Spring 3-19-2013

Combating Social Exclusion Of Young People With ICT Applications

Hannakaisa Isomaki
University of Jyvaskyla, hannakaisa.isomaki@jyu.fi

Marjo Kuronen
University of Jyvaskyla, marjo.kuronen@jyu.fi

Follow this and additional works at: http://aisel.aisnet.org/ukais2013

COMBATING SOCIAL EXCLUSION OF YOUNG PEOPLE WITH ICT APPLICATIONS

Isomäki, Hannakaisa
University of Jyväskylä, Department of Mathematical Information Technology,
Jyväskylä, Finland
Email: hannakaisa.isomaki@jyu.fi

Kuronen, Marjo
University of Jyväskylä, Department of Social Sciences and Philosophy,
Jyväskylä, Finland
Email: marjo.kuronen@jyu.fi

Abstract

Social exclusion of young people is a major socio-economic challenge all over Europe. This paper discusses the development and use of ICT applications to tackle the problem. The paper begins with a review to existing research on the possibilities of the ICT in social inclusion of young people. Secondly, as a way forward, a multidisciplinary approach is suggested, which would combine perspectives from social sciences, information systems, human-computer interaction, information technology and electronic commerce. The suggested approach combines technological and economic parameters of ICT development with social factors related to well-being, quality of life, gender, cultural and social conditions, and community values of young people. Particular emphasis is put into involvement of young people themselves in the development and innovation of ICT applications suggesting that a user-driven approach and participatory methodology are crucial in the successful development of ICT based applications for young people.

Keywords: Social inclusion, young people, ICT, digital divide, participatory approach

1.0   Introduction

A major socio-economic challenge all over Europe is social exclusion of young people. It is also high on the agenda of the European strategies. The young population is recognised as one of the most vulnerable groups in society, especially during economically difficult times. The vulnerability of young people compared to the total population is clearly shown in statistical information collected by Eurostat (2009): children and young people are more likely to live at risk of poverty, the youth unemployment rate is high, and the share of young people who are neither in

employment, education or training (NEET) has grown in recent years. Furthermore, the modern labour market often offers unsecure and short-term employment, for young people in particular. This means an increasing risk of social exclusion and inequality between generations but also among the generation of young people. EU Strategy for Youth 2010–18 (European Commission, 2009) has two overall objectives: to provide more and equal opportunities for young people in education and in the labour market and to encourage young people to be active citizens and participate in society (also European Union Youth in Action programme 2007– 2013). One suggested solution to tackle this challenge is the development of ICT based applications to promote social inclusion, active citizenship and empowerment of young people.

However, discussion concerning young people, their use of ICT and social media, and social exclusion/inclusion is rather contradictory. On the one hand, ICT use of young people is seen very positively. Young people are thought of as "digital natives" having a natural aptitude and high skill levels when using new technologies (e.g. Jones et al., 2009). According to this optimistic view "Young people are at the forefront of the technology revolution, which is the driving force behind the global emergence and evolution of the information and knowledge society." (Eurostat, 2009, 138). On the other hand, public and political debate, as well as previous research, very much concentrates on risks and dangers related to the use of ICT and social media of children and young people in general (see e.g. Livingstone et al. 2011), and especially of those young people at risk of social exclusion (Cullen et al. 2011, 52-54). Thus, at the same time as young people are considered the key drivers of socio-economic growth in their use and dissemination of ICT, it has been found that young people who are somehow excluded from society are also excluded from ICT or their Internet use is considered as harmful or excessive and as having negative consequences (e.g. Smahel et. al., 2012). Access to ICT and social media is not the major issue in Europe. In the EU27 countries, 85% of children and young people aged 11-17 in 2008 had access to the Internet, varying from around 50% in Italy to 100% in the Nordic countries and the Netherlands (Livingstone et al. 2010, 34), and probably the countries with the lowest rates are catching up. Instead, the major challenge is the ways in which young people use ICT, their skills and awareness in using it, and so called "digital divide" (Livingstone & Helsper, 2007) between different groups of young people.

In this paper, we will discuss the connections between social exclusion/inclusion and the development and use of ICT applications, and the possibilities of ICT to tackle the problem of social exclusion of young people. As there is already quite a lot of research and statistical information available concerning the use of ICT and social media by children and young people (see e.g. Livingstone et al., 2010 and 2011) as well as the reasons and risks of marginalisation and social exclusion of young people (see e.g. Cullen et al., 2011; Eurostat, 2009), we will look beyond them and concentrate on the possibilities but also limitations of ICT to advance the social inclusion and active participation of these young people in society, in their community and personal daily lives.

We will first make a review to existing research on young people, social inclusion and the use of ICT. Secondly, we argue that in the future, a stronger multidisciplinary approach is needed in the research and development of ICT applications for young people at risk of social exclusion, which would combine perspectives from social sciences, information systems, human-computer interaction, information technology and electronic commerce. It is important to combine technological and economic parameters of ICT development with social factors related to well-being, quality of life, gender, cultural and environmental conditions, and community values of young people. We further argue that ICT based solutions should be developed with a strong involvement of the young people themselves, and in cooperation with the adults working with them (e.g. youth workers, community workers, social workers) who have a crucial intermediate role. Access and use of ICT alone is insufficient to support inclusion and active citizenship of young people but it should be complemented with proper efforts to encourage their active participation (Cullen, Cullen & Hamilton, 2011, 106). Thus, we suggest that user-driven approach and participatory methodology are crucial in the development of ICT based applications for young people.

