The impact of information and communication technology on people with intellectual disabilities: narratives of professional caregivers

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Abstract
Purpose: The aim of the present study was to explore professional caregivers’ experiences of using an ICT device in the everyday lives of people with intellectual disabilities.

Method: Data was collected through open-ended individual interviews which were analysed using qualitative content analysis. Nine professional caregivers of persons with intellectual disabilities were interviewed.

Results: The results showed four themes: “A tool for improved everyday life and work”, “Incorrect use of ICT by the caregivers”, “A tool for autonomy” and “Requirements for worthwhile use of ICT in daily life”.

Conclusion: The use of ICT technology can contribute to improvements to everyday life, better social inclusion and increased participation for persons with intellectual disabilities.

Keywords: Information and communication technology (ICT), intellectual disabilities (ID), professional caregivers, experiences in daily life, qualitative content analysis
Points of Interest

- This article looks at the effects of an ICT tool on the everyday lives of people with intellectual disabilities (ID) living in group homes. This paper examines and identifies the experiences of the professional caregivers of people with ID in terms of ICT usage.
- It explores issues that are associated with the technology and suggests possible improvements.
- This paper highlights how people with ID live and how they communicate with their professional caregivers and family members using ICT.
- This work also provides information on the levels of technical knowledge and interest that these users have.

Introduction

Technology can in many ways support increased self-determination and participation in activities in peoples’ daily lives. However, widely available technologies such as computers and mobile phones are not usually designed with people with ID in mind, although computer usage and Information and Communication Technology (ICT) usage throughout the whole population is growing fast (Harrysson, Svensk & Johansson, 2004). Studies have demonstrated the importance of ICT in promoting empowerment, increasing social contact and improving quality of life for people with ID (Davis, Stock & Wehmeyer, 2002; Renblad, 2003). Modern ICT could make a significant contribution to achieving the above mentioned. However, the lack of customised ICT solutions designed specifically for people with ID makes it difficult for the vast majority of them to communicate with the outside world. Nevertheless, ICT technology is to some extent involved in the daily lives of these people, their families and their professional caregivers, and there is a need to explore what it is like to live daily life with such tools. The importance of ICT for people with ID has been recognised
in research (see, for example Renblad, 2003; Östlund & Linden, 2011), but there is a limited amount of research concerning the experiences of these groups using ICT in everyday life. In this study, the experience and benefits of ICT, as described by professional caregivers assigned to support the daily lives of people with ID, have been examined. Increased knowledge of the experiences of persons with ID should serve as the basis for the development of new and existing ICT products, and also contribute to the design of structures for the assessment, testing and introduction of new ICT products on the basis of identified needs. The purpose of this study was to explore professional caregivers’ experiences of using an ICT device in the everyday lives of people with ID.

**Background**

**ICT in health care**

ICT is a concept that covers different types of knowledge in technological solutions which help people communicate. The main purpose of ICT tools in health care is to support older people and people with disabilities in their daily activities and, as such, these tools also have various positive effects in supporting family members and professional caregivers. ICT has been used in the care of those with mild, acquired cognitive impairments and one study demonstrated how ICT became a useful tool for one group (Eghdam, Scholl, Bartfai & Koch, 2012). ICT has also been used in the education and support of people with schizophrenia (Välimäki, Hätönen, Lahti, Kuosmanen & Adams, 2012). Arnaert and Delesie (2007) showed that telecare is so important that it should be integrated with other home-care services so as to maximise health care services. A study by Nilsson, Öhman and Söderberg (2006) demonstrated that communication between patients and their nurses improved and that the patients’ felt safe and secure regarding the use of ICT. The everyday lives of the patients were
improved. Regarding relatives, Magnusson (2005) confirms that the use of ICT by family caregivers is considered beneficial and even cost saving in many ways.

Professional caregivers are responsible for the correct dissemination and use of ICT and they also have to work hard to meet the standards necessary to operate it. Training caregivers in computer skills and ICT usage and then helping them to train people with ID is believed to be very important. Li-Tsang, Chan, Lam, Hui-Chan and Yeung (2004) have indicated that persons with intellectual disabilities have the capacity to learn ICT skills in a structured group with appropriate learning assistance and appropriate training tools. Sandberg, Gardelli and Stubbs (2005) showed that not only did the learning and teaching process create a close relationship between caregivers and persons with severe functional impairments; it also created a sense of responsibility felt by the caregivers as owners of the process.

