Knowledge Production, Social Inclusion and Empowerment

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Abstract

Social learning is a part of everyday activities. When groups of people get together in development projects, where they try out the possibilities in technology, a learning process is taking place. They learn how to be a user of the technology. In a Danish development and research program groups of old people have learned how to use ICT. Through this learning process they have experienced how to keep in touch with family members abroad, how to do genealogy or how to handle digital pictures. This paper will focus on the learning process in these development projects and discuss what kind of knowledge they produce and how this knowledge can be used of others – e.g. in the development of digital services for old people.

When social scientists follow projects like this another kind of knowledge is produced. This knowledge is not about how to utilize ICT but about how old people as a group in society can use ICT as a mean for empowerment and social inclusion. This knowledge can be used of others – e.g. of politicians in the development of a society without a digital divide. The paper will analyze the interaction between these two different kinds of knowledge production and discuss the democratic implications of both of them.

Introduction

During the last couple of decades great emphasis is put on production of knowledge. Most Western governments regard knowledge production as an important way to ensure the economic development and social welfare in society leading to a policy, which is supposed to support the production of knowledge. This political wish to increase knowledge production raises questions like what kind of knowledge should be produced and how do we produce this knowledge. In this paper I will discus one way of producing knowledge about the use of ICT.

The question of how to produce the wanted knowledge has lead to many discussions, but without going into an overview of this discussion I will point at two important ideas in this discussion. The first idea is that the knowledge production should take place in a situation with close interaction between scientist, companies and governments. To be sure that the produced knowledge has relevance for society the idea is that knowledge shall not be produces isolated on universities but in a close connection with the companies, who probably is going to use the knowledge afterwards for production, and guided by governmental strategies for the development of the economy. This model is often called The Triple Helix to illustrate the intertwined connections between the different actors. The second idea is that relevant knowledge production is not always a pure theoretical knowledge production but have to take practical – often tacit – knowledge into account. This kind of knowledge production is then an interaction between actors who represent both the theoretical and the practical knowledge.

In a Danish program for Senior Citizens' use of ICT both of these kinds of interactions were active. The program was initiated by the government and included both scientists and companies. Due to the fact that the program included both research and development projects it also made an interaction between theoretical and practical knowledge possible. Thus it is interesting to study the knowledge production in the Danish program. In this paper I will study the knowledge production in the program. At first the paper will present the Danish program for Old People's Use of ICT. Second I will analyze the outcome of three objectives of the program and discuss what kind of knowledge there has been produced to reach these objectives. Finally I will conclude on how this knowledge can contribute to the development of society in a more general perspective.

The Danish Program for Old People's Use of ICT

With the public introduction of the internet in the early 1990's and the discussion about the raise of the Information Society it became a political problem if a digital divide among the population was generated. The political ideal of the Information Society include that all citizens are able to use ICT for the purpose of both work, leisure time and as a citizens. Thus the lack of skills to use ICT in the Information Society will have an excluding effect for both the labour market and as a citizens with regards to take part in political processes.

For several years, it has been the Danish government's political objective to prevent the growth of a digital divide amongst the Danish population (Jæger, Forthcoming-a). In the late 1990's, the elderly were singled out as being a part of the population that was in danger of being left out of the Information Society. Statistics gathered over the last couple of years have shown that the digital divide has been changing. No longer is it just the young, well-educated, wealthy men that are familiar with ICT and regular users of the internet, now women, the lower educated and lower paid people are becoming users. The only group which is significantly behind in the use of internet is the elderly.

At the same time, it became clear that demographic developments, similar to most other European countries, will result in a dramatic growth of the older part of the population in the coming years. Simultaneously, the extremely low birth rate in the 1980s will result in a decrease in the number of people engaged in active employment. Against this background, it also became a political objective to use ICT to develop services for old people, which could decrease the need for public services.

