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# User-Centered Design between Cultures: Designing for and with Immigrants

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**Abstract.** Immigrants represent a substantial part of European society. After emigration, they can suffer from fundamental changes in their socio-economic environment. Therefore, supportive ICT services (e.g. for language learning or job search) have high potential to ease inclusion, especially for newly arrived immigrants with low education. Within an international research project we involve Turkish and Arabic immigrants in a user-centered design (UCD) process with the goal to develop supportive ICT services for smartphones. In this paper, we present our methodological experiences and discuss benefits and drawbacks of methods. Based thereupon, we formulate concrete implications for successful UCD with immigrants, e.g. collaborating with nongovernmental organizations (NGOs) or benefiting from reflections of long term-immigrants.

**Keywords:** User-Centered Design, Immigrants, Diversity, Method.

## 1 Introduction

Migration is and was always common at all parts of the world. It's occurrence is usually influenced by a combination of economic, political and social factors. Supporting the social integration of immigrants in Europe and providing them access to labor markets is essential for the prospective welfare of natives and immigrants. For successful social integration immigrants adapt to basic values and participate as an integral part in the host society, while at the same time maintain their original culture [2]. Within an international research project we aim to leverage the potential of mobile ICT services provided via smartphones for supporting social integration by offering ad-hoc support (e.g. navigation or real-time translation) as well as long-term training (e.g. mobile language learning). These services are dedicated to overcome the main barriers a newly arrived immigrant has to deal with, when trying to gain ground in an unfamiliar country.

Immigrants moving to countries within the European Union come from all over the world [8]. Thus, they form a very heterogeneous group and can hardly be treated as

one sole target group in terms of service and user interface needs. Their needs differ widely since great variety of user characteristics occurs depending on maternal language, cultural background, education, motivation, duration of stay, religion, and profession. For this reason, it is not expedient to approach all immigrants in Europe at once when designing services for social integration. It is necessary to focus on a narrower definition of the target group. We mainly address Turkish-speaking Turks and Arabic-speaking immigrants from North Africa as they form two large immigrants groups within the European Union [8]. According to the cultural model of Hofstede [11], the cultural background of both groups differs noticeable from Western cultures (mainly in the dimensions Power-Distance and Collectivism/Individualism). Additionally, we focused on immigrants with low education (up to eight years) and rather short length of stay (up to five years) as these immigrants are potentially exposed to more barriers in everyday live.

Research has shown that cultural differences matter in interface design and affect the data-gathering in a user-centered design process [5]. However, for the special case of immigrants it remains unclear which impact cultural differences between home and host country might have on the outcome of user-centered design processes as well as on interface preferences. By putting immigrants at the center of our research we want to assure that services are needed and useable for the respective target group. Following a user-centered design process (UCD) [20], a crucial attempt is to understand the users, their problems as well as their needs and accordant contexts of use. Therefore, the adoption of a hermeneutic approach with qualitative methods seems to be most fruitful for the elicitation of cultural-specific user requirements (e.g. observing and interviewing the concrete target group) [1].

In this paper, we present our methodological experiences gathered within requirements analysis (creating a barriers list, conducting semi-structured interviews) as well as service and interface design (conducting focus groups and participatory design workshops) as parts of the UCD process for and with a selected immigrant user group. We discuss benefits and drawbacks of methods with the goal to formulate concrete implications for successful UCD for and with immigrants.

## **2 Related Work**

While sociologists have been investigating social integration and cultural differences of immigrants for a long time (e.g. [9, 13]), researchers in the domain of human-computer interaction focused mainly on comparing influences of different cultures (e.g. [5]) instead of targeting immigrants living “between” two cultures. In this section, we present related work from both perspectives. For the elicitation of cultural-specific user requirements Aykin et al. [1] recommended qualitative methods. However, when applying qualitative methods in the work with immigrants several issues arise, such as vulnerability and mistrust towards researchers. The immigration status is very relevant regarding vulnerability and the status may change. Mistrust towards researchers and their work is a general issue for immigrants. Building up trust can require more than application of anonymity, confidentiality, and the use of ethical

principles (e.g. by working voluntarily within a nongovernmental organization) [12]. For these reasons, it is necessary to maintain a flexible research approach [13]. A researcher is obliged to provide any information about the study, its purpose, and data handling to participants to give them the possibility and the power to decide whether to participate or not [14]. Bloch [3] found that asylum seekers were less willing to participate in research than refugees, due to anxieties about repercussions if their responses are given to the local authority. To better understand and reflect the results it is vital to know as much as possible about the study participants (e.g. language and literacy skills, cultural norms, etc.) [3].

