the home page has changed (show). The chapter’s purpose and social policies have been modified with the aim of better communicate it. The visitor might also choose to be redirected to the chapter’s registration policies or the chapter’s ongoing projects. Here are some questions I would like you to discuss:

- Have the goal been achieved to better communicate the chapter’s purpose and social policies?
- What would you add/remove/change at this page?

Scenario 2: Widget areas
Like some of you might have noticed, the main and second widget areas have changed. This is the main widget area (point) and this is the second widget
area (point). In the main widget area the metalinks have been removed. This is because the login information should only be accessible to the website’s administrators. On the second widget area some changes have been made as well. Firstly, social media icons have been added were the user is allowed to click on the icon to follow the chapter’s Facebook page, Twitter account or Google group. Secondly, the calendar has got a new design; here it gives the visitor a monthly overview of the chapter’s events and meetings. The Calendar page has been removed since it is unnecessary to have two calendars. Instead of going to the GMail account to administrate the calendar, it can now be administered directly through WordPress. And lastly, a widget that asks the visitor to enter his or her email address to subscribe to the website has been added. The requested subscriptions will be handled directly in WordPress and the administrator will also receive an email notification about this request.

Now I would like you to discuss the new design and features and here are some questions to think about:

- What do you think of that the “metalinks” have been removed?
- What do you think of the way the social media icons are presented? Location of the icons on the page?
- What do you think of the new calendar design? Location on the page? The removed Calendar page?
- What do you think of the added subscribe to this page widget? Location on the page?

*Scenario 3: Events*

This page has got a new name since some thought that “News” was a bad name, because everything on this page did not necessarily need to be news. The visitor is also able to comment on posts using their WordPress, Google+, Twitter or Facebook account (show how), the visitor might also choose to be anonymous. Spam will be handled with a new plugin called “Akismet”.
Being able to comment on the events might provide the chapter with unsolicited feedback. The visitor is also able to share the event on email, Google+, Twitter and Facebook (show how). Here are some questions I would like you to discuss:

- What do you think about the new name of the page?
- What do you think about visitors being able to comment on posts?
- What do you think about visitors being able to share the post on social media pages?
- What would you add/remove/change at this page?

Scenario 4: Officers
The page Members has been replaced with Officers (show). Here the visitor is able to find information about the chapter’s officers and how to contact them, as well as the faculty sponsor. A description of each post has been added so that the visitor might get an insight of what the officers are doing. The page Bylaws have also been removed since some found it too formal (show). In the bylaws the reader can find information about the chapter’s regulations and how changes within the chapter should be handled etc. The bylaws should however be accessible for those who want to find out more about the chapter’s bylaws. And therefore information about elections has been added with a link to the chapter’s bylaws. Here are some questions I would like you to discuss:

- What do you think of the new page name?
- What do you think of the information presented at this page? What would you add/remove/change at this page?
- What do you think of the bylaws page being removed?

Scenario 5: Projects
The visitors are now able to find out more about what the chapter is currently working on. Information stating that we need more members to take initiative to help organizing the events is displayed as well as information
about how to contact the chapter if they wish to help out or have any ideas of their own (show). Here are some questions I would like you to discuss:

- What do you think of the information presented at this page?
- What do you think of the name of the page?

Scenario 6: Become a member
This is a new page that has been created. In this page the visitor can find information about how to become a member as well as read about what membership means (show). Here are some questions I would like you to discuss:

- What do you think of the information presented at this page? What would you add/remove/change at this page?
- What do you think of the name of the page?

Scenario 7: Contact
This is a new page that has been added (show). If the visitor wishes to contact the chapter, he or she can find that information here. The chapter’s collaborators are also presented here. Here are some questions I would like you to discuss:

- What do you think of the information presented at this page? What would you add/remove/change at this page?
- What do you think of the name of the page?
- Should the collaborators be present here or somewhere else? Ideas?

Those were all the scenarios. Is there something else you would like to add? Maybe something that you have been thinking about?

Thank you for your participation. Here is a feedback form I would like you to fill in.
Feedback form

1. What did you think about the focus group?

Answer: 


2. Is there something else you would like to add?

Answer: 


Thank you for your participation!