

Intergenerational Learning for the E-Inclusion of Senior Citizens through the prism of the GRANKIT Project

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Abstract

It is a well-known fact that despite the rapid growth of technology over the past years, not all people have equal access to information and knowledge. Senior citizens are one major example of people being excluded from the abundance of services that technology has to offer nowadays, which results in feelings of inactiveness, loneliness and isolation. This paper presents a European Project in the framework of the Lifelong Learning Programme entitled “Grandparents and Grandchildren Keep In Touch” (GRANKIT), which attempted to bridge the gap between senior citizens, their acquisition of basic ICTs skills and ultimately their access to information, knowledge and communication tools. The main aim of the GRANKIT project was to promote active citizenship regardless of age and to explore the relationship of the first and third generation by bringing together senior citizens (grandparents) with their grandchildren through the provision of basic ICT learning courses.

Keywords: *E-Inclusion, ICTs, Informal Learning, Intergenerational Learning, Lifelong Learning, Senior Citizens.*

1. Introduction

According to the United Nations population ageing is taking place in nearly all the countries of the world as a result of decreasing mortality and most importantly declining fertility. The global share of older people (aged 60 years or over) increased from 9.2 per cent in 1990 to 11.7 per cent in 2013 and will continue to grow as a proportion of the world population, reaching 21.1 per cent by 2050. At the same time, the older population is itself ageing. Globally, the share of older persons aged 80 years or over (the “oldest old”) within the older population was 14 per cent in 2013 and is projected to reach 19 per cent in 2050 [1].

The European Union is no exception as the age structure of the EU population is projected to dramatically change in

the coming decades due to the dynamics of fertility, life expectancy and migration rates. The overall size of the population is projected to not only be larger by 2060, but also much older than it is now. Those aged 65 and over will become a much larger share (rising from 18% to 28% of the population), and those aged 80 and over (rising from 5% to 12%) will almost become as numerous as the young population in 2060 [2].

It is therefore apparent that the world population is ageing and will continue to age in the coming years. The European Union recognizing this development and challenge declared the year 2012 as the “European Year for Active Ageing and Solidarity between Generations”. In this framework and sharing the idea that active ageing and intergenerational solidarity should be a priority, the idea of the project GRANKIT (Grandparents and Grandchildren Keep In Touch) was born in order to address these issues and help towards their implementation.

Senior citizens are often treated as a burden to society, especially after they retire from their jobs [3]. As a result they may feel useless, lonely and excluded. Studies have identified as specific stereotypes of the elderly being unhealthy, asexual, ugly, cognitively impaired, useless, isolated, lonely, poor, and depressed. The younger generations also suffer from stereotypes and have reportedly been misunderstood by the elders. Ageist attitudes limit contact, and encourage these stereotypes. In this context, the establishment of intergenerational programs that foster intergenerational relationships is crucial. Personal interactions between the young and old through intergenerational programs can impact and change attitudes and overcome some of the stereotypes that the young have about elders [4]. Evaluations of intergenerational programs have demonstrated the positive impact of intergenerational contact in attitudinal changes towards the elderly [5]. By working together towards a

common goal, focusing less on the age difference and uncovering the individual qualities of each other, the attitudes of group members towards one another are likely to improve and stereotypical behavior is likely to be avoided. For the elderly, it also leads to a new lease of life after retirement and a reduction in isolation, whereas for the younger generations it leads to an increased sense of wellbeing [6].

The intergenerational gap and the lack of interaction between generations is a widespread phenomenon. Seniors often feel forgotten and neglected, while on the other hand younger members feel that the older generation cannot understand them. It is absolutely necessary not to allow this gap to widen as the links between them will eventually fade. A possible solution could be the creation of intergenerational communities of practice, that are social structures in which people mutually engage over longer periods of time in various activities around a common domain, sharing their cognitive, emotional and spiritual knowledge [7], [8], [9], [10].

Intergenerational learning should be considered as a social vehicle that generates a purposeful exchange and transfer of knowledge among older and younger generations that yields individual and social benefits. It could be created in any kind of contexts in which young people and elderly people come together in sharing activities. The key component in any intergenerational learning process is knowledge sharing, based on the difference between the knowledge level of old people and the knowledge level of young people, and on the intrinsic motivation of the knowledge owner [11].

Family learning constitutes one of the pillars of intergenerational learning and lifelong learning in general and its importance has been recognized worldwide. At the same time, emphasis is given to the need to connect it with informal learning. As family learning has been strongly associated with social inclusion, it could make a major contribution within the field of lifelong learning [12].