The government responded to these challenges by reserving 33 million DKr. (about 4.4 million Euros) of the state budget for a combined research and development program called Old People's Use of ICT running in 1999-2003. It is of course a matter of discussion to define when people are old. In Denmark the official age for retiring from the labour market is 65 years, but in practice the average age for retiring is between the age of 61 and 62 years. Due to this the government decided to define the target group for this program as all people with the age of 60 and above. The program's objectives were described as follows. It should investigate:

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"The potential for a more flexible withdrawal from the labour market by means of ICT.
The possibilities for new applications of ICT that directly aim to improve the quality of life of old people.
The possibilities for developing pedagogical methods for old people so as to build up ICT competencies among old people." (Ministry of Research and Information Technology, 1999)

Out of 70 applications, 11 projects were selected and funded. Six of them were locally based development projects (or social experiments). Due to the broad scope of the program, these six projects focused on very different aspects of ICT for old people. One of the other projects was a dissemination project, which resulted in 12 TV-programs dealing with different aspects of old people's use of ICT. The final four projects were research projects. They cover different aspects: from research into how old people's muscles deal with the use of a computer mouse (Jensen, Laursen, & Sandfeld, 2002) to research in the implications of ICT on the everyday life of old people (Carlberg, Søgaard, & Østergaard, 2002) and a study that follows the projects under the program, which this paper is a part of (Jæger, Forthcoming-b)[1].

The last mentioned research project, with the title: Elderly in the Information Society, is conducted as a row of case studies – one for each of the other projects. Especially the six development projects are followed close. The methods used for these case studies are primarily qualitative and several interviews were made with different participants in the projects. The project managers were interviewed three times during the project, in the beginning, halfway through, and at the end of the project. Depending on the aims of the individual project, different participants were interviewed while the project was running. Some of these interviews were made as group interviews others individually. Altogether 57 interviews were conducted. The number of interviewees is far bigger that this due to the many group interviews. Beside these interviews, there has been a close connection between the local development projects and the research project through meetings every half-year. In the other research projects only one interview was carried out at the end of the project.

All the case studies are also based on several written sources relating to the projects. In this way, the applications, the yearly reports to the research council, the project's web sites and so forth are gathered as a part of the case studies. Finally, the whole program was evaluated halfway through the period. The evaluation report is also a part of the material in this study.

The key elements in this program are the Senior Citizens, who are getting ICT competencies through their participation in the development projects, and the technology, which should be turned into new applications. Thus I have chosen to base this study on a constructivist approach to technological development where I understand technology as a socio-technical ensemble consisted of a variety of both human and non-human actors linked together in a network in which the technology is coming into being (Bijker, 1995;

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[1] All 11 projects are shortly presented in annex 1.

Jæger, Forthcoming-a; Latour, 1987; Williams, Stewart, & Slack, Forthcoming). This approach makes it visible that the old people and the ICTs are not the only actors in the network. These actors can not build the socio-technical ensemble themselves they are among other depended on the politicians who have granted the money for the program, the project managers who wants to run a project for old peoples' use of ICT, the companies who want to have senior employees on a flexible withdrawal, other companies who want to introduce new applications for old users and so forth. All these actors will be drawn into the analysis when necessary.

The knowledge produced in this program is supposed to deal with the above mentioned objectives. In the end the program should be able to present knowledge about these objectives, thus this analysis will take its point of departure in the objectives and focus on what kind of knowledge the program have produced on each of them.

The potential for a more flexible withdrawal from the labour market by means of ICT

This objective was primarily investigated in two projects (the projects in Randers and Næstved – see annex 1). Even though the target group for the program was defined as Senior Citizens at the age of 60 year and above these two projects found it necessary to operated with a younger target group if they should fulfill the objective. In Næstved they defined Senior Citizens as people at the age of 55+ and in Randers they did not make any minimum boarder line so the youngest person taking part in the project was only 27 year.

The project in Næstved never succeeded to fulfill the objective of crating a model for flexible withdrawal from the labour market. They send out material to 400 companies in the town and invited them to participate in the experiment. Only four companies responded, but the following phase showed that non of them were really prepared to establish working places in some of the employees home, which could serve as a base for a flexible withdrawal (Sterlie, 2004). In Denmark we have a set of rules, which is a part of the agreement from the collective bargaining, defining the conditions for a working place in private homes. When the project started to prepare these solutions with the companies the trade union immediately demanded that all the rules should be follow in the smallest detail. This demand made it very complicated and expensive for the companies to establish such working places and is probably a reason why they were not interested in realizing the idea and backed out of the project.

The project in Randers took place at a company, which has been producing ropes for more than 100 years. By producing a documentation of the working processes at the factory on multimedia the project intended to create the conditions for a flexible withdrawal. The idea was that the senior worker should be able to handle a flexible job in which he could work from home most of the time, but when a new workers ran into problems with the machinery he should be able to contact the senior worker. By means of the multimedia documentation the senior worker should be able to give introductions to the new worker and by this make it possible for the new worker to solve the problem.