2.0 Young people, ICT and social inclusion

According to prior studies, information and communication technologies (ICT) – seen as rich interplay of hardware devices, networking platforms and software applications – represent a source of many potential benefits for young people (e.g. Vromen, 2008; Coleman & Rowe, 2005; van den Bosch & Dekelver, 2009). ICT can facilitate

enhanced formal and informal learning, creativity, social participation, civic engagement and employment (Cranmer, 2010; van den Bosch et al., 2010). Using ICT can also help young people to cope with difficult and disturbing situations in their lives such as illness, bereavement and family breakdown (Cranmer, 2010). In recent years, ICT has received significant enhancements and has also become a tool for community development, from both an economic and social perspective. Thus, networked media and particularly the Internet should be seen as an appropriate medium to facilitate social inclusion (Steyaert & Gould 2009; Marschalek & Unterfrauner 2009; van den Bosch & Dekelver, 2009), even if not without certain limitations and problems. Existing research on ICT supported social inclusion concentrates on the use of social media, digital divide and ICT skills of young people.

2.1 Use of ICT and social media in supporting social inclusion

Discussion concerning ICT supporting young people in social life has seen social media as a tool to facilitate social inclusion of young people, to reach them, and to enhance their social capital. However, previous studies of social media as a tool to reach young people at risk of marginalisation have been found to be underdeveloped and contradictory (Cullen et al., 2011). There is evidence of both positive and negative experiences of applying ICT, and particularly social media to support young people at risk of marginalisation and improve their reachability (e.g. van den Bosch & Dekelver, 2009). Cranmer (2010) argues that young people who are already experiencing an offline "participation gap" are also experiencing it on the Internet (see also Kuronen & Isomäki, 2010, 191). Approaching young marginalised people can be a challenge, because their exclusion from society and societal resources creates a feeling of rejection which consequently leads to a lack of trust to professionals and unwillingness to take part in the organisations wanting to help them (Marschalek & Unterfrauner, 2009).

Prior research (see Cullen et al., 2011) shows that positive effects associated with young people's use of ICT are highly dependent on contextual factors, and using right tools in the right context is thus of paramount importance. Moreover, the mere provision of digital technologies to young people is not sufficient to socially engage them. Cullen et al. (2011, 9) highlight the central role of carefully structured interaction between youth intermediaries (e.g. youth workers) and young people

mediated via the appropriate use of ICT and tailored specifically to the needs and preferences of the young people.

Various ways of using ICT and social media can encourage young people to civic and political activities and participation (Coleman & Rowe, 2005, 3; Bakker & de Vreese, 2011). However, local welfare policies have often failed to engage young people in decision-making. It is shown that young people tend to avoid top-down information (Barber, 2009; Yardley, 2011). Barber (2009) points out that in many cases participation is perceived to be an adult activity, where young people are put aside. There are few opportunities for young people under the age of 18 years to participate in political, economic, or social decision making (ibid, 26–27). Coleman and Rowe (2005, 2) argue that the active citizenship offered to young people lacks appeal because it seems too remote from their everyday experience and disconnected from the levers of power. Nevertheless, if young people can engage in democratic activities on their own terms, they are often more active than older people. They are engaged in a wide range of civic and political activities, but within informal structures that are not easily recognised or understood by political scientists. In political decision-making, it remains too easy to neglect the powerful influence of the diversity of young people's own experiences and ideas (Coleman & Rowe, 2005, 5). It is important to find new sustainable ways, e.g. by the means of social media, which help young people to participate in political decision-making as well as in education and the labour market.

Valenzuela, Park and Kee (2009) found out that the intensity of Facebook (social media) use appears to be related with personal contentment, greater trust, and participation in civic and political activities among college students studied. They argue that using Facebook can enable users to engage in behaviour that contributes to their social capital. It is important for young people to interact with other people, also unfamiliar people, to become socialised. It seems that the most important thing in social media is friendly relations and that they take place in public. Friends are publicly articulated, profiles are publicly viewed, and comments are publicly visible. Thus, social media can be seen as an important tool for an individual's identity development (Boyd, 2007). Social media can at best help young people to develop their identity, aid them in building networks, enhance their social capital and personal well-being (Putnam, 2000; Vromen, 2008; Barber, 2009; Coleman & Rowe, 2005; van den Bosch & Dekelver, 2009; Cranmer, 2010).

Despite being very important to young people, social media has its drawbacks. One of them is privacy, which seems to be in contradiction with openness and publicity of social interaction in social media valued by young people. All documents and conversations in social media immediately become public, unless otherwise provided for by security design and settings. Although personal profiles usually allow preserving a high level of confidentiality and security, many teenagers do not use or know how to use that option. (Boyd, 2007) Adults continuously warn young people of the dangers of social media (e.g. privacy issues and predators) and try to restrict their use of the Internet. As regards to young people, they are rather sceptical about why anyone who does not have the same interests or particular note for them would specifically search for them. Yet, there are at least two groups of social media users who have a great deal of interest in them: those who hold power over them (e.g. parents, teachers, social workers and other local government officials), and those who wish to prey on them (e.g. marketers and predators). (Boyd, 2007)

It is impossible, and not even reasonable, to prevent young people from participating in social media. It has an important role in sharing collective experience with other people. Public life validates the reality that we are experiencing. Young people must enter that arena, make mistakes, and learn from them. Adults, both parents and professionals working with young people, can be their guides instead of policemen. (Boyd, 2007) Although ICT-driven communication solutions play an ever greater role and are gradually replacing interpersonal communication, there is always a real person behind any digital identity and this is why youth work should extend into virtual space (Székely & Nagy, 2002). It has been argued that youth work can only be effective if it is based on online communication, as young people usually feel more at home on the Internet than in the offline world. Today, it is easier to enter the same community with young people than at any time before – it is only a question of the proper tools and knowledge of youth workers, social workers and others working with young people (ibid, 2191).