Moreover, collaboration either in the form of family-learning and/or between complete strangers has emerged as an essential element of knowledge sharing and self-directed learning. In fact, in what regards intergenerational learning, it is fundamental that generational synergy in familial settings should be captured in social planning models, thereby, creating opportunities for intergenerational learning and the development of meaningful relationships among non-familial older and younger generations [13].

The aim is to promote active and healthy ageing through actions, policies and strategies that will promote social, family and e-inclusion and hence, access to information and lifelong learning anytime and anywhere. Looking for ways to get senior citizens involved in family and societal matters after their retirement will contribute greatly to their wellbeing and their good psychology.

Since ICT tools are integrated wherever possible, it becomes apparent that access to learning is increased, equal educational opportunities are provided for all and lifelong learning is ensured [14]. But is this the case for everyone? The answer is negative because it is commonly known that the vast majority of seniors do not possess adequate ICT skills in order to be able to access the aforementioned ICT-based lifelong learning opportunities.

One of the main problems that senior citizens face nowadays is their e-exclusion. The speed at which technology evolution runs constitutes a major obstacle for these people to use new technologies in their everyday life either for information and communication purposes or more importantly, for lifelong learning. Despite the fact that the vast majority of households possess a computer and a broadband Internet connection, it is commonly observed that only the younger members of the household know how to use it. In addition, the senior citizens children and grandchildren either don't have the time or are not motivated enough to teach the elders how to use the computer and the Internet in order to access useful information, learn, watch movies and communicate with the outside world. The pace of everyday life and the ever increasing responsibilities do not allow much time to attend to the older members of the family.

The use of new technologies in the knowledge-based society requires the possession of capabilities that would possibly lead to the exclusion of particular social classes and mostly the elderly. Lifelong learning programs should be developed to offer opportunities to senior citizens. In order for them to remain active participants and not to be excluded from social, cultural and economic life, the development of ICT skills is fundamental [15] [16].

The GRANKIT project aims to cover this gap and to promote and strengthen intergenerational solidarity and family learning through the provision of basic ICT courses to senior citizens with the help of their grandchildren that will enhance their digital ICT skills and enable them to have access to lifelong learning in all settings of learning from pre-school to post-retirement: formal, informal and non-formal [15], [17].

Intergenerational learning is often perceived as a social and knowledge transfer process that involves senior citizens passing on their knowledge, beliefs and practices to the younger generations [18]. The GRANKIT project attempts to reverse this perception by bringing the younger generation in the position of the knowledge conveyor. In the case of ICT, it is a cognitive subject at which the majority of the younger generation excels at. Hence, it made sense to incorporate the younger people in the training procedure that took place formally in a classroom, with a professional instructor and then continue the training process at home with their grandparents. The benefits of this procedure are twofold. On the one hand, we have the actual training of the seniors on ICTs aiming at their eventual e-inclusion, while on the other hand, we have the social aspect of covering the generational gap and strengthening the bonding of the first with the third generation, through a productive and worthwhile task for both involved parties.

ICT has the potential to facilitate and support adult informal learning, which includes leisure interests, work and day-to-day life and is considered to be as important as formal learning. A research survey on how ICTs are used by adults for informal learning showed that ICT-based learning could contribute to the fulfilling the potential of ICT to completely free learning from institutional barriers and allow learners to promote autonomous learning [19].

The importance of Web 2.0 and 3.0 virtual tools for lifelong learning is paramount because learning is no longer acquired individually, but it rather occurs through interaction in a digital and connected society. In the networked society there is an increasing demand for e-skills. E-skills and e-literacy have to coexist with soft skills that can be cultivated in social, collaborative and virtual contexts. Those who are not so familiar with computers, such as senior citizens for instance, need to adapt to this profile [20].

E-learning can help overcome educational barriers and provides new opportunities especially to seniors who may have mobility issues. ICT has become enabler of learning anytime and anywhere. It remains to be seen to what extent this technology-based lifelong learning will be successfully promoted by policy makers to all individuals in society, including senior citizens [21], [22].

2. The GRANKIT Project

GRANKIT (Grandparents and Grandchildren Keep In Touch) is a European project co-funded by the EU Lifelong Learning Programme under Grundtvig

Multilateral projects. The GRANKIT project explores the relationship developing between the first and the third generation of members of different European families through the provision of opportunities for learning basic ICT skills.