The project almost fulfilled the objective. A comprehensive multimedia documentation of most of the working processes in the company was produced of the ten participants in the project. But before any flexible jobs were established the company decided to move the production of rope to Lithuania! Thus the multimedia documentation was translated into both English and Lithuanian and served as introduction material to the new workers in Lithuania. For a period the participants of the project served as instructors for the new workers, but this year the company went bankrupts and everybody was laid of.

The multimedia documentation is very impressive and the project manager still believes the idea is good, but the project did not succeed in implementing the idea of a flexible withdrawal from the labour market.

Based on the experiences from the program the conclusion is that the program did not implement new models for flexible withdrawal from the labour market, but it did produce some knowledge of how to do it and what the obstacles are to realize the ideas. It seems like most companies are not yet ready to think in solutions like this, just like it seems like the trade unions regard working places at home more as a thread then as a possibility. These factors make it very difficult for the time being to realize the idea of a flexible withdrawal from the labour market by means of ICT. It is likely that implementation of such ideas demands a change in attitude both in the companies and in the trade unions, and changes like that do not happen over the night.

Even though the Danish set of rules for implementing work places in private homes is an important part of the explanation of why the projects did not succeed in developing models for flexible withdrawal from the labour market, it seems like the difficulties in doing this is not special Danish phenomenon. In a comprehensive survey on literature in the field of Old peoples' use of ICT it turned up that flexible withdrawal from the labour market is a theme which is discussed as a possible solution to the "demographical problem" and as a motivation for doing research in the field, but there is no literature telling about actually results in developing models for this purpose (Larsen, 2004). Also in a call for abstract for an international anthology I especially asked for contributions within this theme. While there were responses on the other objectives of the program this theme did not get any response. This does not rule out the possibility that a single model is tried out somewhere in Europe or USA but it indicates that such models are very rare if they exist at all.

Another important knowledge produced of the project in Randers, I will mention here, is dealing with the possibilities of ICT (or multimedia) to document work processes. There are huge differences in how to establish work places in the workers home depending on what kind of work we are dealing with. We know from other experiences that if the administrative work in governmental agencies shall be conducted from the homes of the civil servants it is necessary to digitalize all the papers, forms, rules and so forth if. To do their work they have to have access to at the files in the case just like it is necessary that they can go back in other cases that are like the one they are working with to compare conditions and decisions. But manual work in a rope factory is something quite different. Here we are dealing with a lot of tacit knowledge about how to get the machinery to work

at the most smooth way and how to use the material (whatever it is hemp, plastic or steel) in the best way. To work in this factory does not require any formal qualifications, all the workers in the production were unskilled, but many of the workers had been working there for 15, 20 or even 25 years and during all these years they had build up a huge amount of tacit knowledge about the production of rope. This knowledge was not written down in files or documents thus it requires other methods to establish work places in private homes for a work like this.

This method turned out to be the documentation of the working processes by means of multimedia[2]. By making video clip showing what the workers were doing, while at the same time they were explaining what they were doing the project managed to document the process and in this way get access to the tacit knowledge about how to produce rope.

The project itself concludes that they succeeded in producing a multimedia documentation for use of the introduction of new workers in Lithuania. But analyzed with the perspective of knowledge production we see that the project succeeded in showing that ICT can be used for documenting and disseminating tacit knowledge.

The possibilities for new applications of ICT that directly aim to improve the quality of life of old people

This objective of the program was taken very seriously of the developmental projects and several applications have been tried out during the program. In the following I will go through the different applications and describe what happened to them and discus what knowledge was produced in the work with them.

E-business was an application three of the projects wanted to develop. In Næstved they designed a web portal very early during the project. A part of this portal included the E-business application. The idea was that local retailers should fill out the application with e-business to the Senior Citizens in the town who were now learning to use ICT through the courses of the project. It was the same idea they wanted to try out in Nordfyn and in Silkeborg they wanted to include a team of old volunteers who could bring the groceries home to other seniors who were not so mobile themselves.

None of these projects succeeded in developing a functional application for E-business. The technical development was succeeded in Næstved, but this was not enough. The projects were depended on the local retailers to join the application and offer their commodities electronically. But the retailers were not prepared for that. They did not have a database with the commodities and they did not want to invest in the development of it. They did not respond to the invitation from the projects and when we asked them why not, they answered that they did not believe in the idea. If they were going to develop an E-business application it should be for everybody – not only for elderly. Besides that they did not consider it as their role as small retailers in minor towns. According to their opinion a development like that should be done by associations of

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[2] When the project uses the word multimedia instead of just ICT it is due to the widespread use of video clip and speech in the documentation. Today we regard that as a "normal feature" of ICT but when the project was planned it was something rather special.

retailers. This attitude made it impossible for the projects to realize the objective of developing an E-business application which could be used to raise the quality of life for many old people.