It is not only young people who can benefit from ICT-based solutions such as social media tools, but also intermediaries such as youth workers, as they can enhance their youth work practices and other organisational processes through the use of ICT. More specifically, ICT tools can improve traceability of young people at risk of social exclusion, reduce their resistance to communicate and provide less structured and less hierarchical communication scenarios, as well as greater personalisation and

customisation of social inclusion services to their needs. They can also facilitate easier and faster collaboration and data sharing between youth workers (van den Bosch et al., 2010). In this context, social media applications should be viewed as a tool to reach young people, assist them in (re)entering the society and enhance their social capital.

2.2 ICT skills and digital divide among young people

All young people do not have the digital skills to manage e.g. privacy and personal disclosure (Livingstone et al., 2011, 18). Open source software often requires its users to have strong digital skills and confidence that socially excluded people usually do not have (Steyaert & Gould 2009). While computers, Internet and mobile phones have become more common and accessible, the material access to technology is not the major issue but rather the different ways in which different groups of young people use ICT. Research in this field currently concentrates on social and cultural factors that influence its use (Livingstone & Helsper, 2007; Tondeur et al., 2010; Holmes, 2011; Dimaggio & Hargittai, 2001; van den Bosch & Dekelver, 2009). It has been shown that socioeconomic status, but also gender is related to the digital divide among young people. Poor, low-educated young people have fewer options and skills to use ICT (e.g. Hargittai & Hinnant, 2008; Katz & Rice, 2002; van den Bosch & Dekelver, 2009). Dimaggio and Hargittai (2001) describe five dimensions of digital inequality: in equipment, autonomy of use, skills, social support, and the purposes for which the technology is employed. In addition, Livingstone et al. (2010, 45) further emphasise the differences in motivation, engagement, and attitudes, which tend to be more negative among socially disadvantaged groups.

To improve young people's participation and inclusion into society with the aid of ICT, initiation, establishment and the running of focused digital literacy programmes for young people is seen to be of paramount importance (Cranmer, 2010). When the focus is on children or young people it is crucial to pay attention to conceptual lucidity and good planning from the outset to ensure that the project is genuinely centred on young users both methodologically and practically (Yardley, 2011). Technological preferences of young people are thus the most important input for successful ICT design. Young people are most attracted to sites with high interaction possibilities, where they can set up peer-to-peer communication networks

and exchange views with their friends through discussion forums where they feel they are listened to (Coleman & Rowe, 2005, 6). Also, the most successful social media activities are those inspired by the young people themselves (van den Bosch et al., 2010, 15).

While the studies of young people's ICT skills are increasingly common, there are still rather few studies focusing on youth workers' use and skills of ICT. As the popularity of online communications grows, professionals working with young people need to prepare for this major change of instrumentation by improving and polishing their ICT skills (van den Bosch et al., 2010). These skills become especially important in the situation where young people do not want to let authorities too close to them (van den Bosch & Dekelver, 2009). The basic principles of online youth work are that the youth worker should be identifiable, responsible, have an interactive digital identification, is able to build a network, and attract as many participants as possible and to make them active (Székely & Nagy, 2002, 2195).

It is widely assumed that intensity of Internet use improves digital skills, but the rate of such improvement is not as high as has been thought (e.g. Matzat & Sadowski, 2011; van Deursen et al., 2011). Therefore, active ICT skills training should be preferred instead of passive improvement through regular Internet use. The efforts to diminish the digital divide among young people should thus aim at focused training of ICT skills for young people and youth workers.

3.0 ICT supported social inclusion: state-of-the-art of the current initiatives

As shown above, existing academic research concerning ICT-based social inclusion provides rather complex and even contradictory findings. What comes to the existing ICT-driven initiatives, they vary by their conceptual and technical design aspects, including targeted user groups and inclusion scenarios, declared social inclusion goals and activities, utilised technological platforms and interfaces, etc. However, the efforts for improving social inclusion of young people should continue, and new initiatives could benefit from the following state-of-the-art depiction regarding ICT based initiatives for social inclusion.

The spectrum of a larger scale initiatives targeting young people's social inclusion with ICT is predominantly composed of European Commission funded

projects even if those do not cover the whole field (see Cullen, Cullen & Hamilton, 2011). The state-of-the-art in the field of ICT-driven youth empowerment and inclusion into social life and civil society is to a large extent formed by the five most visible EU FP7 projects, including ComeIn (Online Mobile Communities to Facilitate the Social Inclusion of Young Marginalised People), HANDS (Helping Autism-diagnosed teenagers Navigate and Develop Socially), INCLUSO (Social Software for the Social Inclusion of Marginalised Youth), rePlay (Gaming Technology Platform for Social Reintegration of Marginalised Youth) and UMSIC (Usability of Music for the Social Inclusion of Children).