The project involved a large number of grandparents and grandchildren from four participating countries (Cyprus, Germany, Greece and Romania). Grandparents who might be educated but not necessarily computer literate, were trained with the involvement of their grandchildren to acquire basic ICT skills that will enable them to communicate with their grandchildren by using social network groups with the aim to provide support, guidance and help to their grandchildren, while at the same time reducing inactiveness, isolation and loneliness and become active citizens who can have access to the electronic world.

The aims of the project were to promote active ageing and intergenerational solidarity by providing direct and indirect opportunities for family learning, intergenerational learning and lifelong learning, to design and provide high quality structured ICT innovative courses to grandparents, to investigate ways in which grandparents and grandchildren can communicate in the modern society and finally, to contribute to the elimination of the feelings of loneliness, isolation and inactiveness that many people of the third generation feel.

The main aspect of the project was the actual ICT Training offered to grandparents based on the high quality ICT Guides designed and produced within the project.

2.1 Participants Needs Survey

During the initial stages of the project a survey was conducted, which was addressed to the two main target groups: The grandparents and the grandchildren. The aim of the survey was to identify their current ICT knowledge and skills, as well as related perceptions, views, relevant family facts that would assist the development of the project. In doing so the profiles of the participants were drawn and their ICT needs were identified. All data gathered was used for the development of the grandparents' basic ICT course as well as of the ICT step-by-step guides.

Through this survey we were also able to deduce how skilled the grandchildren were, in order to teach their grandparents the necessary skills required to enter the electronic world. The survey was based on two questionnaires (one for each target group), which included open-ended questions, as well as close-ended questions.

As far as the grandparents are concerned the first conclusion that was immediately drawn from the questionnaires was that the vast majority of them (70%) have no or very few ICT skills. A very interesting fact was that only 1 out of 10 uses Social Media tools and that only 20% possess an e-mail account. In addition, all of them showed an interest in learning how to use a computer and/or learn more things about it. The purposes for which they would like to learn how to use a computer had to do mainly with getting informed about various things, for communication and for being able to submit their tax declaration and less for entertainment.

When it came to answering more specifically about what they would like to learn, it turned out that e-mail, Skype and Google search were the most popular choices. 90% of the participants are retired and only 40% were educated.

Regarding the social aspect of the questionnaire, there seemed to be a very good relationship between the grandparents and their grandchildren as they talk regularly and in most cases (whenever there is no distance limit) they spend time together on a weekly basis. Almost all grandparents declared that they could learn something from their grandchildren and that they are willing to show them news things. Finally, all grandparents answered that they advise their grandchildren in their lives mainly about school and friendships.

On the other hand, as far as the grandchildren are concerned, the ICT picture was totally different as all of them answered that they possess basic ICT skills. The results showed that all of them are in the position to handle what is required in this project. Not surprisingly, all of them use Social Media and all of them have E-mail, Facebook and Skype accounts. LinkedIn was the least popular of the Social Media, which makes sense considering that the age group was 12-25 and most of them are still in the middle of their studies.

Most grandchildren use the computer in order to find news, to communicate, for entertainment and for help with school assignments. Unfortunately, 40% of them hadn't had the chance to help elderly people yet but were willing to do so if the opportunity presented itself. One of those who have actually helped elderly people said that she found the experience very difficult because her grandparents couldn't understand what she was teaching them.

The most popular choices regarding what they would teach their grandparents first, were how to turn on/off a computer, how to search for information using Google and how to use their e-mail account.

Regarding the social aspect of the questionnaire, the vast majority answered that they talk to their grandparents regularly and in most cases spend time with them (approximately once a week in most cases) and they talk about their news, family issues and school. Most grandchildren answered positively when asked if they could learn things from their grandparents and that they are willing to help them with their experience. Finally, all of them more or less show their grandparents things that are new to them mostly about new technologies.

Therefore, it was quite clear from the results that the grandchildren have both the will and the skills to help their grandparents and to guide them to the electronic world. Given that the grandparents appear to be computer illiterate in most cases but willing to learn if given the opportunity, it seemed that the GRANKIT project was heading towards the right direction in order to fill this gap in the lives of elderly people and strengthen the relationship between the first and third generations.

2.2 ICT Training

Following the preparation of the syllabi and the step-by-step guides, which were based on the aforementioned questionnaires, the ICT Training sessions began and were divided into two sections. The first part of the training focused on the acquisition of the Basic Computer Skills (Operating system, Word processing, Internet, E-mail) and the familiarisation with the Social Network Tools such as Facebook and Skype. The second part focused on the organization of learning activities between the grandparents and the grandchildren. In particular, the use of the Social Media mainly Facebook and Skype was the focus of the second part of the training.