**ID and ICT**

Intellectual disabilities are intellectual and cognitive disabilities which can be congenital or acquired, they can also occur in many forms (Gustavson, Umb-Carlsson, Sonnander, 2005; Harris, 2006). ID can also be categorised as mild, moderate or severe. Many people with ID have difficulty using today’s technology for many reasons; for example, the technology may not be available to them. With support from professionals working with ICT, it is possible to improve these peoples’ quality of life (Buntinx et al. 2010). The importance of ICT for persons with ID has been proven important in facilitating communication opportunities, accessing information and as a medium for lifelong learning (Parsons, Daniels, Porter & Robertson, 2008). People with ID represent a substantial proportion of the population yet they do not have good opportunities to use the technology. Many ICT tools have been introduced and are used in the care of older people but have not been introduced and used to the same extent in the care of people with ID. Nonetheless, studies show that using ICT has many
advantages for people with ID. Lifelong learning in terms of increased awareness of the world, self-determination in daily life, increased social contact and increased quality of life are some of the advantages that can be gained through ICT (Parsons et al, 2008; Renblad, 2003).

**Ippi – one example of an ICT device**

Ippi is one example of an ICT device that is used to support both older people and people with ID and which is an efficient tool for communication between professional caregivers, families and friends (Curry, Trejo Tinoco & Wardle, 2002; Östlund & Linden, 2011). Ippi also has some games for amusement. Using a cable, ippi can be easily connected to a regular TV. Once connected, ippi makes it possible to receive and reply to digital messages, e-mail, audio messages, pictures and videos using the TV. No PC or computer experience is required to communicate with others via video telephony, SMS, MMS and email. No installation is needed at home, nor is a broadband connection needed. Choosing ippi as an ICT solution helps people with ID to maintain social contact; it also enables them to create new social networks (Östlund & Linden, 2011).

Insert figure 1 about here

**Rationale**

ICT devices for people with ID are quite new on the market and there is a need of more and better knowledge about their experiences of using such technologies. Studies have focused on the improvement of the technology and little attention has been paid to how persons with ID experience it. The aim of this study was to explore professional caregivers’ experiences of using an ICT device in the everyday lives of people with ID. This study provides some insights into the use of ICT in everyday life for people with ID. ICT is relatively new in the health and welfare sectors, and having a good understanding of the experiences and attitudes
of the professional caregivers of people with ID is very significant in the dissemination and proper use of products in the future. The results from this particular study aim to serve as a means for developing and improving both new and existing ICT tools, and can be used as an instrument to individualise devices on a personal level. Furthermore, the study can be used as a means of raising awareness about which responsibilities professional caregivers should have in the future. Moreover, the knowledge that is obtained from this study will also provide valuable information for family members and other interested groups. The following research questions are expected to be answered:

1. How do professional caregivers experience the effect ICT/ippi has on the everyday lives of people with ID?
2. Does ippi change the way professional caregivers work; does it change their professional role?

**Methods**

**Design**

The present study is a part of the ongoing ‘Living and Working with ICT’ project at Mälardalen University, Sweden, regarding ICT tools in the health and welfare sectors. For this study, a qualitative design with semi-structured interviews was used to collect the data. A qualitative content analysis approach (Granheim and Lundman, 2004) was used to explore professional caregivers’ experiences of ICT in the daily lives of persons with ID who use the ICT tool known as ippi.

**Settings and Informants**

The study was conducted in a small town in the middle of Sweden. The study setting was comprised of two groups of professional caregivers caring for two groups of residents with ID
living at two different locations in the same town. As part of a test project, a total of eight residents from the two groups had been using ippi/ICT for the past eight months. The test project had been put in place by an R&D organisation in the region. Interviewing the residents was considered, but after consultation it was decided, out of respect for the persons with ID and because it would require special expertise, that their professional caregivers would be the voice of the groups in focus. Therefore, this study’s informants are professional caregivers who give daily support to persons with ID living independently in two separate residential groups. All of the professional caregivers (n=13) to the two groups were asked to participate in the study. The informants were aged between 23 and 55 and had been working in the field of care for persons with ID for many years. All except one, who was employed temporarily, were permanent employees. All of the informants were trained on the basic use of ippi and could operate it without any problem. Two of the informants had college degrees and were working in particular with educating their co-workers about ICT usage. Eleven of the 13 professional caregivers agreed to participate and gave their informed consent to participation. Of those eleven, one professional caregiver ended his employment prior to the planned interview day and one employee was on holiday during the interview period. The final group of informants consisted of nine professional caregivers, eight females and one male.