ComeIn project (Marschalek & Unterfrauner, 2009) was oriented to the socioeconomic inclusion of marginalised young people currently not in employment, education or training (NEET) and specifically targeted at improvement of their educational attainment and their (re-)insertion into the labour market through focused development of their learning and self-entrepreneurship skills respectively. The project carried out its social inclusion activities through a dedicated mobile online community platform, a cellular network access social media environment for young people which features rich video streaming services with content adaptation and personalised user interfaces. (Marschalek & Unterfrauner, 2009)

The main idea behind the HANDS project (Schärfe, Øhrs et al., 2009) was to improve the life conditions of teenagers suffering from an autism spectrum disorder (ASD) via the establishment of a mobile ICT platform providing them with a toolset and supporting services for various difficult situations in their daily lives. The toolset and services were tailored specifically to the needs and traits of teenage students and the process of their interaction with the system by means of specialised individual mobile terminals controlled and monitored by teachers. With the pilot implementation of the HANDS mobile toolset they aimed to raise awareness of problematic behaviour of ASD disadvantaged children and to investigate how their attitude and behaviour may be changed through the use of technology.

INCLUSO project (Van den Bosch et al., 2010) represented a comprehensive ICT-driven initiative for socioeconomic inclusion of marginalised young people in Europe. Its main goal was to provide practical evidence of the positive effects social media can produce on youth in terms of personal development, social integration, and active citizenship. In INCLUSO, several pilot projects were focused on user-driven scenarios and activities and utilised popular established open source social network

software platforms for conducting planned youth inclusion work. Furthermore, INCLUSO took intermediary youth work organisations into account by formulating sustainability criteria and social/business impact generation opportunities for their online inclusion work mediated through social software.

The rePlay project (Cretu et al., 2011) aimed to facilitate interactive psycho-pedagogical counselling work with school youngsters featuring anti-social behaviour problems. The rePlay platform utilised an innovative approach both to study children's behaviour and decision-making mechanisms and to provide them with an attractive counselling tool that was based on the use of 3D educational gaming technology.

Finally, the UMSIC project (Laakkonen et al., 2010) targeted social inclusion and development of communication and language skills and creativity of young children (not young people) through the use of mobile technology, social media and music technology. Methodologically, the project combined child-centred usability, intelligent musical engineering and pedagogical design allied with structured learning material. Technologically, the UMSIC concept relied on the establishment of a local area multiple access social network for children to create and share musical content. UMSIC strives for social inclusion of disadvantaged children (3–12 years old) through top-down structured work scenarios mostly carried on a small scale in a classroom.

In sum, the state-of-the-art of ICT supported initiatives for social inclusion of young people is diverse in terms of both the age of the young people, specific target group, and the type of ICT applications. In addition, the way social inclusion is maintained to achieve real community development varies a lot. Cullen, Cullen and Hamilton (2011) who have studied the impacts of existing initiatives conclude that impact assessment of these initiatives is under-developed, and thus, it is difficult to evaluate their success. Their main finding is that "'Success' in using ICTs to support at risk young people is highly dependent on contextual factors, and using the right tools in the right context for appropriate purposes". They continue that "the most 'successful' initiatives are those that adopt a 'learning for inclusion' approach" by which they mean a strong involvement of trainers as intermediaries, where learning is used as a catalyst to break the cycle of social exclusion (ibid.   7-8). Their findings clearly show that future initiatives should be developed in close cooperation with young people to meet their needs, but also with adults working with them e.g. youth

workers as important intermediates who often have a good 'grip' of the daily life of young people and knowledge of the community they live in. It is crucial to continue these efforts because of the excessiveness of the challenge of social inclusion of young people.

4.0 Future research directions: a need for a multidisciplinary and participatory approach

To combat social exclusion of young people with the help of ICT applications is clearly a multidimensional challenge. To tackle this challenge, a multidisciplinary approach is needed involving social, sociotechnical, technical and business viewpoints. These standpoints reflect current trajectories in the fields of the social sciences, information systems, human-computer interaction, information technology and electronic commerce. These will combine technological and economic parameters of ICT development with social factors related to well-being, quality of life, gender, cultural and environmental conditions, and community values of young people. Social sciences and information technology do not always communicate very well with each other (Kuronen & Isomäki, 2010, 205-206) but that is the only way forward if we want to gain sustainable and successful solutions to complex problems that require a multidisciplinary approach. In developing ICT applications, it is also crucial to involve young people themselves in the development and innovation of such applications. Thus, we suggest user-driven innovation (e.g., Chang & Kaasinen, 2011) and participatory approach (Schuler & Namioka, 1993; Iivari et al., 2010) in the development of ICT based applications for young people, but also for other user groups.

From the social viewpoint, social scientific knowledge is needed to understand the processes and indicators of social exclusion/inclusion of young people, requirements and limitations of their active citizenship (e.g. Barber, 2009; Hoikkala, 2009), and social conditions of their daily life both quantitatively (e.g. Eurostat, 2009) and qualitatively. These are also emphasised in European strategies for youth: to provide more and equal opportunities for young people in education and in the labour market and to encourage young people to be active citizens and participate in society (European Commission, 2009; European Union Youth in Action programme 2007-2013).