Over 50 hours of training was allocated. More particularly, 18 hours were allocated to Basic Skills (Windows 7 Operating System), 16 hours to Word 2010, 12 hours to Internet (Google Chrome) and E-mail (Gmail), while 9 hours were allocated to the Social Media tools (Skype and Facebook).

Each partner modified the hours spent on the ICT training based on the needs of the participants (grandparents) as identified in the results of the survey, as well as on the real needs of the actual participants. Approximately 20 participants per partner participated in the process 10 of which were senior citizens and 10 were their grandchildren or other younger members of the family. Seniors in Greece were aged 60-80 years old, while the younger participants were aged 13-23 years old.

The grandparents from Greece were all from different educational backgrounds and had either very little or no ICT knowledge. On the other hand the majority of the grandchildren were either finishing school or in the early stages of their university studies and all had very good ICT knowledge and a real sense of responsibility for their role as teachers, factors which contributed greatly to the success of the ICT Training.

Some of the main issues that were encountered during the ICT courses were firstly, the different level of understanding among the participants, the difficulty in understanding the use of the mouse, the concept of folders and of a path, the lack of interest for the first part of the training that dealt with the basics of Windows and anticipation to move on to the more interesting parts such as the Internet and the Social Media. It was soon apparent that senior citizens need slow pace, repetition, frequent breaks and more time for practice, as well as frequent revision and that common terms and concepts we use in our everyday life are not so common for someone who is computer illiterate. The most difficult and more time-consuming part of the ICT training was the first component about operating systems, especially if one considers that the participants had no previous experience with the use of computers, as well as the last part with the creation of their Facebook accounts.

However, all the participants showed a real interest and motivation to learn and acquire basic ICT skills and Skype was by far the most popular topic covered, while most of the participants were slightly cautious about using Facebook.

The younger the senior participants the easier it was to grasp the material covered while on the other hand the older seniors easily lost interest, but still enjoyed the process especially when the grandchildren got involved. The role of the grandchildren was catalytic as they acted as keen assistant trainers and were able to show in practice what the trainer was explaining, thus saving time for everyone and making the whole process more efficient.

The training process involved an instructor in a computer room, where his computer was connected to a projector so that the participants could follow the step-by-step processes. After a certain process was shown by the trainer, the grandparents were asked to repeat it on their own computers by working in pairs in order to get to know and help each other. For more difficult processes, the trainer would help those who struggled and would answer to questions raised. When everyone was satisfied with the process, the trainer would continue to the next topic. Because of the limited amount of time, the trainer would

ask the participants to continue practicing the material covered at home with the help of the step-by-step guides, which they could find online on the project's website (<http://grankit.eu>).

During the Social Media tools training, the grandchildren got involved and in a way they assumed the role of the trainer with the guidance of the professional trainer. This way they had the opportunity to convey their knowledge of ICT to their grandparents and to get to know them better.

On the last day of the training, a questionnaire was handed out to all the participants, where they were asked to answer questions about the course content, the course delivery and about the communication and support they had from their instructor.

Everyone involved had only positive things to say about the course content and delivery as well as the communication and support except for the fact that the vast majority complained about the limited time. As it was mentioned before, senior citizens require more time in order to fully grasp and understand terms and concepts that those of us who use technology in our everyday lives take for granted.

Another factor that contributed greatly to the success of the ICT training was the overall good communication and understanding between the instructors and the participants. More importantly, the first generation collaborated really well with the third, which was one of the main goals and successes of the project.

The overall feeling was excitement and satisfaction to have learned basic ICT skills that will enable them to access information and knowledge anytime and anywhere and to be able to communicate with their family and friends either real or non-real time using e-mail, Skype and Facebook. In addition, they all asked for a continuation of the lessons in the near future in order to cover possible gaps and to even learn new tools.

In this framework and in order to strengthen the relationships between the grandparents as well as the relationship between the grandparents and their grandchildren, extra sessions were organized towards the end of the project in order to cover possible gaps and most importantly to present the Grands Help Desk, which is a special communication platform built especially for the GRANKIT participants and their friends in order to be able to chat in a more secure and controlled environment. The main objective of the Grands Help Desk is to provide the grandparents and the grandchildren an online communication tool so that the former can provide online

support to the latter regarding matters such as homework, school problems, family issues, etc.

Contrary to what happens in many European countries, grandparents in Greece play an active role in the upbringing of their grandchildren. Due to the fact that the parents are busy with their professional activities, grandparents take over the supervision of the children, taking them to school and helping them with their homework. Therefore, it makes sense that inter-family and intergenerational learning activities take place both ways. Both parties can become conveyors and sharers of knowledge and experiences to each other and hence seniors can learn how to use and exploit the numerous services that a computer and an Internet connection can offer.

