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Investigating the requirements for an e-service that provide relevant online information for newly arrived immigrants in Sweden

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Abstract

There is a huge need for information when you arrive as an immigrant in a new country. The purpose of the study is to find out recommendations for an information portal for newly arrived immigrants in Sweden.

First, a survey was conducted to the webmasters of relevant authorities online resources regarding their ways of considering the needs of immigrant users. The answers showed that the webmasters of the official websites showed interest in considering the needs of immigrants in their websites by including pages in different languages, but most of them considered this to be difficult, expensive and problematic.

To know more about a particular user group, a survey, interviews and observations have been done.

A survey to newly arrived immigrants showed that their ICT skills are comparable to the average of Swedish citizens. In spite of differences within the immigrant group, like age, gender and cultural factors, they also shared common characteristics. Most of the immigrants trusted Swedish websites and Swedish authorities websites as reliable information resources more than websites in their mother-tongue.

Test-persons were faced with the task of finding information about the possibility to borrow money for furniture for the first home in Sweden, our observations showed that very few of the test-persons managed to find their way to the correct authority webpage (Studiemedelsnämnden). Most test-persons tried by using many ways to search for the information, but all except two gave up. None of the test-persons managed to find the pages that were translated to their mother-tongue.

The study points out the need for a systematical approach to web information for newly arrived immigrants to help them with their integration process and benefit from Swedish e-government services. A central multilingual portal website should be the heart of this program.

This approach can be introduced in SFI schools given that all SFI schools are supplied with computers.

Keywords: e-government, immigrants, usability, PACT, trust, e-service, web-design, multi-lingual.

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1. INTRODUCTION

1.1 Immigrants in Sweden

The immigration to Sweden is one of the most discussed matters in Sweden, both politically and socially. As any other matter the immigration has its own pros and cons, for instance, many doctors, engineers, and other skilled professionals immigrate to Sweden and they constitute an active and positive addition to the Swedish workforce. On the other side, many immigrants face problems both in social life and working life. Integration is the term that is used in Sweden as the goal that the government and society work hard to achieve. There is a Ministry of integration (Invandrarverket) and many organizations and associations that deal with the process of integration. Integration may mean the union of small parts with the larger part or it can just mean learning the Swedish language and culture as a political party Sverige-demokraterna believes. Whatever the meaning of the word integration, the final goal of integration is that the immigrant can be an active and positive part of his/her new country (Sweden).

Many different policies and programs have been developed to achieve this goal. The most recent one is *the establishment program* (etableringsprogrammet) aiming at giving an introduction to newly arrived immigrants at the Swedish society in general. This program is implemented in the form of course for newly arrived immigrants of about 60 hours in total. The course comprises an introduction to the Swedish governmental system and gives also general information about Sweden, Swedish laws and life in Sweden. This initiative reflects the fact that most of the immigrants need to know more about Sweden, what they can do and not do and the available opportunities for work and study. Such information can be crucial to achieve a good start for a newly arrived immigrant, and there is no doubt that there is a huge difference between the governmental systems in for instance Somalia and Sweden. The immigrants also have the right to receive knowledge before making important decisions in the period after arrival.

As an example, when I moved to Sweden (as an immigrant) I was not supplied with any kind of information at all, and for the first three years I could not make any real plan of my next step after the introductory course in the Swedish language SFI (Svenska For Invandrare). By chance,

I met a friend who told me that I was able to apply for a master program that was taught in English at the university.

That day changed my life and later my wife also joined the same program, so the example can illustrate the importance of access to relevant information for immigrants.

My personal motivation for this thesis topic is that I know that there is a huge need for correct and relevant information during the first period as an immigrant in Sweden. Many important decisions have to be made, and it is crucial that these are not based on erroneous or misleading information. I have a firm belief that the situation can be much improved by creating a better match between the needs of the newly arrived immigrants and the internet resources provided by the Swedish authorities.

There is no doubt that Sweden is an advanced country in using ICT for e-government and have one of the best broadband Internet in the world. Because of that, investigating the requirements for an e-service that provide relevant online information for immigrants seemed to me like a good idea.

The two main stakeholders of such an e-service system will be first *the people responsible for the websites of relevant authorities* and secondly *the users of the system*, that is the newly arrived immigrants. Other important groups are the people that meet newly arrived immigrants in the daily life, such as officials of Arbetsförmedlingen and SFI schools.

It is also of interest to study the context in which the immigrants can learn about how to find information on the internet. Examples of such contexts are SFI schools and Establishment program schools.

1.2 Purpose of the thesis

The main purpose of this thesis is to find recommendations for improving internet information to newly arrived immigrants in Sweden.

To do this, it is necessary to understand the perspectives of the two main stakeholders, on the one hand, the information providers and, on the other hand, the users that are the newly arrived immigrants.

Thus we need to understand the stakeholders, and we need to investigate the different contexts where they will meet.

2. BACKGROUND

2.1 Newly arrived immigrants

People have immigrated to Sweden for hundreds of years and the sources and countries of these immigrations has varied over the years. Immigration has been a major source of population growth and cultural change throughout much of the history of Sweden. The economic, social, and political aspects of immigration have caused controversy regarding ethnicity, economic benefits, jobs for non-immigrants, settlement patterns, impact on upward social mobility, crime, and voting behavior. In 2011 1.37 million, which represent about 14% of the inhabitants in Sweden, were foreign-born. The most common countries of origin were Finland, Iraq, Polen, Yugoslavia, Iran, Bosnia-Hercegovina, Germany, Denmark, Turkey and Norway [8]. Currently, many immigrants come from Syria and Somalia, while a few years ago Iraq was the main source of immigrants. Thus many of the immigrants are from the Middle East. All of the newly arrived immigrants pass the same process of meetings with different authorities like the Migration Board (Migrationsverket) and the Employment Office (Arbetsformedlingen) and are then distributed to different municipalities. There they start both the establishment program and the SFI school with a hope to find a job (the results is not always encouraging). Several integration programs were applied with the two top goals: to find work and to learn the Swedish language.

2.2 Gender and internet

It is not uncommon to express an opinion that many female immigrants have a low level of education and thereby can not use the Internet. However, there are no Swedish studies that can verify that this is the case. A study from USA examined the general effect of gender on Internet usage [1]. This article examines whether there are differences in men's and women's use of Internet and whether any such gender gaps have changed in recent years. The author reviews data from the period between 1997 to 2001, and several methods of analysis were used. Gender, socioeconomics and demographics are the most important factors that can affect and control the use of internet. Three variables were used to describe internet use: first whether the individual use the internet at home, second the number of uses of Internet and third the frequency of internet usage. The results showed that the women used computers less than men in the mid 1990s, but this gap disappeared in 2000, but that women continue to be less frequent and less intense users of Internet.

2.3 The Arab spring

The term Arab spring is used to represent the revolutions in the last 3 years that happened in several Arab countries. Remarkably, all these revolutions had two things in common, most of them were peaceful revolutions, which is unusual in the Arab region, and the other thing was the use of social media as an engine and a leading means of communication in these revolutions. The Egyptian revolution is one of the clearest examples of this role of social media. Egyptians have been living under an Emergency Law (Law No. 162 of 1958) since 1967. This law sharply circumscribes any non-governmental political activity, street demonstrations and non-approved political organizations (no more than a few people have right to meet at the same time). But in this revolution, as a reaction to the killing of a young Egyptian man by a policeman, a Facebook

page called (We are all Khalid Said) launched by a young male activist gathered more than 1.670.000 Egyptians in just a few days. The people found the first free way to meet, discuss, plan and to organize themselves by using social media. It could be said that ICT and social media was an important key to the Arab Spring uprisings. Nearly 9 out of 10 Egyptians and Tunisians surveyed said that they were using Facebook to organize protests or spread awareness about protests [9]. This wide use of internet by most of the Arab countries that had a revolution surprised many of the researchers. First, for the historically new use of social media and secondly for the high number of internet and social media users in these countries. Many of the recently arrived immigrants at Sweden come from these countries, and that can give a clue to the immigrants ability in Internet usage.

3. THEORETICAL FRAMEWORK

3.1 User-centered system design and the PACT framework

To find out the requirements for an information portal for newly arrived immigrants it is important to understand the end-users. Such a system should be developed in a user-centered way.

User-centered system design means to put the user in focus during the development of an interactive system [3]. To achieve this focus on the user, The PACT framework can be a useful theoretical guidance . The term PACT refers to People, Activities, Context and Technology[3], the variety inherent in these four dimensions need to be understood to design a user-centered interactive system. The people dimension in the framework involves characterization of the people who are the users of the system.

The activity dimension in the framework involves *characterization of the activities* that the users will do when using the system. The characteristics of the activities contain a wide range starting from simple tasks to very complex tasks, because of this we must be very careful when considering the characteristics of the activities. The purpose of the activity is the first thing that the designer needs to focus on.

There are four main features of activities. Temporal features include how frequently activities are performed, if there is time pressure or frequent interruptions. Another time-related feature is the time response of the system, if it is fast or leading to lag in the interaction. Social features include how much of the tasks are carried out alone and how much is done in cooperation with others or combinations of these. Another feature is the complexity of the task. Some tasks can be well-defined, and others can only be vaguely described. An important feature is the degree to which activity is safety-critical. Whenever a mistake done by the users can cause injuries or accidents, designers must pay attention to preventive risk-reduction regardless to the size of this threat. It is also important to determine the data requirements of the activity, e. g. if the amount of the data includes just name and other basic information then we just need to use a keyboard while, in other activities, we need especially input devices. The type of data can determine the

type of required technology and the designer must take that in account .

The term context can be seen as the context surrounding an activity or can be seen as the feature that glues some activities together into a coherent whole. There are three types of context. The physical environment in which the activities take place, e. g. the effect of the sunlight on the ATM. The social environment in which the activity take place also plays a role, e. g. are there people forming a supportive environment that will help the user with problems, or if the user is confined to study help documents and manuals only. The organizational environment is also of interest when using the technologies in organizations as the system can alter the communication and the power structures in the organization.

Finally, the technology refers to the hardware and software of the interactive system. The interactive system deals with data and information that is stored, displayed and transformed between input and output. These systems engage both the interaction done by the user and the physical devices. The designer of an interactive system must pay attention to the technological input devices as they determine how people can enter data. Output devices are the technologies used to display the data on screens or as sounds, pictures, video or light signals. Another relevant aspect of the technology is the mobility of the device.

The theoretical framework of PACT will be used in this thesis to ensure a systematic description of the characteristics of newly arrived immigrants as users of ICT. The dimensions of people, activities, context and technology, will be used to guide the collection of information about the user group that is relevant to the design of a directed support-system.