Future research and development initiatives should work closely with the young people to find new ways for their social inclusion and active participation in society, in their community, and their personal daily lives. To deepen the understanding of social inclusion/exclusion phenomena it is important to complement the traditional top-down view (by scientists, politicians, professionals and other adults) with a bottom-up grassroots perspective by young people themselves. Here, social sciences could make an important contribution in providing new methodological approaches to listen and involve young people to the development process.

From the socio-technical viewpoint the main idea relates the socio-cultural circumstances in Europe in order to develop and guide the interaction between society's complex infrastructures and human behaviour in a favourable direction. The most significant method of socio-technical ICT development throughout the ages is participatory design or user participation (Schuler & Namioka, 1993; Iivari et al., 2010). Participation is essential because it is necessary to see humans as actors within the infrastructure, where the continuing merger of social and technological infrastructures provides and necessitates new possibilities to renovate past notions, models and methods of ICT development and use (Isomäki & Pekkola, 2011, 1–8). Further, user participation needs to be closely related to the distinctive activities in the ICT development process, such as mutual alignment of ICT artefacts and organisational and social context where the artefact is to be used, identifying and specifying the needs of people who are assumed to use the system, organisational implementation and the evaluation of these artefacts (Iivari et al., 2004). The nature of participation is crucial. Greenbaum and Kyng (1991) emphasise that user participation should be authentic and full, aiming at enhancing users' skills rather than rationalising them. User participation also refers to continuing mutual learning processes involving ICT designers, analysts and users (Bødker et al., 2004). Participation in ICT development is a social process (Newman & Noble, 1990; Markus & Mao, 2004) and the resulting applications should be social systems, only technically implemented (Hirschheim et al., 1995, 36). As a socio-cultural phenomenon, participation is also context dependent and requires cultural adaptation in knowledge sharing (Evaristo, 2007), global software development management (Evaristo, 2010) and user interface design (Collins, 2002).

The participatory development of ICT applications involving young people's open social interaction and knowledge-sharing necessitates the inclusion of two

slightly contradictory aspects: openness and privacy. On the one hand, in accordance with the Public Sector Information directive, ICT applications should be open because of the centrality user-created content in social media, and the open source software components that should be used in ICT implementation. Open data has the power to reveal information and create knowledge about the processes and structures in society that affect citizens of all ages, including young people. Open data also empowers people to develop the type of services they feel a need for or that highlight possibilities and dilemmas in society. In this respect, ICT applications need to be designed in line with open data and open content principles. On the other hand, the user-created content needs to be ensured with procedures that guarantee privacy to the users when needed. Privacy is broadly recognised as a dominant concern for the design of new interactive technologies (e.g. Patil & Kobsa, 2005), and seen as a user's ability to maintain a personal space within which the user can control the conditions under which personal information is shared with others (El-Khatib et al., 2003). Rather than by social withdrawal, the maintenance of a personal space is carried out by a dialectic and dynamic boundary regulation process (Palen & Dourish, 2003). Because information sharing is the core activity in collective awareness creation, privacy regulation is an essential functionality in the design of ICT applications for social inclusion in order to find a safe and secure pathway for the young people to share ideas and experiences with other users.

The final socio-technical idea concerns the visuality of social media, in which much interaction is based on visual data such as video and photographs. We live in a highly visual world, creating and sharing visual information through technologies. Aesthetics as a basic human need highlight the positive influence on cognitive and emotional processes in human-computer interaction (HCI), which further enhances user's experiences and positive attitudes (Tractinsky, 2012) as well as engagement with technology (Sutcliffe, 2009).Visual images also necessitate new considerations regarding privacy because video media, such as open videophone applications, are perceived by users as both privacy invasive and privacy insensitive (Boyle & Greenberg, 2005). In the development of ICT applications for social inclusion, the visual aesthetics design of the user interface should be carried out with the young people.

From the technical viewpoint the main ideas of the development of ICT based solutions should be closely related to visions on Future Internet and Networked Media

that form the foundation of the large-scale industry-driven initiatives of the Networked and Electronic Media (NEM) and Networked European Software and Services Initiative (NESSI). Thus, the development of ICT applications for social inclusion is expected to contribute to the NEM mission (NEM, 2009) by promoting the convergence of media, telecommunication and information technologies within its approach and by developing and introducing novel audiovisual and multimedia content, services and applications. This kind of technologies could provide young European citizens advanced personalised services delivered over a variety of access technologies (including mobile terrestrial and broadband wired and wireless Internet networks) and through a variety of end-user devices (including desktop, portable and handheld computers, and new generation mobile phones) in a seamless and interactive way. Due to massive continuing convergence of contemporary media and service technology landscapes under the umbrella of the future Internet, NEM share many common objectives and challenges, both technological and societal. Therefore, by addressing most of the NEM challenges future initiatives also contribute to the realisation of the NESSI strategic vision on the path towards smart services supporting the societal and business needs of European citizens (NESSI, 2010). One specific objective is to represent a technology solution enabling the participative Internet realisation by extending user role in service design, sharing and consumption.

From the business viewpoint the main idea should take into account that Europe needs to strengthen entrepreneurism by extending the awareness of the web as an environment for entrepreneurs to grasp the new opportunities offered by the web and the apps economy. At present, the increasing competition may not have taken out the leaders in various product segments in software business, but it surely is shaking up the lower strata of vendor organisations. Major ways for organisations to survive in such a turbulent industry are to provide newer functionality at a faster rate, to localise software to a particular cultural setting (Collins, 2002), and to look beyond conventional ways of doing business (Johnson et al., 2008). This scenario could result in completely new ways of doing business or augment the existing business models to meet the growing survival challenges. In either case, the software product industry is an appropriate case for business model innovation. In future initiatives, included in the participatory development approach, the young people could be able to obtain knowledge from both OSS/hybrid business model development and localisation of software.