But this was not the only reason why the projects did not succeed. The other reason was resistance from the old participants in the projects. Due to their interpretation of both what it is like to go shopping and of ICT they did not want an application for E-business. For many of these seniors shopping is a pleasant activity. By doing this they get out and talk with other people maybe they meet somebody they know and can have a little chat with. Today many, even minor, shopping centres have a café where you can have a cop of coffee and a chat with a friend. To go shopping in a shopping centre can also be a cultural experience. In many small towns the shopping centre has some kind of entertainment Saturday morning or Friday afternoon. This is the place where people in these towns have a possibility to hear the winner of the singer contest from the television or see a conjurer from a circus. Thus the seniors will prefer to go shopping themselves and regard it as a sign of weakness if you are not able to do it yourselves. It is also only the weak seniors who get public home helpers to come and clean and shop. Due to this interpretation of shopping they also interpret E-business as a sign of weakness. As long as they are able to shop for themselves they will prefer to do that.

Just like in the case of models for flexible withdrawal from the labour market we also in the case of E-business have to conclude that the projects did not succeed in developing applications for E-business for old people. But the projects produced knowledge about the obstacles for developing such an application.

Aid for disabled. Two of the projects, one development project (in Silkeborg) and one research project (at Hjælpemiddelinstituttet), wanted to explore what kind of aid for disabled it was possible to find, and if this aid did not fulfil the demands of the old disabled they had in mind to develop the needed aid. In the beginning of the project Hjælpemiddelinstituttet ran into problems in recruiting old disabled to try out the different kinds of aid, but when they realized that the project in Silkeborg also was working in this direction they contacted this project and a very fine co-operation between the two projects was established. The project in Silkeborg delivered a pool of disabled old with different kinds of disabilities and Hjælpemiddelinstituttet delivered some special equipment to the computers which served as aid for the disabled.

The result of the co-operation was that all the disabled elderly became equipped with the right aid to solve the problem for using ICT with exactly their disability. The conclusion on the project at Hjælpemiddelinstituttet was that applications to aid disabled already exist and they did not discover any kind of disabilities which could not be aided of the existing applications. Instead they realized that the knowledge about these applications was very limited. Even the associations for the disabled did not know anything about these applications. Thus they did not go into a development of new applications but used their energy on writing a book with information about the existing applications.

In the perspective of knowledge production we must conclude that even though the projects did not develop any new applications for aid to disabled they discovered a need for information about the existing applications. In the co-operation between the two projects, also knowledge about how to use these applications for different groups of disabled was produced. The knowledge of how to install the applications on the computers and how to tailor them to the single individual was generated in this co-operation.

Health applications
Nordfyn and Silkeborg do not succeed with their attempts – physicians and pharmacists are not yet ready. During the project they are overtaken of the portal sundhed.dk which is developed by the association of pharmacies. Also the old participants are resistance – they are active seniors and not weak and sick.

Portals
Næstved portal is very fancy but do not succeed in the long run. It is designed of young men who's only representation of the old users are their own grandparents.
The portal in Silkeborg starts as a demand from the governmental agency for research, but gets inspired of the other projects and develops to a useful portal for the elderly in the city as a bottom up process.
The portal in Svendborg succeeds in serving as a source of information for the participating councils of Elderly. They also succeed in creating local web sites which the local elderly can manage to up date them selves.
The conclusion is that portals and websites are the most successful applications developed in the program. But they have to be developed either by the old users them selves or by somebody in a very close interaction with them.

The possibilities for developing pedagogical methods for old people so as to build up ICT competencies among old people

This objective was investigated in principle in all six development projects due to the fact that even though the objective of the project was something more (e.g. developing applications for E-business or make a multimedia documentation of the work processes) they all had to start from scratch with the introduction of ICT for the old users.

The actual training in the use of ICT is conducted in very different ways in the six projects. The pedagogical methods have differed, the content of the training, the length of the training, the amount of hours, the size of the class and the number of teachers have been different from project to project (Sterlie, 2002). However, despite these differences it is possible to draw out some common experience which is generated among the projects as a common knowledge about pedagogical methods to build up ICT competencies among old people.