Interview guide

The interviews were based on a semi-structured interview guide covering various areas of questions concerning experiences of use, benefits, value and requirements of the ICT tool, ippi. The informants were encouraged to talk freely about their experiences with ippi and how ippi was used by the residents. The interviews were recorded using a digital recorder. The interview sessions varied in length from 30 to 60 minutes, with a mean time of 45 minutes, depending on the informants’ patience and their interest in explaining their experiences.
**Data collection**

For this study, a semi-structured interview was used. Semi-structured interviews enable the collection of varied information meaning that the interview guide can be modified at any time depending on how the interview develops (Holloway and Wheelers, 2010). As mentioned above, face-to-face interviews took place. Data were collected between April and July 2012. As informed consent had already been obtained a couple of months earlier, the process of data collection was smooth. Interviews were conducted in private at the informants’ preferred time. Each interview began with introductions and background questions about age, work experience and level of education.

**Ethical considerations**

Permission to conduct the research study was obtained from Mälardalen University and the municipal with responsibility for the care of people with ID. Permission was received before contacting the groups involved in this study. Prior to that, official permission had been acquired from the regional research ethics committee (EPN ref. no 2010/439). According to ethical considerations, voluntary participation is required; informants were told they were free to end their interview at any time without giving any reasons. All interview data collected were kept confidential under lock and key, and no outsiders could access it. In order to preserve their anonymity and confidentiality, the names and identity of informants have not been revealed when reporting the results of the study.

**Data analysis**

Data was analysed using the manifest content analysis method inspired by Granheim and Lundman (2004). Manifest analysis deals with the content aspect of the text and describes the visible, obvious components of the meaning. The interviews were transcribed in the two weeks after completion. The interviews were conducted in Swedish. All of the interviews
were transcribed in Swedish and then translated into English. Interview transcripts were analysed concurrently. Meaning units in an interview which were considered to be related to the aim of the study were further broken down into condensed meaning units. The condensed meaning units were assigned conceptual names (codes). After that, through a constant comparative method, codes that were conceptually similar were grouped into sub-categories. The sub-categories were sorted and abstracted into categories, this being the core feature of qualitative content analysis. Finally, categories were transcribed to themes, see Table 1.

Insert table 1 about here

Findings

Four themes emerged in the analysis. The first two themes, “A tool for improved everyday life and work” and “Incorrect use of ICT by caregivers”, reflect the professional caregivers’ own experiences of ICT tools. The two other themes, “A tool for autonomy” and “Requirements for worthwhile use of ICT in daily life”, reveal the experiences of the residents while using ICT instruments, as perceived by their professional caregivers.

A tool for improved everyday life and work

This theme is comprised of the following two categories: “A communication tool in everyday life and work” and “Support in everyday work and life”. The theme explains the experiences and comprehension of the professional caregivers regarding ippi. Together, the categories can explain how ippi is important for daily work and life. The professional caregivers needed to have sufficient ICT knowledge in order to assist the residents in their daily lives. It is also obvious that the values and benefits of using ICT tools are different when comparing the professional caregivers with the residents. It is important to see the professional caregivers’ feedback in terms of their understanding and perceptions of ICT.
A communication tool in everyday life and work

The informants noted that ippi was one of the communication tools that the professional caregivers to these particular group residents used in order to send messages, reminders, images and texts to the residents. The informants explained that greetings, jokes and weather information were other types of information that they sent to the residents. The professional caregivers explained that ippi was a very good communication medium and its use meant that they did not need to visit each apartment to deliver information. The informants believed that the introduction of ippi strengthened and supported the residents in their struggle towards independence and freedom. The professional caregivers experienced that increased perception and understanding contributed to them receiving fewer questions than before. The informants responded that the use of ippi affected them in a positive way in that they did not need to repeat information to the residents. “I save time by not having to phone them as I did before” said one informant (I4). The informants underlined that the introduction of ippi did not affect their working routine and they believed their role was unchanged, but that their work had been simplified. Ippi was considered as an effective medium for communication between the residents and their professional caregivers and even removed information redundancy for the caregivers.