5.0 Conclusions

Participatory methodology along with a multidisciplinary approach is essential in the work aiming at social inclusion of young people. Despite ICT's key role in reducing the 'digital divide' as a key component of social exclusion of young people, the use of ICT alone is insufficient to support their inclusion and active citizenship and should be complemented with proper efforts to encourage their active participation (Cullen, Cullen & Hamilton, 2011, 106). Therefore, participatory methods should be defined, introduced and developed from the viewpoints of social inclusion in youth work, user-driven innovation for co-creation of ICT. This way the contextual and cultural factors of young people will be included in the use and development of ICT applications, and a close fit between user needs, inclusion work and the adopted ICT development strategy is ensured (Cullen, Cullen & Hamilton, 2011, 104). In addition, diverse deployment of participation during the development projects promotes learning for inclusion in terms of ICT development and use, and in active online participation in knowledge co-creation and sharing within user-driven innovation regarding, for example, user interface design and prototype testing.

In future R&D activities regarding social inclusion of young people, the following aspects of ICT development should be highlighted:

- user-centeredness via introduction of novel forms of user multimedia content and user-driven innovation and design of new social media applications as well as interactive tools for collaborative content and knowledge creation and sharing;
- global accessibility and pervasiveness due to access technology neutrality and advanced global network infrastructure;
- innovation, sustainability and extensibility via the application of renewed participatory design methodology blending the roles of service and content producers and consumers, introduction of new concepts and tools for collaborative service-oriented software development based on open innovation principles and the open source software paradigm; privacy and security via application of privacy-based design framework and principles on the service lifecycle, which specify open data aggregation in the presence of privacy concerns, and efficient security testing and monitoring environments
- interoperability due to utilisation of open standards, advanced software and service technologies
- scalability and real-timeliness due to utilisation of intelligent techniques for real-time processing and analysis of big data

The main aim in the future should be to involve young people in the innovation and development of ICT applications, to improve their ICT skills and safe use of it.

One of the key issues is participation. Participative methodology is crucial in working with young people. In youth work it is important to think what would motivate young people to take action. Young people need to be heard and take part in planning; they need to bring their own ideas into it. We argue, that participative methodology could be utilised and further developed in its full potential in order to build inclusive communities by inspiring and connecting youth to ICT application development. This in turn leads to active citizenship that promotes real-time communication of best practices in young people's efforts to find their way in life.

Acknowledgements

References

Bakker, T.P. and De Vreese, C.H. (2011) Good news for the future? Young people, Internet use and political participation, *Communication Research,* 38(4), 451-470.

Barber, T. (2009) Participation, citizenship, and well-being: Engaging with young people, making a difference, *Young,* 17(1), 25–40.

Boyd, D. (2007) Why Youth (Heart) Social Network Sites: The Role of Networked Publics in Teenage Social Life, In D. Buckingham (ed.) *MacArthur Foundation Series on Digital Learning – Youth, Identity, and Digital Media Volume*, MIT Press, Cambridge, MA, 1-26.

Boyle, M. and Greenberg, S. (2005) The Language of Privacy: Learning from Video Media Space Analysis and Design, *ACM Transactions of Computer-Human Interaction*, 12(2), 328-370.

Bødker, K., Kensing, F. and Simonsen, J. (2004) *Participatory IT Design: Designing for business and workplace realities*, MIT Press, Cambridge.

Coleman, S. and Rowe, C. (2005) *Remixing Citizenship. Democracy and young people's use of the Internet,* Carnegie Young People Initiative. Research report. London. Available at: http://ccp.obiki.org/resources/libraryresearch/reportremixingcitizenshipdemocracya ndyoungpeoplessuseoftheinternet.attachment/attachment/Carnegie_v3LRES_0.pdf. [Cited 30.11.2012]

Collins, R. W. (2002) Software Localization for Internet Software: Issues and Methods, *IEEE Software*, March-April 2002, 74-80.

Cranmer, S. (2010) Listening to excluded young people's perspectives on how digital technologies support and challenge their lives, *Journal of Social Intervention: Theory and Practice* 19(4), 31-48.

Cretu, C., Chihaia, D. and Coroeru-Rogoz N. (2011) rePlay. 3D Gaming Platform as Instrument and Strategy for Psycho-pedagogical Counselling in Schools, In *Proceedings of the 3rd International Conference on Education and New Learning*

Technologies (Edulearn 2011), pp 2669-2678. Available at:
http://library.iated.org/view/CRETU2011REP [Cited 30.12.2012]

Cullen, J., Cullen, C. and Hamilton, E. (2011) Impact Assessment of ICT-based
Initiatives, In A. Haché, E. Sanz, C. Centeno (eds.) *Mapping and Assessing the
Impact of ICT-based Initiatives for the Socio-economic Inclusion of Young People
at Risk of Exclusion*, The Tavistock Institute. Available at:
http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/documents/FINALimpactsassessme
ntwithTavArcolacovers.pdf