3.2 Contextual inquiry

Basically, the contextual inquiry contains several techniques that help to understand and characterize the user. The main idea is to interview and observe the user in his workplace to collect information about the daily activities. Contextual inquiry was first referenced as a phenomenological research method [Holtzblatt] which laid out much of the justifications for using qualitative research methods in user-centered system design. The method is used to get detailed data about the users view of the system. The method comprises a combination of interviews and observations of how users perform their tasks, often conducted in the natural environment and context of the target user group. Contextual inquiries are designed to understand the specific needs of a user group and also to identify opportunities. The method offers some advantages over other common methods, the open-ended nature of the interaction makes it possible to reveal knowledge about their own processes that users themselves are not consciously aware of. The information produced by contextual inquiry is generally highly reliable. Contextual inquiry is very flexible technique, and it has been conducted in homes, offices, operating theaters, automobiles, factory floors, construction sites, maintenance tunnels, and chip fabrication labs, and many other places. Some of the specific techniques used in contextual inquiry are partnership, interpretation, focus and diversity. Partnership refers to that both the analyst and the user are regarded as experts in their work; the analyst observes the user during his work while the user contributes his knowledge about how the work is done. In addition to observation and interviews the analyst must able to make interpretations of the data of the workplace to properly understand the context. The analyst must maintain focus in concrete

data; he will gain details but lose many other aspects. General observation may be more suitable for the first observation. If the system under study needs to support a diverse group of users, it is essential that the selected informants reflect the diversity of the organization.

4. RESEARCH QUESTIONS

The main research question in this thesis can thus be formulated: what are the user-requirements for an efficient web-based information site for newly arrived immigrants in Sweden?

To answer this question, two sub-questions have to be answered.

Question 1; how can the currently available internet information sources be characterized?

Question 2; how can the newly arrived immigrants be characterized as an ICT user group?

5. METHODOLOGY

To answer the three questions in this thesis, a user-centered approach and the methodology of contextual inquiry in combination with surveys was used. The choice of methods will be motivated below.

Question 1; how can the available internet information sources be characterized? To answer the first question preparation was made by investigating websites of Swedish authorities. The purpose of this was to find out what information sites are available on the internet that can be of relevance for newly arrived immigrants. 74 such websites were found. (see list in Appendix 1) The survey was distributed to the webmasters of these 74 websites. The purpose was to find out what policies the information providers use. The survey asked questions about how the websites were adopted to the needs of newly arrived immigrants, how they used different languages and how they viewed the future development of their service in this regard. 24 of 74 Sweden authorities websites participated in this survey.

Question 2; how can the newly arrived immigrants be characterized as an ICT user group? To answer the second question, it was necessary to make some preparations before approaching the target user group. This was made by interviews with governmental officials who have long experience of working with immigrants. From these preparatory interviews, I found out about current routines for newly arrived immigrants and decided that the language training sessions organized by SFI (Swedish training for immigrants) would be a suitable setting to contact the user group. After making contact and building trust with SFI study groups, a survey was distributed to the participants. The purpose was to find out about the background of internet experiences, interest fields and language preferences of the newly arrived immigrants. After the survey, the informants in the language training groups took part in a user study to find out how

they actually use the information on the Internet. The purpose was to find out how newly arrived immigrants use the internet today to find information they need. A set of test tasks were constructed, and the users were observed as they performed the test tasks.

To answer the main research question we need to analyse the currently available information in the light of the needs of the users. We then need to formulate requirements and recommendations for how an information site should be designed in order to be an efficient support for the newly arrived immigrants.

6. STUDY 1: CHARACTERIZING AUTHORITY WEBSITES RELEVANT TO NEWLY ARRIVED IMMIGRANTS

6.1 Finding relevant information sites.

The first study was focused on the available online resources that are related to immigrants and integration. These resources are, mostly, the websites of official authorities that work and deal with different sectors and provide both information and online services for the Swedish people. Most of these websites devoted parts of its contents and pages to deal with the resident immigrants in Sweden or even Swedish people with difficult to read and understand the standard Swedish language. With the purpose to find out about what official information sites that are available on the Internet relevant to newly arrived immigrants, a list of websites was prepared. I searched the Internet and found a website which links to all these websites.

(<http://www.internetstart.se/myndigheter.asp>). By studying the websites on this list I noted the number of languages used in each website and if they included Swedish, English or any other language. The number of languages does not reflect the type or size of this service, for example, a website with 10 languages may have translated only 10 pages (one page per each language) or just 10 pdf-files, while another website with just English as alternative language can provide more than 100 translated pages. Another thing which I analyzed in each website was the use of Google translate (machine translation) or if they use human translation.

The results of this investigation of the websites of authorities showed that the total number of relevant authorities websites was 74. The number of the authorities websites that only used the

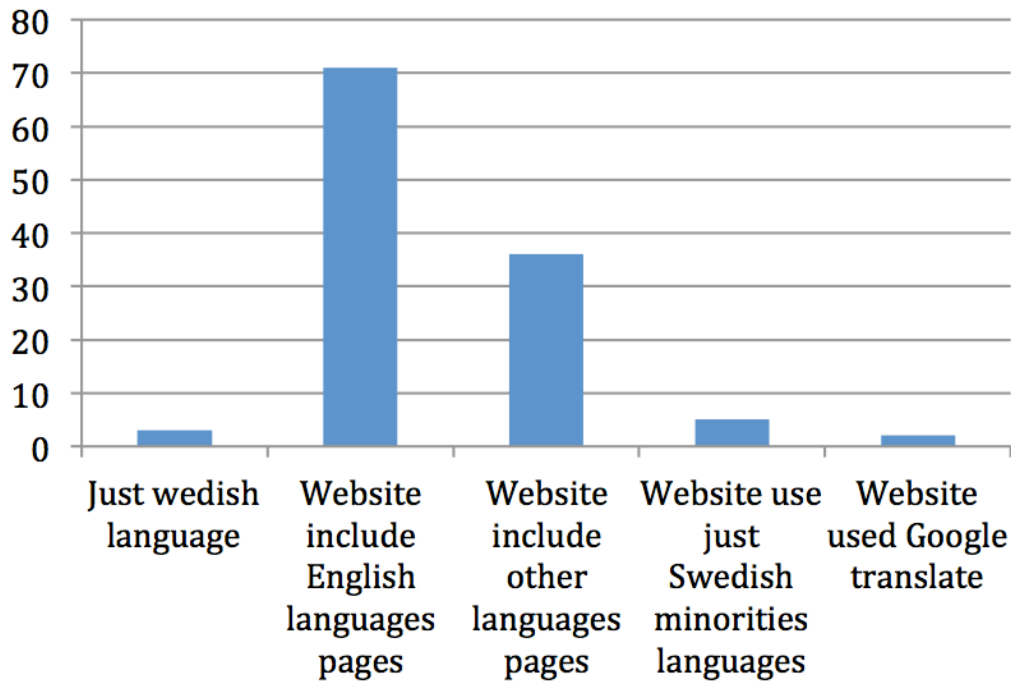


Figure 6.1: Information websites of different authorities relevant to newly arrived immigrants. Use of different languages on the websites.

Swedish language was 4%. The number of the authorities websites that included English language as an alternative was 97%. The number of websites that use Google translator was 3%. The number of the authorities websites that used just Swedish national minority languages as other languages were 7%. The employment agency (Arbetsformedlingen) provided the maximum number of languages. Most of these websites provide English as an alternative language (97%), and half (49%) provide other languages. Most of these websites use human translation rather than machine translation (Google translate). Figure 6.1 illustrate the results.

6.2 Finding out the information providers view.

The purpose of the next step was to find out what policies the information providers use regarding their webpages with regards to languages used and adoption to the needs of immigrants. The method used for this part of the study is a questionnaire survey that was distributed to the Swedish authorities that provide Internet information relevant to newly arrived immigrants. A survey questionnaire was prepared and can be found in Appendix 2. The webmasters of 71 Swedish authority websites were contacted by mail (the other three authorities did not consider the newly arrival immigrants in their websites).

I have faced some problems to find and contact the right person. The contact ways to these websites are different; some of them provide a direct email address, other use a specific form of contact which require more than one navigation and email to get the answers and in some cases I was referred to another contact address or I have got an answer stating that the contact person is

on leave and will not be back until after a month. The real challenge was to keep track of all these different emails and reply efficiently. Finally, 24 out of the 71 Swedish authorities answered the 14 questions in the survey. More than 40% of the respondents, 15/24, provided service in other languages. However, 4%, 9/24 websites used only English as an alternative language. Most of these websites also used *Easy to Read* Swedish to facilitate the use of their websites by people with Swedish language problems. Note: most of these website use sign language as an option. This language can be considered as an international language and is used by people with hearing problems; however, I did not include this language in other languages. I have divided the results into two groups according to the use of just English or other language options.

Age of the website - The questions 1 and 2 regarded the launch date of the website and when they started to consider the needs of immigrants in their websites. The result shows that the interest in other language services has increased in the last five years. Most of the new websites have other languages from the start. Older websites started out in Swedish only, then added English in 1-2 years, and then after 8-10 years added other languages. The old websites adopted English as other language service, but more recently launched websites offer multi-language service right from the start.

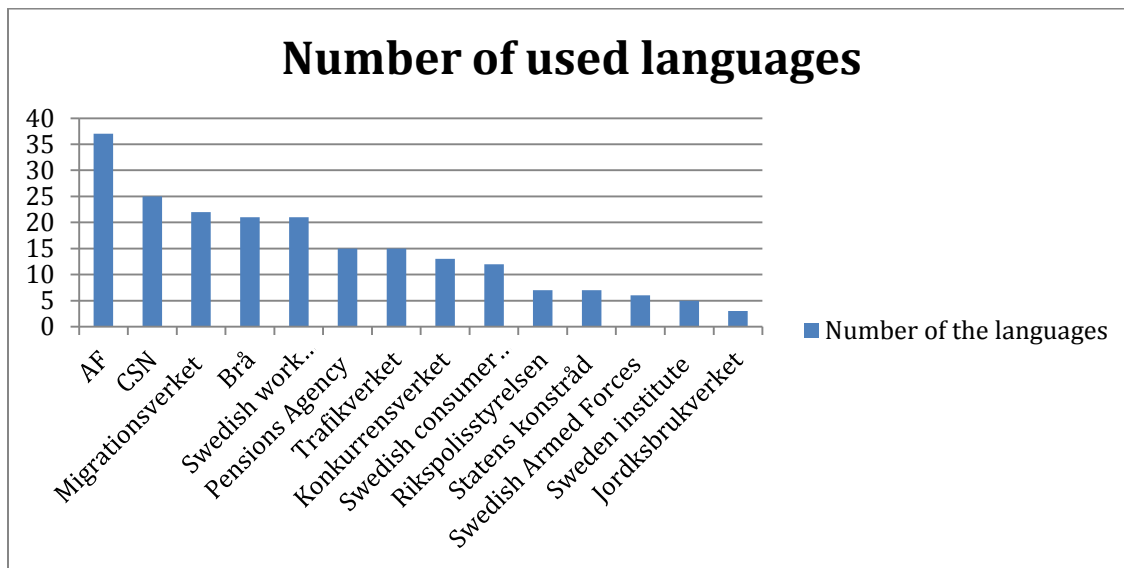


Figure 6.2: Information websites of different authorities relevant to newly arrived immigrants. Number of used languages for each website.