Regarding concrete methods, self-completion questionnaires have the advantage of being relatively cheap to administer as well as more suitable than face-to-face interviews when sensitive questions are asked or the research itself is sensitive [6]. Face-to-face interviews might be viable to avoid a lacking of answers due to literacy skills [6]. Interviewers sharing ethnic background and mother tongue with the interviewed immigrants might be more successful with sensitive questions [7]. Talking in mother tongue can also avoid discomfort for the interviewees [4]. Frindte et al. [9] reported about a multi-generation case study in which interviews, surveys, and discussions were conducted in German, Turkish, or Arabic. Using bilingual Turkish-German and Arabic-German interviewers proved to be very effective and reduced the mistrust of the participants concerning the research.

### **3 Method Framework for User-Centered Design**

Based on the experiences from related work, we developed a method framework for involving immigrants. However, a big challenge for UCD with immigrants is to find and recruit real users matching the target group definition [1]. Another problem especially in the first phase of the requirement analysis is the establishment of trust between immigrants and researchers [12]. For this reason we collaborated with three nongovernmental organizations (NGOs) in Graz (Austria), London (UK) and Madrid (Spain) that are in frequent contact with immigrants and were responsible for the recruiting of all study participants. Being introduced to immigrants by co-workers of the NGOs is already a positive sign for certain trustfulness of for immigrants' unknown researchers. All study participants gave informed consent. In the following we describe how we involved end users and NGOs in the UCD process with the help of qualitative methods (see [1]). Applied methods are explained in chronological order whereas content related results are not reported since this is not scope of this paper.

#### **3.1 Barriers List**

As contact point for immigrants NGOs have extensive experiences with immigrants' everyday lives, accumulated over years. To learn from these experiences, in the first step of our UCD process co-workers of the NGOs created a list of common barriers for immigrants and related them to age, sex, level of education and length of stay. Lists of the three NGOs were merged and barriers prioritized by frequency of occurrence as basis for setting up the semi-structured interviews conducted subsequently.

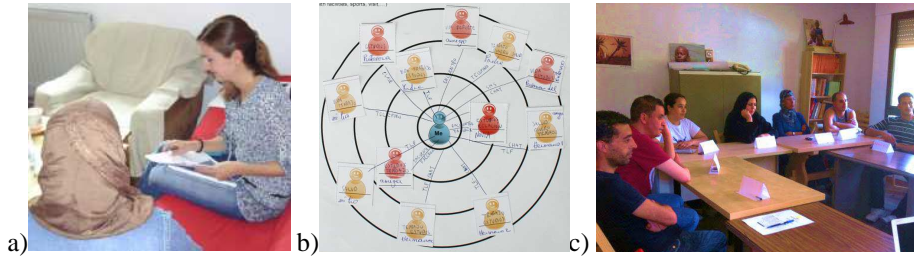
### 3.2 Semi-structured Interviews

By conducting semi-structured interviews, we aimed at gaining deeper insights about barriers and problems in everyday life. Apart from demographic questions, the interview consisted of three parts: (i) questions about social background and qualifications of the interviewees, (ii) motivation for emigration of home country and reasons influencing this decision, (iii) barriers in their personal lives, where they look for support, and whether they could think of mobile services for smartphones supporting them. Bilingual co-workers interviewed the immigrants in their mother tongue (compare [4] or [9]) in facilities of the NGOs, which were familiar to the participants. The interview protocol and the gathered answers have been translated from and to English. In total, 17 persons have been interviewed in Graz, London and Madrid (10 Arabic and 7 Turkish immigrants). Interviewers were allowed to adapt the order of questions and to dig deeper in some topics based on the tenor of the conversation. One part of the interview was the creation of a relationship map (modified of [15]) indicating communication behavior of participants to better understand the media usage for talking to important persons in home and host country (see Fig. 1a and b).