Cullen, J., Cullen, C., Hamilton, E. and Maes, V. (2011) Conceptual Overview on
Youth at Risk and ICT, In A. Haché, E. Sanz, C. Centeno (eds.) *Mapping and
Assessing the Impact of ICT-based Initiatives for the Socio-economic Inclusion of
Young People at Risk of Exclusion*, The Tavistock Institute. Available at:
http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/documents/FINALimpactsassessme
ntwithTavArcolacovers.pdf

DiMaggio P. and Hargittai E. (2001) *From the "digital divide" to "digital
inequality": Studying Internet Use as Penetration Increases*, Working Paper 15.
Center for Arts and Cultural Policy Studies, Princeton University, Princeton.
Available at: http://www.princeton.edu/~artspol/workpap/WP15%20-
%20DiMaggio%2BHargittai.pdf. [Cited 30.12.2012]

El-Khatib, E-K., Korba, L., Xu, Y. and Yee, G. (2003) Privacy and Security in E-
Learning, *International Journal of Distance Education,* 1(4), 1-14.

European Commission (2009) *An EU Strategy for Youth* – Investing and
Empowering. COM(2009) 200final. Available at:
http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0200:FIN:EN:
PDF

European Union Youth in Action Programme 2007-2013 website
http://eacea.ec.europa.eu/youth/programme/about_youth_en.php

Eurostat (2009) *Youth in Europe.* A statistical portrait. Publications Office of the
European Union, Luxembourg.

Evaristo, J.R. (2007) Knowledge Transfer Across Borders: A Process Model,
Knowledge and Process Management, 14(3), 203-210.

Evaristo, J.R. (2010) Managing Cultural Differences in GSD Projects, In Paasivaara,
af Ornäs, Hynninen, Lassenius, Niinimäki & Piri (Eds.) *Practical Guide to
Managing Distributed Software Development Projects*, Helsinki University of
Technology, Software Business and Engineering Institute, Technical Reports C12:
Espoo, Finland, 103-107.

Greenbaum, J. and Kyng, M. (Eds.) (1991) *Design at work: Cooperative design of
computer systems*, Lawrence Erlbaum Associates, Hillsdale, N.J.

Hargittai, E. and Hinnant, A. (2008) Digital Inequality: Differences in Young Adults'
Use of the Internet, *Communication Research*, 35(5), 602-621.

Hirschheim, R, Klein, H. and Lyytinen, K. (1995) *Information Systems Development
and Data Modeling. Conceptual and Philosophcial Foundations*, Cambridge
University Press, Cambridge.

Hoikkala, T. (2009) The diversity of youth citizenships in the European Union. Young
17(1), 5–24.

Holmes, J., (2011) Cyberkids or divided generations? Characterising young people's
internet use in the UK with generic, continuum or typological models, *New media
& society* 13(7), 1104–1122.

Iivari, J., Hirschheim, R. and Klein, H.K. (2004) Towards a Distinctive Body of
Knowledge for Information Systems Experts: Coding ISD process knowledge in

two IS journals, *Information Systems Journal* 14, 313-342.

Iivari, J., Isomäki, H. and Pekkola, S. (2010) The User - the great unknown of systems development: reasons, forms, challenges, experiences and intellectual contributions of user involvement, *Information Systems Journal* 20, 109-117.

Isomäki, H. (2011) Information Systems Development as an Intellectual Process: Designers' Perceptions of Users, In H. Isomäki & S. Pekkola (Eds.) *Reframing Humans in Information Systems Development*. Springer, London, pp 93-111.

Isomäki, H. and Pekkola, S. (Eds.) (2011) *Reframing Humans in Information Systems Development*, Springer, London.

Jones, C., Ramanau, R., Cross, S. and Healing, G. (2009) Net generation or Digital Natives? Is there a distinct new generation entering university?, *Journal of Computers & Education*, 54(3), 722-732.

Johnson, M., Christensen, C. and Kagermann, H. (2008) Reinventing Your Business Model, *Harvard Business Review*, December. 2008.

Katz, J.E. and Rice, R.E. (2002) *Social consequences of internet use: Access, involvement, and interaction*, MIT Press, Cambridge, MA, USA.

Kuronen, M. and Isomäki, H. (2010) Parempaa sosiaalityötä vai teknologian orjuutta? – Ihmisläheisen tietojärjestelmien kehittämisen mahdollisuudet sosiaalityössä. [Better Social Work or Slavery of the Technology? – Possibilities of Human-Centered Information System Development in Social Work] In A. Pohjola & A. Kääriäinen & S. Kuusisto-Niemi (Eds.) Sosiaalityö, tieto ja teknologia [Social Work, Knowledge and Technology], PS-kustannus, Jyväskylä, 113-130.

Laakkonen, J. & Kallonen, T. & Heikkinen, K. and Porras, J. (2010) Usability of Music for Social Inclusion of Children. System and Architehture Requirements for UMSIC Middleware, *Vehicular Technology Magazine, IEEE, Special Issue*, 5(1), 55-61.

Li, S., Shang, J. & Slaughter, S. (2010) Why Do Software Firms Fail? Capabilities, Competitive Actions, and Firm Survival in the Software Industry from 1995 to 2007, *Information Systems Research*, 21, 631-654.

Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children,* Full Findings. LSE, London. EU Kids Online. Available at: http://www2.lse.ac.uk/media@lse/research/EUKidsOnline/EU%20Kids%20II%20(2009-11)/EUKidsOnlineIIReports/Final%20report.pdf. [Cited 2.1.2013]

Livingstone, S., Das, R. with contributions from Georgiou, M., Haddon, L., Helsper E. and Wang, Y. (2010) *Media, communication and information technologies in the European family,* Familyplatform. Existential field report 8 (Working Report). Available at: http://eldorado.tu-dortmund.de/handle/2003/27684 [Cited 12.2.2013]

Livingstone, S. and Helsper, E. (2007) Gradations in digital inclusion: children, young people and the digital divide, *New Media & Society,* 9(4), 671-696.

Markus, M.L. and Mao, J.-Y. (2004) Participation in Development and Implementation – Updating an Old, Tired Concept for Today's IS contexts, *Journal of the Association for Information Systems*, 5(11-12), 514-544.

Marschalek, I. and Unterfrauner, E. (2009) Social inclusion of Young Marginalised People through online mobile communities, In *Proceedings of IDC 2009 – The 8th International Conference on Interaction Design and Children*, Como, Italy, 3-5 June 2009.

Matzat, U. and Sadowski, B. (2011) Does the "Do-it-yourself approach" reduce digital inequality? Evidence of self-learning of digital skills, *The Information Society*, 28(1), 1-12.

NEM (2009) *Vision 2020 "Networked and Electronic Media" European Technology Platform*, September 2009. Available at: http://www.nem-initiative.org/documents/vision.html

NESSI (2010) *Smart services for the digital society*. The NESSI vision statement. October 2010. Available at: http://www.nessi-europe.com/default.aspx?Page=position_papers

Newman, M. and Noble, F. (1990) User involvement as an interaction process: A case study, *Information Systems Research* 1(1), 89-110.

Palen, L. and Dourish, P. (2003) Unpacking Privacy for a Networked World, In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, New York, NY, USA, 129-136.

Patil, S. and Kobsa, A. (2005) Uncovering Privacy Attitudes and Practices in Instant Messaging, In *Proceedings of the GROUP'05 Conference*, November 6-9, Sanibel Island, Florida, USA, 109-112.

Putnam, R.D. (2000) *Bowling Alone. The Collapse and Revival of American Community*, Simon & Schuster, New York.

Sawyer, S. (2000) Packaged software: implications of the differences from custom approaches to software development, *European Journal of Information Systems*, 9(1-2), 47-58.

Schuler, D. and Namioka, A. (Eds.) (1993) *Participatory design: Principles and practices*, Hillsdale, NJ.

Schärfe, H., Øhrstrøm, P. and Gyori, M. (2009) A Conceptual Analysis of Difficult Situations -developing systems for teenagers with ASD, In *International Conference on Conceptual Structures* (ICCS-2009), Moskva, Rusland CEUR Workshop Proceedings.

Smahel, D., Helsper, E., Green, L., Kalmus, V., Blinka, L. and Ólafsson, K. (2012) *Excessive Internet Use among European Children,* EU Kids Online report. November 2012. Available at: http://www2.lse.ac.uk/media@lse/research/EUKidsOnline/Home.aspx. [Cited 20.12.2012]

Steyaert, J. and Gould, N. (2009) Social Work and the Changing Face of the Digital Divide, *British Journal of Social Work,* 39(4), 740–753.

Sutcliffe, A. (2009) Designing for User Engagement: Aesthetic and Attractive User Interfaces, *Synthesis Lectures of Human-Centered Informatics*, 2(1), 1-55.

Székely, L. and Nagy, A. (2011) Online youth work and eYouth - A guide to the world of the digital natives, *Children and Youth services Review,* 33(11), 2186–2197.

Tractinsky, N. (2012) Visual Aesthetics. In M. Soegaard & R.F. Damn (eds.) *The Encyclopedia of Human-Computer Interaction*, The Interaction Design Foundation. Aarhus, Denmark. Available at: http://www.interaction-design.org/encyclopedia/visual_aesthetics.html

Tondeur J., Sinnaeve I., van Houtte M. and van Braak J. (2010) ICT as cultural capital: The relationship between socioeconomic status and the computer-use profile of young people, *New media & society* 13(1), 151–168.

Valenzuela, S., Park, N. and Kee, K.F. (2009) Is There Social Capital in a Social Network Site?: Facebook Use and College Students' Life Satisfaction, Trust, and Participation, *Journal of Computer-Mediated Communication,* 14, 875–901.

van den Bosch, W. and Dekelver, J. (2009) *Social Software as a Tool for the Social Inclusion of Marginalised Young people*, Memori, University College Mechelen. K-Point, University College Kempen.

van den Bosch, W., Dekelver, J. and Engelen, J. (2010) Incluso: Social software for the social inclusion of marginalized youth, *Journal of Social Intervention: Theory and Practice*, 19(4), 5–18.

van Deursen, A.J.A.M., van Dijk, J.A.G.M. and Peters, O. (2011) Rethinking Internet skills: The contribution of gender, age, education, Internet experience, and hours online to medium- and content-related Internet skills, *Poetics,* 39,125–144.

Vromen, A. (2008) Building Virtual Spaces: Young people, Participation and the Internet, *Australian Journal of Political Science*, 43(1), 79-97.

Yardley, A.C. (2011) Children as Experts in Their Own Lives: Reflections on the Principles of Creative Collaboration, *Child Indicators Research*, 4(2) 191–204.