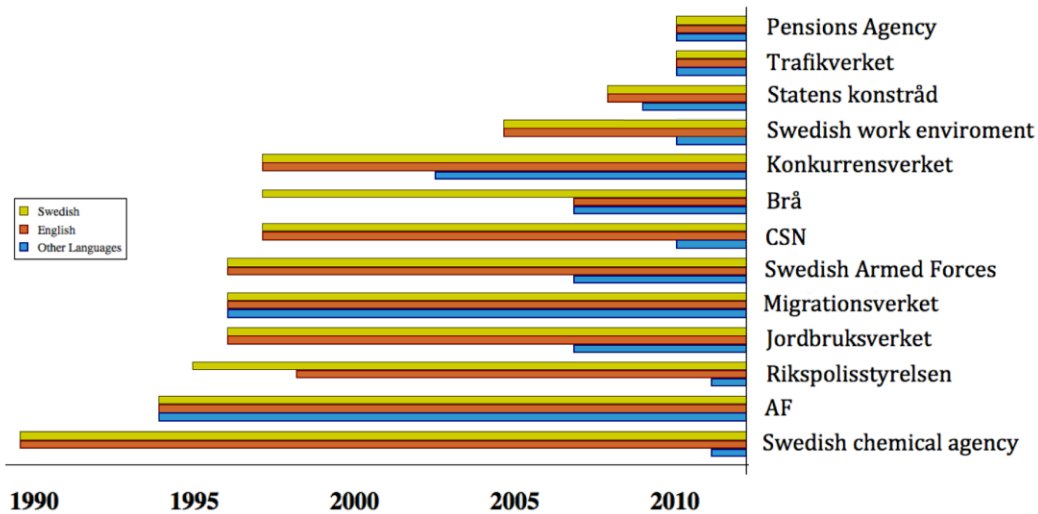


Figure 6.3: Information websites of different authorities relevant to newly arrived immigrants. The year of including Swedish, English and other languages in the website.

Method used for translation. - Questions 3 and 4 were about the methods they choose to use for the purpose of translation. Figure 6.4 illustrates the methods used to consider the users with other languages. Human translation was used by 15/15 websites. That means that a piece of text, is translated, by a human, to another language. Easy-to-read Swedish was used by 11/15 websites; that mean, some pieces of the text have been reworked and summarized by a human and rewritten into a simpler language. PDF files were used by 5/15; this means that the website itself is not translated rather there are links to static PDF documents in different languages. One disadvantage of this method is that the text sometimes cannot be searched by search engines. Google translate was used by 1/15. In this method, a piece of text is automatically translated by using software to another language. It is easy to use, but most of the websites administrators did not use it because of accuracy problems on the translation result. Note: The National Public Art Council of Sweden (Statens Konstråd) website, used Google translator for about one year then stopped using it and transferred entirely to the use of human translation. One informant used Google translator in combination with human translation. All of these websites used the same method of translation with all languages (human translation). 5 authorities used pdf-files (some of them used only pdf-files while others combined this with the use of standard translated web pages).

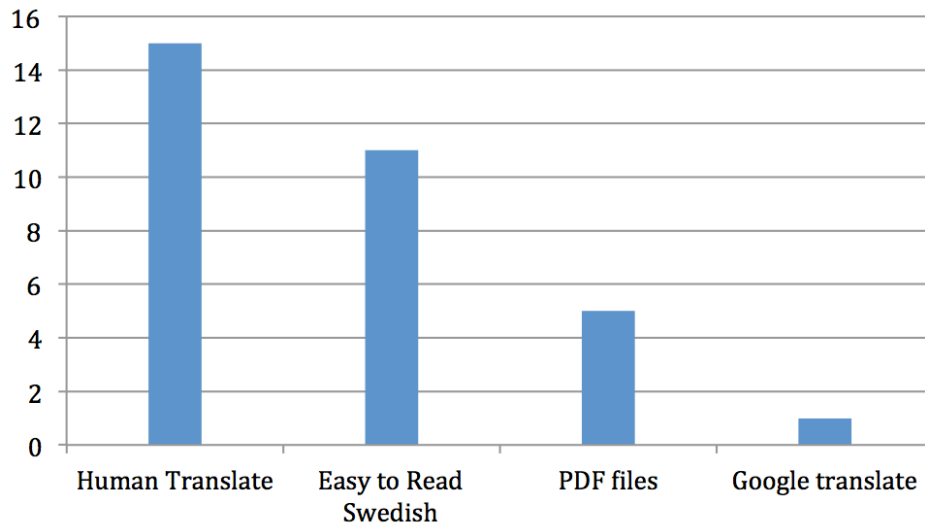


Figure 6.4: Information websites of different authorities relevant to newly arrived immigrants. Methods used to consider users with other languages.

In question 5, it was asked about the *criteria for including different languages*, how and why they selected the alternative languages to use. The criteria of choosing the language to be included in other languages list according to the answers were taken from The Swedish Language Act (2009:600) that refers to Swedish, minorities, sign and immigrants languages without specification. Some used migration statistics, some were benchmarking other authorities and came up with a selection of languages. English was generally included as being the most spoken language. The websites defined their target user group through former data gathered by the authorities or archived information by about their audience. They also considered the incoming contacts to the authority or the website (email, phone calls), or even through direct contact. The analysis of such information provided a good view about the users and groups that mostly need to communicate in their own languages. Sometimes the authority or the website had an interest in attracting a particular target group, e. g. the Swedish Board of Agriculture (Jordbruksverket) wanted to attract German tourists. In some especially websites that deal with professional users languages were selected based on the target groups of the website. E. g. the Swedish institute which provide much information in languages such as English, French and German. Some selected languages that helped with professional international contacts that the authority has with other countries. Academic websites mostly use English as an alternative language, rather than Swedish minority languages or languages of the newly arrived immigrants. Some explained that the number of languages provided was the minimum number requirement at the time, but also by the need to inform target groups about especially cases related to this group.

How large part of the information is translated? - Questions 6 and 7 related to the amount of the translated parts and the criteria used for this purpose. The result of this question was almost the same from the all of the respondents. The answers illustrated that the parts of the website translated to English was larger than the parts translated to other languages. An exception was the Swedish Work Environment Agency (Arbetsmiljöverket), which had identical information for all languages. The parts translated to English could cover most of the original Swedish website but sometimes it covered only the core pages of the website. E. g. the Swedish

Competition Authority (Konkurrensverket) translated about 60% of their Swedish pages to English and the Swedish Armed Forces (Forsvarsmakten) translated about 25% of their web pages. The parts of the website translated to other languages covered in most of the cases just a limited part of the original Swedish pages or even the pages translated to English. E. g. at the website of Swedish Transport Administration (Trafikverket) the total number of pages is 1200; 100 pages are translated to English and the number of pages translated to other languages is only 4. The respondents were asked about the most important criteria for choosing which parts of the website to translate. All respondents answered that first of all they translated facts about the authority and information about the services provided. Also, all of them translated information about, how the users can contact the websites or the authority, or how the users can get more help. Another Criterion was to translate the most important information that the citizens needs, and that is relevant to the target group of the website. Information of international interest is translated to English, whereas more local information is translated to other languages. E. g. Swedish Transport Administration (Trafikverket) uses English for information directed to international users such as the tourists who want to visit Sweden. They use other languages to provide information on how to get a driver's license, as this is directed to users who live in Sweden, and have problems with the Swedish Language. Another Criterion used was that a user group has especially information needs. E. g. the Somali group needs information about something related to the group itself.

Are the parts selected for translation the same for different languages? - Question 8 was about the information in different languages, are they identical? Only one respondent answered that the pages translated to different languages had identical content. Most answered was that the pages translated to English contained more content compared to the pages translated to other languages. Some responded that there also was a variation in content between different non-English languages. Figure 6.5 illustrates the variety of the information with related to the languages.

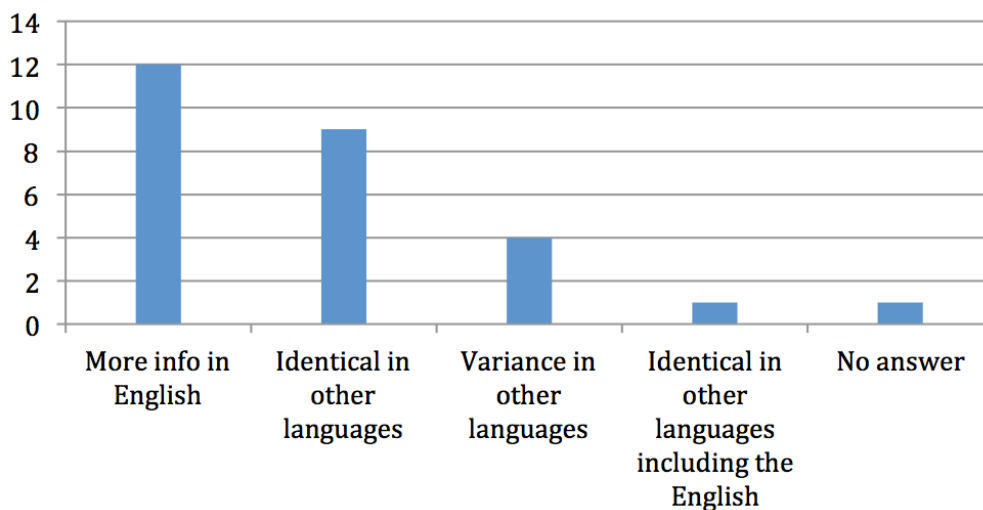


Figure 6.5: Information websites of different authorities relevant to newly arrived immigrants. Relation of information content in different languages.

Involvement of the end users - Questions 9 and 10 were about the involvement of the end user (immigrant) in any of the design steps and if they did any usability test with this target group. They had initially produced information designed in the same way for all nationalities. An exception was the Swedish Institute (Svenska Institutet) with a specially built Chinese and an Arabic version of the website for Sweden. Of the respondents, only 3/15 answered that they had involved users with other languages in the design process. Only 4/15 answered that they had involved users in evaluation or user tests of the multilingual website. General problems with the multi-lingual services.