### 3.3 Focus Groups

Based on the identified barriers, the interview data and previous ideas of involved researchers various service scenarios have been developed. In order to get feedback on the scenarios and to create additional service ideas, we decided to conduct focus groups as they can reveal surprising insights when conversations take their own dynamic way [19]. In contrast to the interviews, we decided to include only immigrants who already lived more than three years in the host country and who know the host language well enough for actively taking part in discussion. We also invited a translator to each focus group to provide language support when necessary. The goal of the focus groups was to discuss service ideas by benefiting from immigrants' experience and retro perspective reflection on their problems. We discussed three service scenarios in four focus groups with overall 30 immigrants in the facilities of the NGOs (three with Arabic immigrants in Graz, London, Madrid and one with Turks in Graz). With respect to the research question, Skop [19] suggested keeping focus groups homogeneous along certain features, such as sex, age, social class, language, etc. Thus, we did not invite Arabic and Turkish immigrants for the same focus group and conducted two of four focus groups only with female immigrants and researchers.

After a short introduction round of researchers and immigrants, we described orally three common barriers out of the barriers list (e.g. needing immediate help in specific situations like filling out forms). After asking and discussing about similar experiences of their own life, we presented three illustrated service scenarios as solutions for the discussed problems by reading the according story aloud (e.g. a service for finding nearby volunteers). Following the presentations, participants estimated whether such a service might have been helpful and what might be improved (e.g. to protect privacy). The focus groups concluded with a general discussion about mobile ICT services as means of support for immigrants. Fig. 1c shows the Arabic focus group in Madrid.



**Fig. 1.** a) Interview situation with Turkish immigrant, b) Example of a relationship map created during an interview, c) Focus group with Arabic immigrants in Madrid.

### 3.4 Participatory Design Workshops

To cope with cultural differences in user interface design it is important to actively involve users because most of the existing design guidelines try to raise awareness for the issue but do not offer ready-made solutions [5], especially not for immigrants. For this reason, we conducted two participatory design workshops for co-designing [16] with immigrants and two Austrian designers in Graz and London. The goal was to identify and discuss potential differences in design and solution approaches with respect to the immigration background. We invited Turkish and Arabic immigrants who were sufficiently able to speak the language of the host country and lived there for at least three years. In Graz four Arabic speaking women and four Turkish women took part, while in London 8 participants from Arabic-speaking countries joined.

In order to loosen the atmosphere and to stimulate creativity we started both sessions with an introductory game called Trading Cards [10] replacing the usual introduction round. The tasks were (i) to create a personal trading card including name, self-portrait, nickname and special hobbies within 10 minutes, (ii) to present the trading card of another participant to the audience. Afterwards, two illustrated scenarios with additional written descriptions in the host language were distributed. Groups of two were formed to discuss and work on design ideas for the smartphone application “of their dreams” (compare [17]) for one of the two scenarios that each group could choose freely. Therefore, they received smartphone stencils as well as stickers, pencils, markers, etc. After 30 minutes each group presented the created design ideas in front of the whole group for earning feedback. Subsequently, each group of participants redesigned their ideas in additional 30 minutes and presented their final designs.

## 4 Discussion and Implications

We present implications of our studies by discussing our experiences with the methods coping with the different cultural backgrounds of researchers and target group.

**Collaborating with NGOs.** Working in tight connection with the NGOs was of crucial importance. They already had great implicit and explicit knowledge about barriers for immigrants and problems in their daily life. Another crucial aspect is the

trustworthy relation between NGOs' associates and the target group. Furthermore, communication in the immigrants' mother tongue - which is possible at most NGOs - allows avoiding misunderstandings and is an important factor for creating trust.

**Supporting recruiting process.** Recruiting participants according to several criteria is a challenging and time-consuming activity, especially for NGOs working with vulnerable groups like immigrants. Trust and motivation may differ widely within the target group. Some immigrants refuse to interact with foreigners in general, while others might not accept that they cannot take part in a study due to formal criteria (compare [13]). For this reason, we kept the number of exclusive characteristics low (see Introduction) although from a sociological point of view this might not be the most accurate way to e.g. provide statistically meaningful statements. Still, some recruited participants did not match all criteria (e.g. level of education).