All the projects declare that there is no need to develop a special pedagogical method for old people. What is good pedagogic for everybody else is also good pedagogic for old people. Despite this declaration it is possible to list some elements which have turned out

to be important in the training of the seniors across the projects. This is not a prioritised list since it is impossible to make out which elements are the most important.

Pedagogic of understanding. Several of the projects have been working with what they themselves call a pedagogic of understanding. By this they want to stress that the seniors have to understand the logic in using ICT (e.g. in how to save a document in a folder) instead of training them to remember a certain procedure. This is a good pedagogical method for everybody but for elderly it is especially important because their memory is not working so well.

Taking point of departure in the old people. All the projects have to a certain degree been taking their point of departure in the old participants. As already mentioned, they all had to start from scratch because the participants had nearly no experience with ICT. Most of the projects have also taken a point of departure in the interests of the old participants. They have been open for the things the old people wanted to learn about just like they have been flexible in the training and been able to pull in emergent topics as e.g. the defeat of virus if this was a problem in the class. Another way to take point of departure in the seniors is by the examples in the training materials. The teachers have made their own training material in which they use examples from the everyday life of senior citizens.

Equality. Lack of equality is one of the reasons why the seniors refuse to join ICT-courses other places. Many old people are afraid of being regarded as slow and ignorant together with young people. Together with other seniors the feel more equal and dare to "ask the stupid questions".

Helping Teachers. To ensure enough help for the single learner, and to create equality between teachers and learners, many projects have recruited computer ICT-skilled old people in the training program. These helping teachers have played a crucial role in many projects.
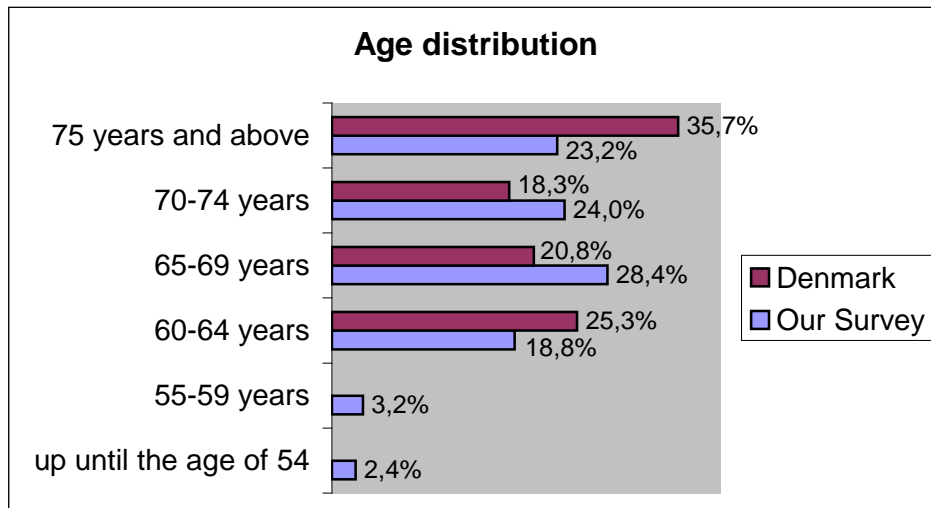
Repetition and speed. The teachers all agree that it is important to repeat what is going to be learned again and again. They also agree on that the speed in the program have to very low.