Question 11 was about the problems of using the ICT from the experts view. The respondents were questioned about the problems that might face users of the multilingual websites. Only 3/15 answered that there were no problems. Problems mentioned by others were technical problems with languages, especially different alphabets and right-handed layout, e.g. Arabic and Farsi. There were also difficulties to publish content in a language that you do not understand. It is difficult to have control over the information because they can not be totally sure that the translation is correct (translation accuracy) and they publish pages that they did not understand the meaning of. Some pointed out the need for end user opinions, as they did not do usability tests. It was also difficult to translate Swedish terms that have no corresponding word in another language. Financial problems were mentioned, providing a multi-language service require the cooperation with external companies or translators, the cost can be very high with many languages and much information, especially when continuous updates are needed. It can also be very difficult to find competent translators. Keeping the website updated posed a particular problem. If you have, for example, a website with 20 languages then any change in the source information require changes in all relevant pages in other languages.

The information providers view of the target group. - Question 12 was about the information providers view on the target group as users. Most, 8/15 of the respondents viewed the target user group as ordinary users. Others considered their target group to vary in the level of knowledge. Note: the Swedish Institute (Svenska institutet) did not answer this question. Figure 6.6 illustrates the result of the answers.

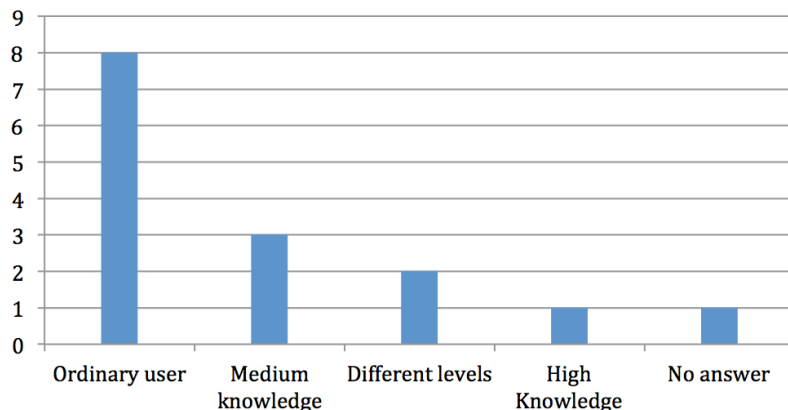


Figure 6.6: Information websites of different authorities relevant to newly arrived immigrants. The presumed educational level of the target user group as seen from the developers point of view.

Switching language when linking to external websites. - Question 13 was about the using of external links. Many websites used links to external pages to explain or provide further information, but when using other languages, for instance Arabic, the use of an external link that leads to a Swedish web page can decrease the efficiency of the service if the user cannot or can with difficulty read the Swedish language.

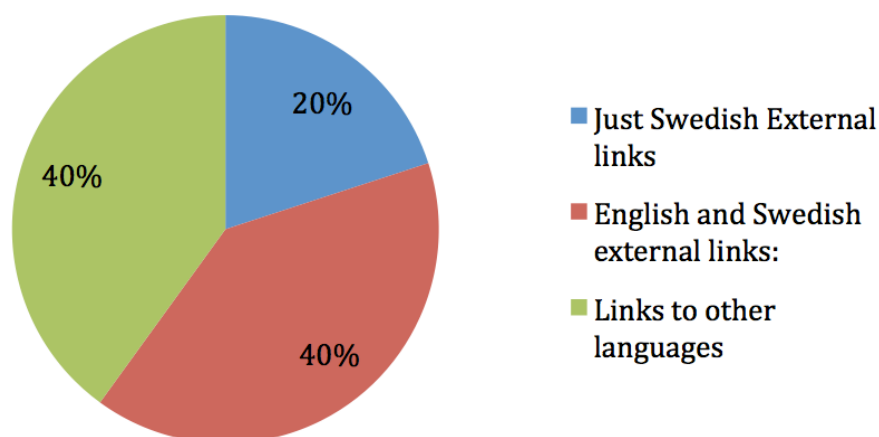


Figure 6.7: Information websites of different authorities relevant to newly arrived immigrants. Types of external links used in multilingual websites.

We asked the respondents about the *language used in the destination pages*. 20% answered that they linked only to external pages in Swedish, while 40% linked to Swedish and English pages. 40% linked to the pages also including other languages.

Quality of the translation from Swedish to other languages. - Question 14 was about the adequacy of the introduced other language. Most of the answers, 14/15, of this question were yes. That means all these authorities were satisfied with the quality of their multilingual services. Only the Swedish National Council for Crime Prevention (Brottsforebyggande radet) and the Swedish Armed Forces (Forsvarsmakten) were not satisfied with the quality of their translated services.

Question 15 was a *summary of the service*. Webpages that only translates to English. - The above results were for the websites that used other languages than Swedish and English in their pages. For comparison, we can look at a few questions for the websites that only used English as an alternative language. Regarding the method of translation all answered that they used human translation, and none used pdf-files or machine translation. Many more answered that the knowledge level of their target group was high. So the English speaking user group was generally considered to be more knowledgeable than the other languages group. 14/15 answered that they used translation from other languages to Swedish.

7. STUDY 2: CHARACTERIZING NEWLY ARRIVED IMMIGRANTS AS USERS OF ICT

7.1 Preparatory interviews with experienced government officials.

The purpose of the first series of interviews was to find out what experienced government officials have to say about the immigrants as a user group and the needs of this group. The two informants were people with long experience in working with newly arrived immigrants in Tierp. One was case handler at the Employment Service (Arbetsformedlingen) in Tierp. One was case handler at the Refugee Admission Center (Flyktingmottagningen) in Tierp. The questions asked were about the new integration program for immigrants to Sweden and how it is practically applied in Tierp municipality. The informants talked about the target group of the integration program: all the newly arrived immigrants who have got residence permission as refugees or who need protection for themselves and their families. The program aims at immigrants between 20 to 65 years of age. The immigrants younger than 20 or over 65 can get help from the municipality in other ways (but are excluded from the integration program). But, all the asylum seekers, who maybe wait for a decision about their case for months or sometimes more than a year and the foreign guest students and the immigrants who have got a residence for work purpose with their families are also excluded from this program. The purpose of the program is to facilitate the establishment of the new immigrants in the working life and the Sweden society. The municipality is responsible for the implementation of this plan, and most of the time they buy this service from an organization or a company. The current procedure for every new immigrant (Tierp as an example) starts after the immigrant have received a residence permit. The case handler at the immigration office then studies his/her qualifications and the immigrant will be recommended to move to one or more suggested municipality. If the immigrant answer positively, the case handler at the Immigration Office contact the immigration case handler in this municipality and tell them that a new family or person will be moving in. The immigration case handler will be responsible for finding a residence to the immigrant and will help them get an apartment contract, provide information about the city and arrange an appointment with an employment agency. If the immigrant prefers to move to another municipality than the one suggested, he/she will be responsible for finding a new apartment by themselves. This can be very difficult and as a result of that they may be hindered from starting the integration program. The Employment Agency (Arbetsformedlingen) is responsible for every activity in the establishment plan. This plan includes language training (SFI) and about 60 hours of lectures in Orientation of the Swedish Society and Culture (Samhallsorientering). The course in orientation of the Swedish society and culture contains the following parts: Getting to Sweden, Living in Sweden, To earn a living in Sweden, The individual's rights and obligations, To start a family and live with children in Sweden, To influence in Sweden, To take care of your health in Sweden and aging in Sweden. The most interesting part of this course is the possibility to learn with the native language of the individual which can help the new immigrants to get the information rapidly with a better understanding. The use of their native language also encourage them to ask questions and establish a discussion (good interaction). In this course (in Tierp), the students are divided into different groups according to their native language. There is one teacher who talks in Swedish and different translators for each group. The student groups include students with

different backgrounds and different levels of education, but they all get the same information at the same time and in the same way. The informants emphasized the short time for the course, and that it is difficult to fit everything in ten weeks. The general opinion was that ten weeks are not enough for this activity. The informants wished that they had time to adapt the teaching to individual needs of the immigrants. Currently the establishment plan in Tierp include Swedish Language Learning (SFI), Orientation of the Swedish Society (Samhallsorientering), meetings with a personal guide (LOTS) and an individual plan for the immigrant. The LOTS program means that every immigrant have the right to go to regular meetings with an especially case handler, who works as an information provider, to ask questions within a time period of 2 years. The cost of the society orientation program and other integration programs are substantial. There is no use of ICT at all in this program. The case handler at the Employment Office (Arbetsformedlingen) wondered if there are anyone at all of the new immigrants who can use a computer or the Internet. From the interviews with the case handlers, we can conclude that it is important for the immigrants to be able to get information in their native language. It helps with learning, gives a deep understanding and reduces the learning time. The interaction in the groups (discussions, questions and answers) is crucial in this activity. Another interesting observation is that a large part of immigrants are excluded from this program. These people should probably benefit from support by accessible information in official websites. The different background and different levels of education of the immigrants indicate that the users should be included in the design of information sites for this group. The common perception was that the immigrants do not have the necessary skills or abilities to use ICT. One other thing that can be concluded is that the characteristics of the immigrants in any municipality is the same as they follow the same procedure in the integration process. This means that a randomly selected group from students in Swedish Language Learning (SFI) or Orientation of the Swedish Society (Samhallsorientering) can be a representative sample and that the findings probably can be generalized. It is noteworthy that ICT is not used at all in the integration process. It seems that to include the use of ICT systematically in the integration program potentially should decrease the cost, reduce the time and efforts needed and extend the individual ability of getting useful information according to the needs of each of them.