Support in everyday work and life

The informants agreed that ippi brought them more into contact with the residents than before and they were positive to this. Having more contact was considered as constructive and it also created or contributed to good opportunities for getting to know one another. The informants explained that the technology contributed to easing their workload and gave them more time to do other things. The informants noted that after the introduction of ippi, they saved more
time by not having to call the residents. The professional caregivers explained that the support from ippi was tremendous in the sense that the residents could keep a message they received for many days and read it several times whenever they needed to. As a result, they managed to avoid losing information, something which often happened after telephone conversations.

**Improper use of ICT**

“Mistrust of ICT” and “Unmotivated professional caregivers” are the two categories which comprise the theme. The theme describes the professional caregivers’ role in the dissemination of ICT tools. Professional caregivers need to acknowledge that ICT tools support the residents towards increased autonomy. Without the caregivers’ support, it becomes very difficult for the residents to use the technology properly. The theme presents how professional caregivers reasoned about ICT tools.

**Distrustfulness about ICT**

Some informants thought that their professional role was not affected by the use of ippi. Informants explained that they had not experienced that their working routine had been affected by ippi. One informant said that she did not see any benefit in using ippi, underlining that the use of ippi had created no change in her routine. However, she emphasised how important ippi was to the residents because of the skills it enabled them to develop and the fun and amusement it brought to them. Some informants thought that the technology would not be long-lasting for their particular group of residents. They were uncertain about the future of the device at that particular group residence. Some informants considered ippi as an additional communication tool and if they were instructed to only use ippi it would become difficult for them to provide the help the residents needed. “Ippi is an additional way of communication.” explained one informant. “Even if we use ippi we also call them”. Said (I5). “I would rather
go there; it doesn’t mean that I don’t trust ippi but the residents sometimes have difficulty in understanding the information” argued (I4). The informant went on to say that she considered ippi as an additional reinforcement for her work and did not like the idea that residents had to cope with their daily lives only with the help of ippi. “If it is something important, just writing and sending it isn’t enough because they often forget, it is important for us to check” said (I2).

Unmotivated professional caregivers

The degree of ippi usage was not solely dependent on the experiences of the residents. According to some informants, the caregivers also had to achieve the technological capability of giving the right support. They thought that a more practical approach to using ippi was important and they underlined that everyone should use the technology properly rather than prioritise other communication media. It was the respondents’ experience that more careful planning was important when disseminating information about the importance of ippi. Some informants explained that for some of their co-workers it had been difficult for them to accept the new practice and it was also difficult to disconnect from the old one. “Support from the employees is very important,” expressed informant (I2), who continued “when the residents find it fun and important but those helping them don’t use ippi as much as possible or say it’s only a project, that’s very sad, but now everyone is involved.”

A tool for autonomy

This theme emerged from two categories: “Support for independence” and “A tool for communication and participation”. The theme explains how the technology helped the residents towards autonomy. Ippi helped the residents to gain control of their lives in terms of
managing their own schedules and decreasing dependency. Furthermore, ICT contributed to a significant change in lifestyle in terms of facilitating participation and inclusion in society.

Support for independence

Many of the project’s informants agreed that ippi facilitated a way for the residents to become autonomous. They observed the changes the residents went through and acknowledged the importance of ippi for these groups. One informant (I9) explained it like this: “now they don’t ask about much, they say ‘you’re working tonight’ instead of asking ‘who is working tonight.’” Another informant (I5) explained: “Three out of four had smartphones before and in some way it reminds them of mobiles.” Most of the respondents believed that the struggle of the residents towards autonomy was alleviated after the introduction of ippi. Many of the informants thought that with the support of the technology most of the residents could accomplish daily activities more independently. “We used to go there and tell them that they had to prepare food but now we send notices and messages through ippi and when we get there everything is in place and we don’t need to go from apartment to apartment” (I2). One informant (I3) expanded on the point above and said “Ippi helps the residents to stay in contact with family members, relatives and to receive text messages or photos.” The professional caregivers noted that ippi made it possible for the residents to see the world in a different way. It also contributed to their increased understanding of everyday life and gave them more control of their daily lives.