Workshops. Several of the projects have arranged workshops beside the ordinary training program. In these workshops the seniors could practise what they had learned, discuss their problems with the computer and get answers to their question in a relaxed and informal atmosphere. Most the workshops have been running of the helping teachers.
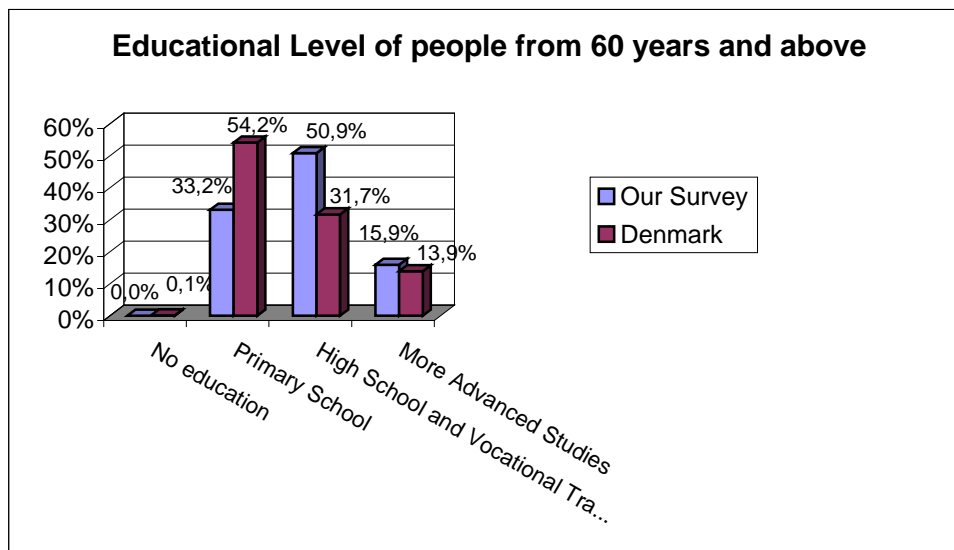
Support. The old ICT-users have experienced a big need for support for many things. In the first place they need support to decide what kind of equipment they shall buy. Then they need help to install software and finally they need help to solve all the everyday problems with the computer. In many projects is it also the ICT-skilled help teachers who have taken care of this function.
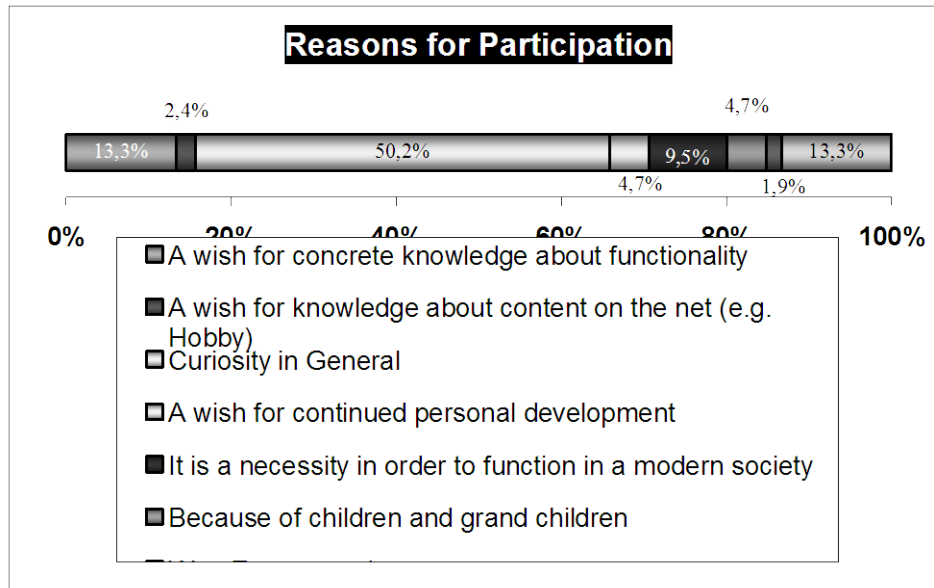
Social Inclusion and Empowerment

As mentioned earlier, the overall objective of the program was to avoid a digital divide in the Danish population. Thus it is also very interesting to analyse whether or not the program have generated social inclusion of the seniors to the information society and by doing this worked as a tool for empowerment.

Age distribution

Age group	Denmark	Our Survey
75 years and above	35,7%	23,2%
70-74 years	18,3%	24,0%
65-69 years	20,8%	28,4%
60-64 years	25,3%	18,8%
55-59 years		3,2%
up until the age of 54		2,4%

Source: Johansson, 2002: 7

Educational Level of people from 60 years and above

	Our Survey	Denmark
No education	0,0%	0,1%
Primary School	33,2%	54,2%
High School	50,9%	31,7%
More Advanced Studies and Vocational Tra...	15,9%	13,9%

Source: Johansson, 2002: 9

Reasons for Participation

A wish for concrete knowledge about functionality

A wish for knowledge about content on the net (e.g. Hobby)

Curiosity in General

A wish for continued personal development

It is a necessity in order to function in a modern society

Because of children and grand children

Source: Johansson, 2002: 10

Conclusion

Beside the knowledge produced to fulfil these objectives the projects in the program have produced knowledge about other topics. The limit of this paper does not allow me to go into details but I can mention that the program has produced knowledge about how to organize development projects like this; how to use a program like this as a mean for political steering; how the Senior Citizens domesticate ICT; how to disseminate the experiences of the program; about the physical implications for old people to use a mouse – just to mention the most visible topics. All these other topics and the knowledge produced about them are analyzed in Danish in (Jæger, Forthcoming-b).

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