7.2 Preparatory interviews with experienced Swedish language teachers (SFI)

The purpose of these interviews was to find out what experienced Swedish language teachers have to say about the immigrants as a user group and the needs of this group. The two informants were both teachers with long experience in working with newly arrived immigrants in Uppsala and Tierp. The teacher in Tierp worked for the Tierp municipality. The teacher in Uppsala worked for an education company, Lernia. The questions asked were about the implementation of the Swedish language courses and the use of ICT in these courses. The informants both believed that most of the newly arrived immigrants (NAI) had ICT skills and could use a computer. The SFI school in Tierp had a computer room but the SFI students did not have permission to use it for education or to search information. The SFI teachers sometimes used the computer to communicate with students on the C-level, which is the highest level of SFI, and to send out assignments to the students of the ground level. This worked without any problems. Previously, to give information about the Swedish society was included as part of the SFI course. According to new governmental instructions, information about the Swedish society is no longer dealt with in SFI schools. Now, they just learn the Swedish language in school as the SFI is just

for Swedish and not for anything else. The informants were not particularly happy about this as SFI students may stay in an SFI class for several years which means that it is a great chance to learn about Sweden and Swedish society. They now miss this chance because the course is exclusively devoted to language learning. The Lernia SFI school in Uppsala has a computer room and the students used the computer at a minimum of 3 hours every week. The students who initially did not have computer skills acquired such quickly when the help of others during the weekly use of the schools computer or at home. The Uppsala teacher believed that the age is the most important factor; the young people know or learn very quickly while the older students require more time. The use of ICT in the Uppsala school is just for Swedish language learning (no other use) and the teachers do not allow the students to browse with their own mother languages. We can conclude that some of the SFI schools use computers to help learning the Swedish language but also that there is no systematic use of ICT as a means to help the immigrants to get information about their new country or to do some tasks related to their daily life in Sweden. We can conclude that most of the immigrants have the ability to use the computers and that the age is a more important factor than both background computer knowledge and basic computer training. Using of ICT with Swedish language learning is common. The informants considered the time spent in SFI class to be an opportunity for directing the immigrants to use ICT for integration purposes. Thus, the students of the SFI schools seem to be the most appropriate accessible group through which we can select our representative sample of the target group, the newly arrived immigrants in Sweden.

7.3 Contextual interviews with newly arrived immigrants

The informants were newly arrived immigrants who were students in Society Orientation Class (Samhallsorientering) in Tierp (2) and Swedish Language Learning classes (SFI) in Uppsala (10). The interviews followed the principles of contextual inquiry and were undertaken at place during classes. The purpose of these interviews was to find out about the first-hand experience of newly arrived immigrants. The questions asked were about what type of information they need, how they search information and if and how they are using ICT for this purpose. Initially, the students were generally suspicious, and they thought they were in a test situation and worried that the information they provided could be used against them. In order to acquire their trust, several visits to the classes were necessary to establish communication with the students and to build trust. Repeatedly, I gave information about the purpose of the study and explained also my own experience as an immigrant and former SFI student.

In Tierp school the society orientation learning context can be described as follows; the Swedish teacher stands up and read from a Swedish course book while all the students (8 from Somalia and two from Romania) read the corresponding information from a course book in their native language. There are also two translators present. These can help by interpretation and explanation or discussion and they often talk at the same time which can make the environment quite noisy. There was limited interaction between teachers and students (contrary to how it is supposed to be). The main reason was the limitation of lecture time, and the teachers struggled to fit the curriculum content within the available lecture time. The students, (as the teachers) considered the course period to be very short, and that the difference in the students educational background was never considered by the teachers. In spite of all the above, the students were happy to get a teaching in their own language. They did not use the computers at all in the study

center in Tierp. On a personal level, both of the Tierp students used the computer and Internet regularly, to get information about Sweden and in their new daily life. They had searched information about Sweden through Internet before they arrived. In doing so, they used a website in their native language to get information about Sweden before they arrived. An example of such a site is somaliska.com. This website is administrated by Somali persons living in Sweden and addressed to the Somali minority in Sweden. The website provides their audience with information about Sweden, daily life in Sweden and about the activities of the Somali community in Sweden. After their arrival in Sweden, the informants continued to use this website when they needed information. They believed that the information provided by these unofficial websites (such as Somaliska.com) were not sufficient, not accurate and sometimes outdated. Aware of this, they still used them because they can provide them with essential information about their new country in their own language. These unofficial websites can provide the immigrants with information that is difficult to find in official Swedish websites. But they can also provide information that is not given at all in official websites, for instance, how they can migrate to Sweden even in illegal ways. The informants had also searched information in English; these searches had sometimes led them to websites of Swedish authorities such as the Migration Board (Migrationsverket). The informants never found information in their native language in the official Swedish websites. When asked, they did not even expect that such information existed (although there is actually good information in many immigrant languages in the official websites). Most of the students in the SFI class in Uppsala could already use computers before they arrived in Sweden. Elderly participants (2) learned to use the computer in Sweden, and they thought it would be better if the school organized a basic computer course for those who have difficulties in using a computer.

According to the answers we can classify the websites used by participants in Sweden in three types: Swedish websites using Swedish language (official or unofficial) - most of the informants thought that these websites provided trusted and up-to-date information, however, due to language problems they were difficult to browse, because of that they did not use them often as a source of information. They would, however, sometimes use such websites for learning the Swedish language. Swedish websites with service in other languages- most of the official Swedish websites provide their users with information in several languages, but the quality and quantity of this service vary greatly. Most of the participants answered that they never had used them (unexpected answer), and about 70 percent did not know that they existed, but all of them answered that they would trust such websites as a source of information because they are official websites. Websites in native languages that are administrated by individuals or communities with a foreign background: - many such websites exist in Sweden, most of these websites were run by non-profit organizations and the staff work as unpaid volunteers.

According to the participants answers we can infer two contradictory things: Most of the participants do not really trust the information provided by the websites in their native language. Therefore, when they pick up some information they will check it with some other trusted source, maybe the SFI-teacher, to be sure it is true. Some of the answers about why they do not trust these websites were: most of the administrators or the staff of these websites are unknown and (because of their foreign background) they do not really understand the Swedish society or laws, or these websites seem to be worked without accountability, especially, about the accuracy of the information, or the information maybe not updated, the translation (as they suppose to

translate from a Swedish source) may not be accurate, this adds up to the fact that the websites may provide inadequate information about Sweden. In spite of the above, they respondents often browsed these websites and used it as an information source. As explanations of why they browse websites they do not trust they mentioned: information in their own language, but also interesting news related to the minority community in Sweden. This type of information cannot be found in any Swedish web source. For instance, ways to migrate to Sweden (some of this information could be considered illegal), such websites were the main information sources for the immigrants before they moved to Sweden. The answers about how they overcome the language problem in browsing Swedish websites (as most of them do not use other languages services) most of them answered that they use Google translate for words and shorter pieces of text and that they use Google translator web service to translate whole pages. The answers about Google translator or web service were: Google translate is very useful, more accurate with words than sentences, but there are problems with grammar especially with certain languages such as Arabic while it is good with others such as Swedish, sometime the summary of paragraph translation is not understandable, and it is good for general use but not suitable for official use (some municipalities use it in their websites). One interesting answer from a young man about how they get information in Sweden associated with his needs of general information was that when he has a question he always visits the social insurance case handler (Forsakringkassan) even if the question does not relate to an insurance matter and ask his question. He can then ask his question using English language, because there is an employee in the office who can speak English. If the answer is related to the social insurance office (Forsakringkassan), he will get an answer directly, if it is not, he will get an answer about what he must do or where he must go. The informant was very satisfied with this solution.

7.4 Characterizing the user group: ICT skills and Internet habits

The method used for this part of the investigation was a questionnaire survey that was distributed to 69 newly arrived immigrants. The participants were SFI students at ABF Tierp (32) and at Lernia Uppsala (39). The students were from different levels of SFI-training. The SFI students in Tierp did not use the computer in the school in their learning courses while in Uppsala they used the computer minimum 3 hours every week mainly for e-learning training for Swedish languages. The purpose of the survey was to find out about the background of Internet experiences, interest fields and language preferences of the newly arrived immigrants.

A problem faced in this survey was how to convince the students to answer all the questions. As immigrants, they were cautious about answering personal questions for several reasons. Because of this they were not asked to reveal their identity. I am aware that this somewhat limits the quality of the study. I also spent 2 hours before the survey was handed out to general conversation to gain trust.

The result of the survey showed that the 69 informants were from 23 different countries. The native languages of the informant NIAs (of 23 countries) were many; Somali 15, Kurdish 11, Arabic 9, Thai 6. 3 each of Romani and Turkish, 2 each of Tigrinia, Tigrigana, Bengali, Persian, Kenyan, one each of Bosnic, Chinese, French, Lithuania, Serbia, Tagalong, Chechen, Polish, Spanish, Oroma, Afghanistani and Ugandan.

As can be seen from figure 7.1, there is not much difference between skills in computer use and skills in Internet use. If they can use a computer, they can also use the Internet. About 94% of the NIAs had ICT-skills at the time of the survey (Tierp 88%, Uppsala 100%). About 61% already had this skill before coming to

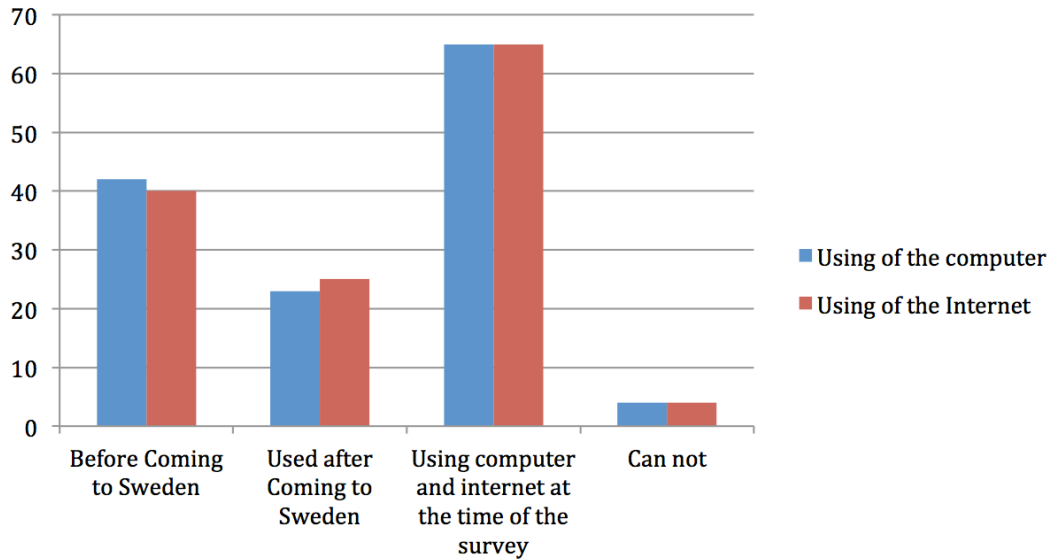


Figure 7.1: Newly arrived immigrants in Sweden: Computer and Internet skills. The staples show what percent of the users that could use computers and Internet respectively.

Sweden (Tierp 40%, Uppsala 21%), while about 33% had learned this after arrival (Tierp 25%, Uppsala 41%). Only about 4 % of the NIA answered that they could not use the computer or Internet. 89% of the students had a broadband connection in their households. The answer to the question if there were any of their family members who lives with them and can use the computer or the Internet was: 50% had someone with ICT-skills even before coming to Sweden (Computer skills 52%, Internet skills 48%). 71% had someone with ICT-skills after coming to Sweden (Computer skills 70%, Internet skills 72%). Note: some of the participants came to Sweden alone.