**Benefiting from NGOs experiences.** Governmental institutions offer mainly statistical data about immigration problems. In contrast, the barriers list created by the NGOs provided a first authentic overview about everyday problems of immigrants. Such a list can be created with few resources and allows a first prioritization of problems to be addressed. A drawback of this approach lies in the choice of the involved NGOs as their co-workers might have a biased view on the problems of their clients. For better understanding concrete problems of immigrants, we originally intended to conduct cultural probing which has been applied successfully by other researchers (e.g. [18]), though with less vulnerable participants. In our case, the involved NGOs recommended to rely on methods that provide immediate answers as vulnerable groups such as short-term immigrants might have too many other problems than documenting their days. Following the recommendations of the NGOs we conducted semi-structured interviews with immigrants in their mother tongue instead.

**Interviewing in mother tongue and more implicit information.** Interviews allowed us to gain deeper insights into living circumstances and about potential service needs. Interviewing in the mother tongue of the immigrants created a pleasant atmosphere and allowed easy communication. Probably we would have missed interesting anecdotes when insisting on the host country language and creating discomfort for the interviewee [4]. A disadvantage of interviewing in the participants' mother tongue is the possibility of translation errors (see [13]), which might be increased by the variety of Arabic dialects. As the main goal of the interviews was to get an impression on living circumstances, vague elements in few translations did not distort the data momentarily. Nevertheless, to gather more implicit information about daily routines as input for service ideas methods like cultural probing would have been beneficial.

**Benefiting from reflections of long-term immigrants.** For a deeper analysis and discussion of service needs, we conducted focus groups with long-term immigrants. They had experienced most of the targeted problems themselves. Thus, they were better able to suggest solutions that could support short-term immigrants than the direct target group itself. Conducting focus groups in the host language and having a



translator for language support proved to be effective. Researchers could actively take part in discussions and when participants had problems with formulations the translator could support them. Nonverbal behavior could be observed directly by the researchers (e.g. emotions towards certain barriers or services).

**Taking gender issues into account.** Concerning gender composition, participants of the two female focus groups pointed out that it was important for them not having to talk to men. Thus, we recommend considering the sex of participants in the selection process for focus groups with immigrants of Turkey and Arabic-speaking countries.

**Fostering openness and creativity with playful methods.** In the participatory design workshops we experienced the “icebreaker” game Trading Cards working well. Participants got to know each other and the first barrier to talk to the group fell. The game would have been beneficial for the focus groups as well. Basing the discussion on illustrated scenarios facilitated communication between participants and researchers as they concretized the abstract service ideas. The workshops provided little impact on design ideas, but the interaction with immigrants in face-to-face situations was still valuable for the participating designers to understand how immigrants approach design. It might have been beneficial to set a clearer focus on the conceptual design instead of letting participants try to create concrete designs.

**Involving researchers with immigration background.** A special challenge of working with immigrants in their mother tongue is the translation of research protocols and gathered data. Co-workers of NGOs are not trained in conducting interviews and translating the answers. Thus, they might miss relevant details, and valuable information might get lost. The best solution could be to collaborate not only with NGOs but also with researchers and designers with immigration background or who are based in the countries of origin. This would be especially interesting to better deal with cultural issues in interface design.

## 5 Conclusion and Next Steps

To involve vulnerable groups like newly arrived immigrants in UCD is a challenging task. With the help of NGOs as trustworthy partners for immigrants and researchers, we successfully applied a number of methods for analyzing service and interface needs. A list of common barriers created by the NGOs and semi-structured interviews with immigrants supported the researchers to get an overall picture of common problems and to get an impression about living situations. Focus groups and participatory design workshops helped to shape and prioritize service ideas and to better understand design issues. Aim of this paper was to present our implications for other ICT projects involving immigrants in a UCD process. The next steps in the UCD process are the iterative interface design including several usability studies with immigrants and field trials to evaluate the final services. Apart from design challenges like designing Arabic user interfaces also methodological challenges such as investigating influences on usability testing and long-term involvement of immigrants need to be explored.

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