A tool for communication and participation

The informants expressed that the use of ippi by the residents could have positive effects on their daily activities and also influence their social relationships. Informants said that exclusion was the main problem for the residents and that most of the time they are excluded
not only from the society but also from technology. Yet ippi contributed to them feeling involved and included. One informant (I8) said that “the residents feel they are included by using the technology and this positive attitude has resulted in satisfaction and excitement in their daily lives.” According to one respondent (I2), the residents were satisfied with the extent to which they were a part of modern society. “Most of them think it’s fun because the whole community uses various technologies and they also have something”, they have become included in the technological society. The informants pointed out that ippi contributed to better relationships with others. The relationship between the professional caregivers and the residents was given as an example. The informants spoke of the relationship between the residents and the ippi centre, which is part of ippi solutions; where the residents receive questionnaires once a week. This kind of activity was believed to be a cornerstone for increased participation in the daily lives of the residents. The introduction of ippi had been useful in many ways; one informant in particular underlined that the device enabled them to try some games and they had the opportunity to play games with the residents, which was considered fun by them. These kinds of activities were considered important in creating an atmosphere which increased a sense of belonging and a sense of participation in activities practiced by many.

**Requirements for worthwhile use of ICT in daily life**

This theme is built on three categories: “Importance of social network”, “Technological problems” and “Individual adjustments”. Social networks with family members and other groups have the potential to determine the extent of ICT usage. Also, the reliability of the technology is very important; otherwise ICT tools easily become an obstacle in the daily lives of persons with ID. Social networks, e.g. relatives, friends, etc. are required to communicate with. For persons without relatives or friends, their motivation to use ICT is occasional in the
introductory phase but does not usually last in the long run. For the residents, it is a common requirement that the technology functions without recurring disruptions since these can be more stressful for this group of ICT users. Another important aspect of ICT is an adapted and well-developed interface that means “easy use” for the residents.

**Importance of social network**

Many informants explained how social context or network determined the extent of ippi usage. Those with relatives were more attracted to ippi than those with no contacts at all. One informant (I9) explained it like this: “Apart from our messages, some of them receive messages and photos of loved ones from their relatives, and they think ippi is fun and they appreciate it. On the other hand, those who have no relatives don’t get any messages or photos and as a result show little interest in ippi.” The informant continued, “We shouldn’t just blame the residents, the responsibility should be equally shared with their relatives.”

There was dissatisfaction among the professional caregivers about relatives’ commitment to the residents and their use of ICT devices, for example, that they did not take the opportunity to send photos to the residents. “I have one user in my group who has a close family member in another country but he/she never sends photos and it is a shame as we have a very good communication medium” (I8).

The informants agreed that having more social contact could contribute to a positive attitude towards ippi which further strengthened the extent of ippi usage. Those residents who had active family members thought that using ippi was fun, but most of them did not have families who sent images or messages. It was argued by many informants that when family members send messages they also want to receive answers or need to have a reply, but most of the residents cannot answer without the help of their professional caregivers. “Some family
members send messages, but many do not have families and it's really hard. If they had been older, things would have been better because they would have children and grandchildren which would mean more communication and for them it would be just perfect. One of the residents has relatives and communicates well with them, provided they do not call too often, so now they send messages and pictures and the user thinks ippi is entertaining” explained one informant (I2).

Technological problems

The informants believed that the ippi technology was not difficult but almost all experienced it as complicated and advanced for the persons with ID in their particular group of residents. Prior to introducing ippi, the residents had become familiar with ippi and received training. Informants explained that all of the problems with the technology had been solved as quickly as possible whenever they occurred. But they also emphasised taking into consideration the situation of the residents. These repeated obstacles could create confusion and stress and as a result the residents could tend to avoid the technology. The informants wished to see an upgraded version of ippi where the technology enabled them to see one another so that the burden associated with reading and writing would become less of an issue. “I wish ippi could be more practical, to be able to see the residents on TV and talk to them rather than having to write so much” (I4). The professional caregivers explained the importance of coloured markings to these particular groups. “If the button had coloured markings, it would be easier to use” (I2). Another informant (I3) explained that “it has sometimes been difficult, I think. The device sometimes freezes, it does not work”.