The informants were asked about their Internet habits. The most frequent activity was reading news (80%), followed by email (78%), searching information (76%) and watching YouTube (72%). Other activities were learning (66%), paying bills (66%), Facebook (61%) and e-shopping (41%).

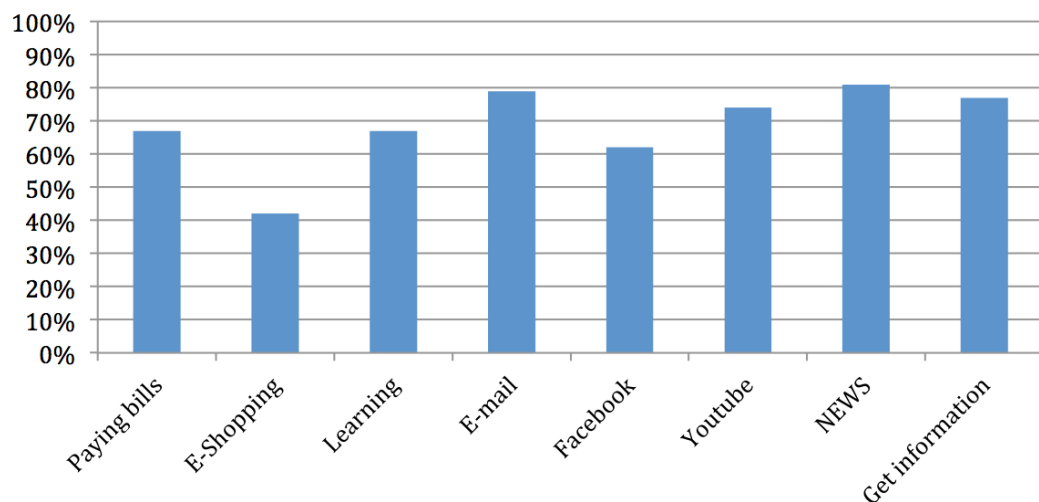


Figure 7.2: Newly arrived immigrants in Sweden: Computer and Internet skills. Regular Internet activities. The staples show what percent of the newly arrived immigrants that habitually were engaged in different internet activities.

The informants were asked which languages they used in Internet browsing. 75% of the participants were browsing Swedish websites. 44% of these could browse easily in Swedish websites while 56% of them answered that, they do it with difficulty. 49% of the participants were browsing English websites. 65% of these could browse easily in English websites while 35% of them answered that they do it with difficulty. 84% of the participants were browsing websites in their native language. 95% of these could browse easily in websites in their native language while 5% of them answered that they do it with difficulty. Note: the reason of that some participants cannot use websites in their native language was that this language either was not official that means it was just used in a specific group or in some countries the use of a specific language could be forbidden for political reasons. Only 31 out of 69 participants answered the question about their gender, 15 men and 16 women. Of these, 38% of the women could use the computer before coming to Sweden compared to 73% of the men. At the time of survey, 100% of the women had ICT skills, and 62% had acquired this skill in Sweden. At the time of the survey, 100% of the men had ICT skills, and 27% had acquired this skill in Sweden. Regarding to the Internet habits, just small differences between the men and women could be seen; men were generally more confident about browsing in Swedish websites and men used the Internet more for e-shopping and paying bills. For watching YouTube and using the Internet for learning, there were no differences.

7.5 Survey to a group of newly arrived immigrants on their first day of SFI

The purpose of this study was to find out about the background of Internet experiences of the newly arrived immigrants. The informants were 19 newly arrived immigrants at their first study day in Lernia SFI School in Uppsala, 11 men and 8 women.

The results showed that the 19 informants were from 15 different countries; Bosnia, China,

Djibouti, Eritrea, Ethiopia, Iran, Iraq, Kenya, Mozambique, Poland, Russia, St. Lucia, Syria, Thailand, Turkey. The age of the participants was between 21 to 40 years, which means that we have a young group, this sector of immigrants are especially relevant for the labor market in Sweden. The level of education varied within the group. 4/19 had more than 12 years of education; 7/19 had 10-12 years, 5/19 had 7-9 years, 1/19 had 1-6 years and only one had no education at all. In summary, 84% had at least 7 years of education, only 10% had less than 6 years of education.

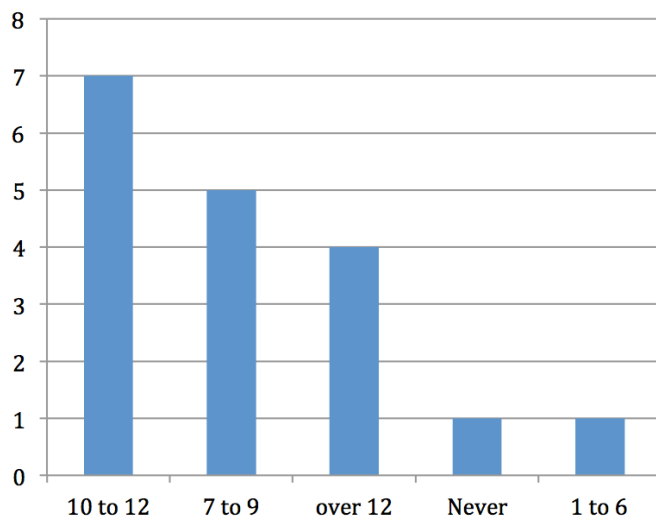


Figure 7.3: Newly arrived immigrants in Sweden: Levels of education. The chart shows how many years of education the participants had at the time of the survey

16/19 (84%) of the participants considered themselves to have computer and Internet skills while 3/19 (16%) did not. The three participants who cannot use the computer were women from the same geographic region. The result from this survey shows that most of the immigrants in this young group had computer and Internet skills (84%). Among the men, 100% considered themselves to have computer and Internet skills compared to 63% of the women. All the women that did not know how to use the computer were from a specific region with approximately the same culture.

7.6 How do newly arrived immigrants search for information on the Internet?

The purpose of this part of the study was to find out how newly arrived immigrants actually use the internet to find the information they need. For this purpose the method of contextual observation, (with slight modifications that will be described later), was used. The observed informants were newly arrived immigrants who were students at the Swedish language learning classes (SFI). The students were from different groups (SFI levels B, C and D). The observations were made in the computer room at Lernia SFI School in Uppsala. This part of the study was conducted during a period of three months and included several observation processes. Each process required getting consent from the school board of Lernia SFI and to make an arrangement with the teachers. I trust that the chosen sample provided a good representative of the target group (newly arrived immigrants) as most of the participants were resident in Sweden

within the period (0 to 5) years and the participants were from different countries and had different

levels of background education as well as SFI levels. The second important thing was the ethical issues with the observation process and I have taken several steps, such as, informed consent from the Lernia school board including a description of the study, expected time duration and the procedure and the used tools. What I tried to do is to keep the natural context as much as possible and also to guard the students right to privacy. Because of this I have tried to apply an unobtrusive style of observation as I will explain later. The fact that the observations took place in a public setting (school) means that the activities of the groups were not private. I and the teacher explained carefully to the students about the purpose of the study and how their behavior will be observed, to avoid negative reactions from any of the participants (the participants tend to behave differently than they do in the natural when they know that they are being observed). The observation process was divided into three phases.

The first phase consisted of observation to gain familiarity with the characteristics of the participants and the contextual using of the computers in SFI Lernia School. This observation was implemented early and required two visits to the school of about 3 hours each. The teacher introduced me to the students and explained about the study. I did this first observation process with two different groups (in two different days). I just sat still in one side of the room, and made notes about the students activities and the context in which the activity took place.

The second phase of the observations was free use of the Internet. This observation was made in 3 SFI groups and required several days of observations. I observed the students activities in the natural setting of the school computer room.

First the teacher informed the students that they were free to use the computers and Internet without any restrictions, and she informed them that their activities would be observed and that they had the right to share computers and to withdraw before or during the observation period. She did not tell them the details about the observation method as it could affect the results. My goal was to perform an unobtrusive observation, so I left the room but before that I asked one of the students to assist me. I gave him a sketch of the 2 parts of the computer-room with a number on each computer and asked him to write some information about the student that was using the computer: gender, nationality and the estimated age. This was done to get information about the users but at the same time saving the privacy of the students. After about 2 and half hours, the teacher asked them to keep the computer on, and I saved and gathered the browser history of all the computers. The students used two different browsers, Google Chrome which give the ability to save the history direct and Internet Explorer which required me to use a third party program called IEHistory to capture the browsing history. This tool and also the Google Chrome saved just the name of visited pages. Thus visits to for instance Yahoo Mail were not recorded in detail in order to guard the students privacy.

The third phase of the observation was to let the users try some test tasks. The purpose of this part was to find out how the participants find the information they need? What are the techniques they use and what are the main problems they may face during that? The place was in the natural setting of the computers room in the school. As in the other phases of the observation the

students were informed about the test. Also here I asked a student to record the gender, nationality and estimated age of the user of each computer. Again the same tools and observation method of the second observation task (mentioned above) has been followed. After the students had taken their places (11 of them were in sub-room 1, and 14 were in sub-room 2), the teacher introduced a specific task to the students. As newly arrived immigrants in Sweden they have right to receive a loan for buying furniture and other goods to their home, the task was to find out the exact amount of this loan. The correct answer can be found on the website of CSN (Centrala studiestodsnamnden). The students were allowed 45 minutes for the task. The task was the same for all students with one exception, the students in one of the rooms was provided with a keyword for search while the other group was not.

Results: 1. Observation to gain familiarity: The computer room included two sub-rooms, one of them supplied with 13 computers (2 of them out-of-service) (20 laptops were stolen), and the other room supplied with 15 computers. The students regularly used the computer room for 3 hours per week minimum, and they can use any computer in the room. Most of the time the teacher tries to stimulate the students to browse in the Swedish language, especially Swedish language e-learning sites. Sometimes they browse with other languages, especially, in the free time between classes. The students are free to talk together and to help each other during computer use. Most of the time they have a task or assignment to do. This first phase of observation helped to understand how they use and interact with the ICT in the school environment and to be familiar with the student groups. All that helped to plan for the most appropriate methods that can help to get the desired results.

