

# Reducing the gap between HCI research and software development teams in Iceland

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## ABSTRACT

This paper reports a recent study on the use of User Centered Design (UCD) methods in seven Icelandic companies developing software. Contextual Interviews (CI) were used to gather detailed data on how developers co-operate with users during the software development. Afterwards structured interviews were conducted to gather broader information on the UCD methods usage and background information. Using Contextual Interviews for data gathering was very successful when used in its original form, but the method had to be adjusted in some cases because the developers thought that the situation, when co-operating with users was too delicate to add an observer to the scene.

## Author Keywords

Contextual Inquiry, Usability, User Centered Design.

## ACM Classification Keywords

H.5.2 [User Interfaces] User-centered design, Theory and methods, Prototyping.

## INTRODUCTION

A numbers of studies have been done in different countries to gather information on how practitioners use UCD methods, e. g. [4, 3, 2, 6]. The purpose of this study was to find out to what extent Icelandic developers are co-operating with users to increase usability in the software. The objective of this research was to investigate the following topics:

- What UCD methods are used in Icelandic software companies and how are the methods used?
- What can be done to improve the UCD methods usage in practice? What are the key issues?

Furthermore, we wanted to experience how the UCD method Contextual Interviews (CI) [1] could be used as a data gathering method for research purposes.

## MATERIALS AND METHOD

In the previous studies on the usage of UCD methods, data has mainly been gathered by surveys, [4, 3, 2, 6]. Experiencing how the users and the software developers in Iceland interact was the main focus of this study. Therefore CI [1] that it focused on gathering data where the work is performed was used. Furthermore structured interviews were also conducted. In this section the participants and the data gathering will be described.

## The participants

In this study participants from seven software companies named A to G participated. The number of software developers working in each company ranged from 6 to 90. Five of the companies are software development companies, one is a bank that does a lot of in-house software development and one is a usability consultancy company.

There were two or three participants from each company, 18 in total. The projects that the participants were working on had various subjects e.g. maintenance for a running software, server development, web design and a redesign of an older system.

### The data gathering

Data was gathered on the usage of six UCD methods as seen in table 1. Data was gathered over two months period, so the data gathering was limited to the UCD methods being used at the companies during that period. The preferred data gathering method, Contextual Inquiry [1], was used in 4 cases for meetings and 1 case for think-aloud testing. An adjusted Contextual Inquiry was used in the other 9 cases, for prototypes, formal testing, use cases and user surveys. These methods will be described in detail below.

UCD methods	Companies							No. of observations	Data gathering method
	A	B	C	D	E	F	G		
Prototypes			X	XX	X	X		5	adj-CI
Meetings		XX		X		X		4	CI
Formal testing		X				X		2	adj-CI
Think-aloud testing							X	1	CI
Use cases	X							1	adj-CI
User surveys			X					1	adj-CI

Table 1: The UCD methods observed and data gathering

A structured follow-up interview was conducted in all the companies after the contextual interviews to gather overall data on the companies and the knowledge and use of UCD in the companies.

The data gathering was done by two students as a part of their BS-program in Computer Science in Reykjavik University under the author’s supervision.

### Contextual Interviews (CI)

A CI is defined as “a one-on-one interview conducted in the user’s workspace that focuses on observations of ongoing work” [1]. CI consists of four parts: the introduction, the transition, the field interview and the wrap-up. The interviewer starts with introducing the goal of the interview to the interviewee, how it will be conducted and sets the expectations. In the transition the interviewer asks the interviewee to work on his ordinary tasks while observed by the interviewer and starts the main part of the CI interview, the field interview. The interviewer is allowed to interrupt the interviewee when something is happening that is not clear for the interviewer, so the interviewee is teaching the interviewer how the tasks are solved. In the wrap-up session the interviewer summarizes what he has experienced and his understanding of the work.

In this project there were one or two interviewees during each CI and always two interviewers. The introduction was conducted at one of the interviewee’s office, the field interviews situated where the co-operation with the users took place and the wrap-up was done at the interviewee’s office again. During the field interview the interviewers did not ask questions, so it was pure observation, but the interviewers wrote down questions and asked them during the wrap-up session. The introduction, the transition and the wrap-up was prepared by making power-point slides for each section so the same things would be done in all cases.

### Adjusted Contextual Interviews

In the adjusted contextual interviews (adj-CI) the introduction, the transition and the wrap-up was done in the same way as in the ordinary contextual interview, but the field interviews were different. There was no observation of the communication with the users, but it was a structured interview session where the interviewers asked the interviewees how they communicated with the users. The interviewers were focused on asking the interviewees to describe in detail the communication with the users and show artifacts when needed.

### *Follow-up interviews*

The follow-up interviews were done after the contextual interviews to gather overall data about the companies and the knowledge and use of UCD in the company. It was also used to fill in some gaps from the contextual interviews. It was a structured interview where the interviewees were asked 12 open questions on: 1) Background information of the participants and their knowledge regarding UCD; 2) What UCD methods they used and how; 3) Their opinion about the strengths and weaknesses of UCD methods they used; 4) The output and tools used for co-operating with users; 5) Their general knowledge on usability and usability goals.

### **THE KEY ISSUES**

One of the main goals of this study was to experience how developers cooperate with users by observing this in the field. Unfortunately, this could only be done for gathering data on two UCD methods, meetings and think-aloud tests. Data on the other methods was gathered by an adjusted Contextual Interview session as described above. The reason for this was mainly that the software developers were not willing to let students observe their usage on these methods; the situation was too delicate to have an observer there too. This makes observations in the field very hard, and is probably the main hindrance when bridging the gap between HCI research and practice in Iceland at the moment.

Another key issue is that the developers were not using the UCD methods as described in the literature because they did not know the methods. They knew the names of the methods and thought they were doing everything right, but when interviewed in detail, the researchers found out that the developers did not know how to use the methods in a “proper” way. So they relied on common sense and the development team practice. For example, the developers stated that they did user testing, but when interviewed in detail the researchers found out that the developers were not that willing to get feedback from users, they were sort of showing the software to the users, but they called it user testing. This hindrance has been described elsewhere also, [5] were the main conclusion is that it is hard for developers to understand the UCD methods in detail. The most depressing observation in the current study was that the developers did not experience a need to change this, as one of them stated: “It works as it is done today, why do we need to change it?”

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