Individual adjustments

The informants believed that the usability of ippi was determined by the willpower, age, degree of disability and level of understanding of the residents, and also depended on the simplicity of the technology. “The prototype is not easy for many users, only for some; the wheel button is sensitive and sometimes it turns too fast” (I7). The ippi remote control was a challenge for the residents to operate and it lacked coloured markings. The informants argued that the features on the remote control were not easily understood by the residents and it was difficult to differentiate between the functions. These problems was not shared by all informants as some of the residents had already started using smartphones and were familiar with the technology. It was noted that the perseverance level varied from user to user and having a good understanding of the importance of ICT devices was believed to be important. One informant explained that people with ID have limited patience with many things and especially when watching TV, most of the residents did not want anything to disturb them and they got annoyed when ippi messages suddenly flashed up. The informants underlined the need to properly understand the motivation levels of the residents as they could be used as a means to create solutions that facilitated the usability of the technology by persons with ID.

Discussions

Most of the informants expressed their satisfaction with the technology although some of their colleagues were not exactly sure about the value gained from ICT tools. The results from the present study demonstrate that support from professional caregivers is very important in the use of ICT by the residents. It contributes to interest, interaction and confidence towards the technology and at the same time paves the way towards empowering them. Lindstrand and Brodin (2004) also agree that without the support of caregivers, the opportunity to use ICT by persons with ID is very limited. The introduction of ICT solutions to persons with ID to
support their daily activities was considered useful by the caregivers. The present study identified that persons with ID need a great deal of support in operating ICT in order to gain the ability to access the technology. The current study found that a lack of support from caregivers can be a significant threat to the dissemination of the technology and a procedure based on proper and fair usage is suggested by the caregivers. Parsons, Daniels, Porter and Robertson (2006b) also emphasised the importance of organisational principles in terms of individuals’ support in the use of ICT resources. The present study emphasises that supporting the residents without any preconditions is considered very important for creating an atmosphere that is clear and understandable for them. Li-Tsang, Chan, Lam, Hui-Chan and Yeung (2006) pointed out the importance of support from caregivers in increasing the ICT usage of persons with ID. Caregivers in this study pointed out many factors that affect the use of ICT by the residents. Difficulties in reading and writing were considered to be the main factors.

This study’s findings suggest that the technology affected the way the professional caregivers work. The informants noted that the technology had lightened their workloads in such a way that they did not need to visit all of the apartments of the residents. The professional caregivers underlined that their contact with the residents increased considerably compared with before the introduction of ippi. Having more contact was considered useful in creating opportunities to get to know each other. On the other hand, some informants did not think that their professional roles or even their work routines had been affected by the use of ippi. However, they emphasised how important ippi was to the residents because of the skills it enabled them to develop and the fun and amusement it brought to them. It was considered vital that professional caregivers prioritise the benefits that could be gained from the use of ICT by the residents. Li-Tsang, Lee, Lam, Siu and Yeung (2006) mean that if the caregivers
have limited skills in ICT operation, achieving a positive outcome becomes very difficult. The authors further suggest that training for professional caregivers to improve ICT usage should be in place so as to succeed in helping the persons with ID and the caregivers’ co-workers.

The caregivers in this study recognised the rights of the residents to access ICT devices, and showed good comprehension about the potential that ICT can bring them in terms of improving their quality of life, enhancing opportunities for social inclusion, support for independence and as a tool for increased communication and participation. ICT was considered as a favourable means of enhancing what can be understood as empowerment among people with ID. The technology contributed to reducing telephone contact and enabled the residents to act based on messages they received. Letting the persons with ID react to the technology was believed to pave the way towards autonomy, where the persons with ID no longer needed to ask as many questions as before. Furthermore, the technology helped the residents to accomplish things by themselves. Moreover, interaction with ICT increased their participation, communication and satisfaction, all of which are very important in ending exclusion.

Enormous developments in welfare technology in favour of modern communication technology, mobile phones and computers have been observed in recent decades, although these developments are not sufficiently available to people with ID (Harrysson et al. 2004). People with ID are usually excluded from society and are considered as belonging to a separate group. Most of the time, they live in distress and are subject to many health problems (Gustavson, Umb-Carlsson, Sonnander, 2005). According to “The International Classification of Functioning, Disability and Health” (ICF), every human being can experience decreased health status and through that experience disability to some degree (WHO, 2001). The
WHO’s perspective is that excluding people based on their disability is wrong and it is argued that disability can happen to everybody. Persons with ID who are not treated equally may survive their mistreatment because of their coping mechanisms. These coping mechanisms are very important. Antonovsky (1987) means that people with an ability to endure problems have mechanisms like optimism and positive attitudes towards life. People with ID are vulnerable to disease, as well as substandard living conditions, housing standards and lifestyle. It is not primarily their living conditions that differentiate persons with ID from other citizens; rather, it is difficulties with proper recreational activities and health problems that contribute to social isolation (Gustavson, Umb-Carlsson, Sonnander, 2005). The present study indicates that by using ICT one can easily create recreational activities that decrease social isolation. The present study found that gaming using ICT devices is possible and helps to increase participation and can also be used for educational purposes.