2. Result of the free use of the Internet observation (at the SFI school setting) There were 23 computers but more than 23 students as some students did not use the computers themselves but engaged in conversations with those who did. The total number of websites visited by the students was 168. This number does not include repeated visits to the same website, or visits to other pages in the website itself. We did not take into account the time spent in each website (for instance, some students spent most of the time browsing one website or watching a long video-clip). The most popular browser used by the students was Internet Explorer, followed by Google Chrome. The most used machine translators were Google Translate and Lexin (Swedish translator that focus on translation in two directions). The Google search engine was used about 175 times during the observation; there was just one use of the Bing search engine. The most popular website was YouTube. We can note that 7 percent (20/289) of the Youtube searches was in Swedish. Of the visited websites, 51 percent were Swedish. 57% of these Swedish websites were related to Swedish language e-learning. 13% of the Swedish websites were related to e-shopping. 9% of the Swedish websites were news sites. 4% of the Swedish websites were information websites. 2% of the Swedish websites were related to social media. The rest, 15%, of the visited Swedish websites included company websites, especially, residents or mobile phone companies. Of all visits to the 86 Swedish webpages, there was only one attempt to use the multilingual service. Although some of the Swedish websites visited by the students include multilingual service they never tried to use it. One exception was, a student searching the website of the Swedish employment service (Arbetsfrmedlingen). He tried to use translated pages but, rapidly; he was forced to move back to Swedish again as the next steps were in Swedish. 15% of the total visited websites were in English. 40% of the English visited website were related to Swedish language e-learning, 23 percent were news sites, 15 percent were information websites,

8% were related to social media, and 7 percent were e-shopping. The rest, 7 percent, of the English visited website were varied. They included for instance company websites. 31%, 90/289 of the searches in Youtube were done with English keywords. 34% of the visited webpages were in another language than Swedish or English, that is other languages (OL). The websites in other languages could be grouped into 49% news, 26 percent social media, 3% information, 3% Swedish language e-learning and 19% varied websites including company websites. 62% (179 of 289) of YouTube searching processes done by the students were done with keywords in other languages.

The students in the study belonged to different levels of SFI. Some students need more than one or two years to pass to a higher level. If we compare the result of the first SFI level in Lernia (B) and the second level (C), we find some differences. Of the websites that the first level students visited, 36% were in Swedish. Of the websites that the second level students visited 67% were in Swedish. The first level students tended to use their native language or any other language they have. As an example, they never used a Swedish keyword in the search on YouTube. Again, the results show that the use of ICT in Swedish language learning is advanced in Sweden while the information is not at the same advanced level. The younger students visited more websites than the older students. They were also more advanced in the way they used Internet for instance, in addition to the email-accounts they also had accounts in YouTube and Google. The older students often tried to open only one or two websites in their native language, or they only used Swedish websites (with some exceptions of learning websites). The Students used Google as a central website. Most of the students start their browsing by opening the Google search page. Then they used the search bar instead of the browsers address bar, for instance, 70% of the students launched YouTube from the Google page by clicking on the YouTube tab on the menu or by searching the clips or the scenes in the Google search engine for the first time instead of using YouTube search bar.

3. Results of the information tasks. - The task for one of the groups (11 students) was to find the amount they can get as loan when they first come to Sweden. They were not given any keywords. Their behavior was observed through the recorded browser history and through discussion with them (as group) after the end of task session. The result showed that most of the students gave up and stopped their attempts after just five minutes. They tried, for example, to search the Swedish word (lån), loan, in Google but when they got too many search results they directly stopped. Some of them did not do any attempts at all to find the answer; they said, it is impossible to do it. One young woman persisted in her search more than the others without getting the desired result. After a while, she joined a man (35-40 years old) and together they continued their attempts. After about 40 minutes, they finally found the right answer. By analyzing the browsers' history, I found that they first tried to copy some text from the question and use that as a keyword in the Google search engine, but they did not get any useful result. Next they searched for Forsakringskassa åverige (the Swedish Social Insurance Agency, Sweden) in Google and then repeated the search with Forsakringskassa. After that they searched a phrase in Google from the task (hem lån möbeler - home loan furniture), they then found a page called CSN-hemutrustningslån and on that page they finally found the right answer. What we can notice from the successful pair was that, after they found the right website they did not try to browse it with their own languages (CSN provide this service) although it could have helped them to find the answer. When I asked them about why they did not use the multilingual

service they answered that they did not know anything about it and that they did not expect to find such a service in a Swedish page. The other group of students (14) were given the same task but were being provided by a keyword hemustrustningslån (loan for furniture and goods). Also, this group was observed through the recorded browser history and through discussion with them (as group) after the end of the task session. One participant did not do any attempt at all to find the answer. Two participants started directly by searching the keyword in Google and quickly found the answer. Most of the other participants followed a similar procedure, first they tried to translate the keyword. They used Google translator or the Lexin translator to do this. Lexin displayed a message that the word do not exist in the database (Lexin is a Swedish website that focus on the immigrants as main users) while Google gave different translations depending on the destination language (some of the translations were difficult to understand, for instance in Arabic). At this point five of the students stopped their attempt to do further search because, as one of them said, she did not understand what she was searching for. The second step done by most of them was to use the Google search engine and search for the keyword. They got many results (the right answer was the third in the results list). For some reason, three students stopped their attempt at the results list and did not proceed to the right link. Not one of the students used the multilingual language service provided.

8. DISCUSSION

The main purpose of this thesis was to describe the requirements from the users point of view of social information websites for newly arrived immigrants.

The first sub-question asked in this thesis regards the characterization of the information resources available on the Internet.

The second sub-question was how the newly arrived immigrants can be characterized as an ICT user group.

Based on the empirical studies performed we can now try to give some answers to the questions stated above.

8.1 Characterization of the information resources available on the Internet

As we can notice from the survey results, the Swedish authorities more and more pay attention in their websites to the newly arrived immigrants but it has not been done in a systematic way. The result can be confusing both for the users and the administrators of the websites.

Many websites provide information in different languages, but this information is very difficult to find for the immigrants. The relation between the use of translators on one hand and search engines, on the other hand, is very important and must be taken in account and carefully designed in any central information website for immigrants. (The informants in the study never tried to Google for a word that they did not understand).

To search with a specific keyword is easy, however, to translate an intellectual thought, question or idea to a searchable keyword is very difficult for the target users. This was especially true for

the newly arrived immigrants, which showed problems to translate to Swedish.

Of all visits to the 86 Swedish webpages, there was only one attempt to use the multilingual service. Although some of the Swedish websites visited by the students include multilingual service they never tried to use it.

The immigrants did not expect to be able to use their native language in websites of Swedish authorities and thus never looked for such information in the websites. As a consequence of this, the painstakingly translated information was never used.

The fact that the students used the Google page as a starting point for all information they needed may reflect that it could be useful to develop a central information website as a starting point that can be used by immigrants to help them find the information they need.

A solution could be to categorize the information in a central information website. If a webpage could be created, that is dedicated to the needs of immigrants with a high level of usability we can solve many communications problems between the immigrants and the distributed important Swedish websites. Such a page should have the same simple functionality as the Google page. That is easy to use, accurate, reliable, and with a variety of search methods (images, websites, videos). Word-completion functionality with suggestions would be helpful with spelling problems.

8.2 Characterization of the newly arrived immigrants as a user group.

The theoretical framework called PACT provides a systematic way of characterizing an interactive situation. It is needed to describe the people involved, the activities they are doing, the particular context they are in and finally the type of technologies they are using.

8.2.1 The newly arrived immigrants group

The people that we are interested in here are newly arrived immigrants in Sweden. The view of this group of users from the official governmental representatives differed between informants. Some characterized the group as having essentially no computer skills at all, while others pointed out that in particular young persons had good computer skills.

There were not much difference between skills in computer use and skills in Internet use. If they could use a computer, they could also use the Internet.

Based on the empirical studies made we can now compare the group in this study with the population in Sweden at large. As a reference for comparison we can use a report that The European Commission issued in January 2012 about e-government and the use of Internet in Sweden.

From the surveys, we conclude that 94% had ICT-skills at the time of the survey. 61% of the group had ICT skills before they arrived in Sweden, and 33% had learned after arrival. Only 4% answered that they could not use a computer or the Internet. This shows a discrepancy between the view of the governmental officials and what showed in this survey. This calls for a critical

reflection about the representative of the study. As Uppsala is a university city, it could have been that the educational level of the informants was higher than the average. On the other hand, Tierp is not a university city, and the results for the two cities were similar.

Before their arrival in Sweden, men had more ICT-skills than women, 73% of the men and 38% of the women, but at the time of the survey there was no difference in ICT skills between men and women. 62% of the women had learned ICT skills in Sweden, compared to 27% of the men.

Regarding to the Internet habits, just small differences between the men and women could be seen; men were generally more confident about browsing in Swedish websites and men used the Internet more for e-shopping and paying bills. For watching YouTube and using the Internet for learning, there were no differences.

The result from the survey in Uppsala (Lernia) with a new group at their first study day in SFI school shows that most of the immigrants in this young group had computers and Internet skills (84%). This can be compared to the result of the larger survey, where the average age was higher showed that the general average to be 60%.

This implies that the young age is an important factor for computer and Internet skills.

The percentage of men with computer and Internet knowledge was higher than that of the women, but the ratio is different. The general average in the first study was 73% of the men and 38% of the women while with this young group the results were 100% of the men and 63% of the women. All the women who did not know how to use the computer were from a specific region with approximately the same culture. The age factor seems to be the strongest determinant of computer and Internet skills, followed by the gender factor which is obviously associated with cultural factors.

8.2.2 The activities that the newly arrived immigrants are doing.

Many of the immigrants had searched for information about Sweden before they came to Sweden. They had then, found un-official websites in their mother-tongue and continued to use them after arrival in Sweden.

They believed that the information provided by these unofficial websites (such as Somaliska.com) were not sufficient, not accurate and sometimes out- dated. Aware of this, they still used them because they can provide them with essential information about their new country in their own language.

The ICT habits of the user group were essentially the same as for the average in Sweden. They did normal ICT things like reading news, using email, searching for information, paying bills and watching Youtube. As an example, 42% of the newly arrived immigrants used e-shopping. The percentage of Swedish people who had purchased/ordered online in the last three months was 53% [5].

That means that the use of Internet by the newly arrived immigrants in Sweden is comparable to the average of public use in Sweden.

Google was the general starting point for most searches for information. 84% of the immigrants browsed webpages in their native language, but 77% of the immigrants were also browsing Swedish websites. About half of them could do it easily while the other half with some difficulty. It was evident that the higher- level SFI students browsed more Swedish websites than did SFI-students on lower levels, (67% compared to 36%).

49% of the immigrants were browsing English websites. 65 of these could do it easily.

This illustrates that the lack of ICT-habits should not be a major obstacle to using ICT in the integration process. Also, it shows that it is important in some phases to get information on the native language but that a surprisingly large part starts using Swedish websites while in SFI.