The results from the present study show that from the professional caregivers’ point of view, most of the residents have the skills or abilities that are necessary to use ippi. Their confidence can be used as an instrument to empower themselves and further increase their autonomy and independence. The result from Parsons et al. (2006a) also suggests that ICT usage strengthens the confidence of persons with ID and can be considered as a main source of health and good living standards and has proven important in terms of achieving self-sufficiency. The findings of many studies (Aspinall & Hegarty, 2001; Parsons, Daniels, Porter & Robertson, 2006a; Parsons et al., 2008) also demonstrate how ICT is important in empowering people with ID to an independent way of life. The present study shows that social networks, relationships with friends, family members and other parties, are important in determining the degree of ICT usage. An opportunity to communicate with family members, for example, can open the door to an increased interest in ICT usage. This study shows that
those residents with considerable social contacts were more attracted to the technology than those with limited or no contacts. Renblad (2003) also pointed out that the degree of ippi usage is largely affected by communication between persons with ID and friends, family members and others. The lack of a communication partner other than the professional caregivers contributed to negative interaction with the technology, in line with the findings of Li-Tsang, Chan, Lam, Hui-Chan and Yeung (2006).

In this study, professional caregivers were used as informants, representing the residents. Direct interviews with the residents were also considered, but because of the specific expertise required to interview them, the professional caregivers were given priority as informants. The authors have taken into consideration several limitations to the study. If first-hand information could have been obtained, the results would have been stronger. The eight month test period for the project was quite short as persons with ID need more time to learn something properly. Although the test period for the whole project involving these particular target groups was short, the results from the study are considered strong enough to give useful information. Another aspect is the professional caregivers’ levels of education; the group of caregivers was a heterogenic group with varying ICT knowledge and experience. Therefore, in addition to the residents only having eight months to learn the ICT device, the professional caregivers only had a few days of introduction and it is assumed that they learned and developed their skills and understanding of the ICT device during the project. A follow-up study 12 months later might give another result regarding the professional caregivers’ experiences of the issue. Even if the nature of the study is small in scale, it does provide some useful illustrations and information on the topic.
Conclusion

The results from the current study provide useful knowledge about what it is like to live with an ICT device. ICT usage contributes to increasing an independent lifestyle, social inclusion and improved social contact. It opens up a good possibility for a better way of life and further strengthens good health for persons with ID. These better standards of living have potential benefits in cost reduction. Social support and networks are critical ingredients for the successful dissemination of ICT amongst persons with ID. As persons with ID demonstrate varying levels and kinds of disability, ICT devices should be adapted on an individual level. Support from professional caregivers has been proved very important and should be given significant attention. ICT usage by persons with ID without the involvement of professional caregivers is difficult. Caregivers should appreciate their role and show their willingness to help and work with other professional groups in order to make a significant contribution to the struggle of persons with ID towards autonomy and a better social life. Although this study presents some aspects of the technology in terms of understanding the experiences of persons with ID using such devices, further research is needed to maximise this understanding.

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References


Figure 1, Photo of the ICT device, ippi. [http://sv.wikipedia.org/wiki/Ippi_(mobiltelefon)](http://sv.wikipedia.org/wiki/Ippi_(mobiltelefon))

Table 1, Themes and categories describing professional caregivers’ experiences of using an ICT device in the everyday lives of people with ID.

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<th>Themes</th>
<th>Categories</th>
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<td>A tool for improved everyday life and work</td>
<td>Communication tool in everyday life and work</td>
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<td>Support in everyday work and life</td>
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<td>Mistrust of ICT</td>
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<td>Unmotivated professional caregivers</td>
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<td>A tool for autonomy</td>
<td>Support for independence</td>
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<td>A tool for communication and participation</td>
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<td>Requirements for worthwhile use of ICT in daily life</td>
<td>Importance of social network</td>
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<td>Technological problems</td>
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<td>Individual adjustments</td>
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