8.2.3 The context in which the interaction takes place.

The studies showed that all of the immigrants used computers at home but that only a few of them were allowed to use computers in the context of SFI or Societal orientation courses. This was considered unfortunate by some of the teachers as the educational context provided a good social setting for exploring useful websites. The students could help each other. The reason for not using computers in these settings were said to be the lack of time.

In Uppsala, computers were used in the language training groups. The students used the computers for e-learning only and were not allowed to browse for other information.

This situation could be changed; the context of SFI and Societal orientation would be ideal for introduction and practise on how to independently find information on the web. The social context means that the students can help each other to find information. This is not possible today, since it is not allowed to use computers for information search in these settings.

8.2.4 The technology.

A comparison between some facts in this report and our results show that the percentage of households with a broadband connection in Sweden is 89%, that is the same as for the participants in the survey of newly arrived immigrants. In general most of the immigrants have access to a computer and to Internet. Most of them also have access to friends and family who can teach and support them. This means that access to technology is not a barrier to using ICT for communication with newly arrived immigrants.

9. CONCLUSIONS AND RECOMMENDATIONS

The main problem facing the use of ICT in integration in Sweden is the communication problems between the immigrant users and the informative websites (online resources)

Many websites, especially, the Swedish authorities websites, produce information in other languages, in addition to Swedish, but most of the immigrants do not know about this, and thus never actually use them.

The immigrants have real problems to find the online resources that provide the specific

information they need, this is partly because they do not know what each authority does, or what services they provide.

If the requested information can be described by a specific word that is known by the user like Barnbidrag then it is possible to search for it directly by using it as a keyword, but mostly searching for information requires the translation of an intellectual idea. Most of the immigrants will have difficulty to translate it to a word, because of lack of knowledge of the Swedish language and about the Swedish society.

Authority websites are increasingly paying more attention to the immigrants needs by providing the user the ability to browse in other languages. The quality and quantity of these services are varying.

Some of the available online resources reflect a lack of understanding of the immigrant users needs and do not spend much effort in this field.

But many authorities would like to improve the service to immigrants but they cannot do that as much as they like mostly due to financial problems.

Considering the fact that Sweden has an excellent internet infrastructure and that the immigrants in this investigation have an a good, or at least, sufficient knowledge of using computers and the internet, investing in a systematic use of ICT in the whole integration processes will probably give good results in a short time, it could reduce the cost, time and the efforts for both the immigrants and the authorities.

Some SFI schools use computers while other do not. Online resources give the immigrant students great opportunities in Swedish language learning, and getting information about Sweden and their daily needs.

All the immigrant students should have the right to get these opportunities.

When the groups in schools with and without computers were compared, the computer groups were more confident users.

The current establishment program for the immigrants in Sweden neglected the use of ICT.

The view that SFI schools are just for language learning needs to be reviewed, first the relation between the learning the Swedish language and learning about the society is very high, as an example, the Swedish term Hemustrustningslån, to learn the meaning of the word the students need to have an explanation of what it is and also about which authority is responsible for handling it.

In the other side, we live in digital world now and Sweden is an advanced country of using ICT and e-government, and the mean of ignorance now is different.

The current establish program is a good introduction program but the program period (10 weeks) is not enough, and the program cost is very high, all that limit the benefits of it, in the other hand

the students spend about (1 to 5) years in SFI schools and that provide the required time and resources to develop both computer skills (as currently in Lernia SFI school) and systematically learn about the use of ICT and the online services as real information sources of the Swedish society.

Explanation in mother tongue is important for easy understanding.

There is a risk that people go to websites in their mother tongue and get wrong information, many consulted these websites before they came to Sweden, and they may get wrong information and bad advices this way. The information of some of these websites is not updated, old and no longer correct.

We can clearly see the need for a central website to be used by immigrants, the benefit of such websites can solve many of the communication problems, found in this study.

Such a central website must include: multilingual services and because of the different types of users, the target of the design should be simplicity, easy navigation and keyword based search.

The culture difference and other universal design principles must be taken into account.

All the authority websites of interest to immigrants should be connected to this central website and share their keywords and services by direct links.

They should develop techniques to deal with this websites in two directions, for example, CSN need to find all relevant keywords in their domain and share it with the proposed website.

From this study, we have seen that the users expect to be able to continue search and browse in the same language as they started out the search from the beginning. This central website must be ready to deal with a search with keywords or help the user which have an abstract or intellectual thoughts by using categorizing and words list.

Most of the observed students start their browsing open Google search engine as a communication center website to anything they need, the properties of Google search engine design such as simplicity, trust searching results, spelling error correction and a variety of searching types, all these proprieties helped at the students adopt this website as a center website.

They use translators heavily (as they looking for Swedish information) heavily, and Google translator and Lexin are the most popular among them.

The correspondence between translating and search techniques is the key for such a website and the user should be able to switch, easily, between search and translate. They try to understand the term before they search it.

They must get the meaning of the keyword and then directly go to the link, and the description should be provided before the user follows the link.

Based on the observations in this study it is recommended that a central effort should be made to

really use ICT in the integration process. Such a central effort could make better use of the various and costly multilingual endeavours being made by a different authority websites involved.

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Appendix 1

Swedish authorities' websites that can be of relevance for the newly arrived immigrants

No.	Authorities website	Number of languages	Languages			Google Translate
			Sw	En	Others	
1	Allmänna reklamationsnämnden	2	•	•		
2	Arbetsmarknadsstyrelsen (Arbetsförmedlingen)	37	•	•	•	
3	Arbetsmiljöverket	21	•	•	•	•
4	Banverket (Trafikverket)	15	•	•	•	
5	Barnombudsmannen	11	•	•		
6	Bilprovningen	10	•	•	•	
7	Bolagsverket	16	•	•	•	
8	Brottsförebyggande rådet	21	•	•	•	
9	CSN	25	•	•	•	
10	Datainspektionen	12	•	•	•	
11	Diskrimineringsombudsmannen	28	•	•	•	
12	Energimyndigheten	14	•	•	•	
13	Exportkreditnämnden	2	•	•		
14	Exportrådet	2	•	•		
15	Finansinspektionen	2	•	•		
16	Folkhälsoinstitutet	2	•	•		•
17	Folk tandvården	2	•	•		
18	Försvarmakten	6	•	•	•	
19	Försäkringskassan	22	•	•	•	
20	Högskoleverket	15	•	•	•	
21	Invest in Sweden Agency	7	•	•	•	
22	Jordbruksverket	3	•	•	•	
23	Jämställdhetsombudsmannen	4	•	•	•	
24	Kemikalieinspektionen	13	•	•	•	
25	Kommerskollegium	2	•	•		
26	Konkurrensverket	13	•	•	•	
27	Konsumentverket	12	•	•	•	
28	Kriminalvården	7	•	•	•	
29	Kungliga Hovstaterna	3	•	•	•	
30	Lantmäteriet	2	•	•		
31	Livsmedelsverket	2	•	•		
32	Luftfartsverket	2	•	•		
33	Läkemedelsverket	2	•	•		
34	Länsstyrelsen	1	•			
35	Lärarnas Riksförbund	1	•			
36	Migrationsverket	22	•	•	•	
37	Patent- och registreringsverket	2	•	•		
38	Polisen	7	•	•	•	
39	Post- och telestyrelsen	2	•	•		

40	Pensionsmyndigheten	15	•	•	•	
41	Regeringen	9	•	•	•	
42	Riksarkivet	2	•	•		
43	Riksbanken	2	•	•		
44	Riksdagen	2	•	•		
45	Riksåklagaren	2	•	•		
46	SIDA	2	•	•		
47	SIFO	1	•			
48	Sjöfartsverket	2	•	•		
49	Skatteverket	24	•	•	•	
50	Skogsvårdsstyrelsen	2	•	•		
51	Skolverket	2	•	•		
52	Smittskyddsinstitutet	2	•	•		
53	Socialstyrelsen	13	•	•	•	
54	SOS Alarm	24	•	•	•	
55	Statens Haverikommission	2	•	•		
56	Statens Konstråd	7	•	•	•	
57	Statens Kulturråd	10	•	•	•	
58	Strålsäkerhetsmyndigheten	2	•	•		
59	Statens Veterinärmedicinska Anstalt	2	•	•		
60	Statistiska Centralbyrån	2	•	•		
61	Statskontoret	2	•	•		
62	Svenska Institutet	5	•	•	•	
63	Svenska Kyrkan	10	•	•	•	
64	Svenskt näringsliv	2	•	•		
65	Sveriges Advokatsamfund	2	•	•		
66	Sveriges ambassader & konsulat	9	•	•	•	
67	Sveriges Marknadsförbund	2	•	•		
68	Sweden.se	7	•	•	•	
69	Transportstyrelsen	2	•	•		
70	Tullverket	2	•	•		
71	Ungdomsstyrelsen	7	•	•	•	
72	Utrikesdepartementet	9	•	•		
73	Världsnaturfonden	2	•	•	•	
74	SMHI	2	•	•	•	

Appendix 2

Questionnaire survey that was distributed to the Swedish authorities

1. When did you publish your website?
2. Did you consider immigrant's easy access to your website (By using other languages method, translate your website to English language, etc.) from the beginning or at a later date? Give an approximate number of years for
 - Using translate to English language in your website
 - Using of (other language service) in your website
3. Which method(s) did you use?
 - Human translate
 - Machine translate (like Google translate or other e-translate method)
 - Both Machine translate and Human translate
 - Just PDF files with different languages.
4. Do you use the above method(s) with all languages or some of them (maybe you use a human translate with one or several language and machine translate with the others)?
5. How do you decide which language needs to be include in your (Other language) list?
6. When you used other language(s), did you translate the entire website? Or just targeted parts? If so, what is the approximate proportion of the translated part of your website?
7. What are the most important criteria to be considered to determine which parts of the site need to be translated to other language(s)?
8. Is the information in your website identical (pure translation) or it varying in relation to the target group?
9. Did you consider cultural variations in the targeted groups in your design such as colors, symbols, etc?
10. Did you involve the end-users in designing your web at any stage? Did you carry any evaluation of your website by the other languages end-users?
11. Did you face any problem in your multilingual site? What are they?
12. What are the intellectual levels you target of your multilingual end-users? Does your site require "ordinary, medium or high" level of knowledge?
13. Do you use any link to other sites from your multilingual part of your website? If so, does the link to lead to the information in the same language that user of your website used?
14. Reversely, if we translate the information provided by your site in (one of foreign language) to Swedish language, do you think that the provided information will be satisfactory to your website's goals?

Can you, kindly, give a brief description of the multilingual services provided by your website and your plan to develop this service?