3. M-Learning

3.1 From In-Class and E-Learning to M-Learning

The latest trend in lifelong learning is mobile learning or m-learning as it is commonly known as, whereby mobile phones and mobile in devices in general are perceived and used as learning tools. Learners can have access to information and knowledge using their mobile devices such as Smartphones and tablets, which enables them to have access to learning anytime and anywhere.

Mobile touch-screen devices, such as Smartphones and tablets, offer an easier way for people to access the world of information and education, due to the fact that controlling such devices can be achieved by pointing at the screen with a finger.

Web based distance learning can be a huge help for seniors, who often suffer from mobility issues. Electronic devices allow for customizing font sizes, which can help people with visual disabilities. Tablets or other devices with touchpad technology are especially beneficial to people with manual impairments. By opening up the world of modern technology to seniors we give them the ability to maintain cognitive ability, keep in touch with current information, find other people around the world who share their interests, and help fight feelings of loneliness.

The use of technology can provide a flexible learning framework which is preferred by adult learners. The latter are equipped with mobile devices that enable them to learn anywhere and anytime providing educators with new opportunities. It is realized that formal content could also be learnt in informal surroundings, since most of the

learning takes place out of the classroom. According to a study defining a theory for mobile learning is crucial for the successful design of a mobile framework for lifelong learning [23].

Another study has re-defined mobile learning in the conceptual framework of ubiquitous knowledge construction. From e-learning to m-learning, the authors proposed an alternative definition of mobile learning that gives emphasis on “widespread”, “just-in-time” and “when-needed” computing power for learners. In the m-learning infrastructure, mobile learners use ubiquitous computing technologies which are included in the aspects of mobile hardware, mobile software and mobile interface. Investigating pedagogies for mobile learning, their study interrelates mobile learning, constructivism and lifelong learning [24].

3.2 The OPALESCE Project

Within the aforementioned context a new project was initiated, which attempts to pick up where GRANKIT left off. The OPALESCE project (Online Portal and Active Learning System for Senior Citizens in Europe) concerns the design and development of an e-learning system, which will incorporate different multimedia formats, will focus on senior citizens and will run on mobile devices such as Smartphones and tablets, from which the user will be able to download open free educational content on various cognitive subjects. It's a Strategic Partnership for Adult Education project in the framework of Erasmus+ where partners from 4 countries participate (Greece, Germany, Portugal and Cyprus), which will run until 2017. (<http://opalesce.eduproject.eu/>)

The aim of the project OPALESCE is to create a distance learning system for senior citizens and to implement it in a way that attracts a large number of users and content providers. The distance learning system will be extremely simple to use, and it will run on mobile touch-screen devices such as tablets and Smartphones. By the end of the project it will be able to run on its own as a free system open to anyone.

In addition, an introduction course to the system for senior citizens with no computer experience will be developed in the framework of the OPALESCE project. The goal is to give groups most affected by the digital divide the opportunity to learn how to use modern technological devices and through the distance learning system open a gateway to further lifelong learning and a learning community.

The aim is that senior citizens will not only have easy access to a system that teaches them the basics of using mobile phones or tablets, but will also provide them with a tool for continuous lifelong learning despite their mobility issues. In practice senior citizens will most likely be supported by family members or teachers who can also provide the technical devices at first and introduce them to the OPALESCE distance learning system. Therefore, the OPALESCE project could be a big step in combating the digital divide in Europe.

4. Conclusions

The undeniable fact that world population is ageing has brought to the foreground the need to develop and promote intergenerational learning actions and strategies that will not only enhance interfamily learning but will go well beyond that.

Active citizenship regardless of age, dynamic ageing and intergenerational solidarity are top priorities for the European Union. The idea for the GRANKIT project was born in this context and framework and aimed at bridging the gaps between the first and third generations and between senior citizens and the use of ICTs through the provision of ICT courses to senior citizens with the active participation of their grandchildren and of younger people in general.

The results of the GRANKIT project were very gratifying and fulfilling for everyone involved. The seniors acquired basic ICT skills that will enable them to access the electronic world for information, communication and lifelong learning opportunities, while at the same time they had the unique opportunity to spend time profitably with their children and grandchildren. On the other hand, the younger participants had the opportunity to assume the role of the teacher and to transfer their ICT knowledge to their grandparents, while simultaneously getting to know each other better.

According to the participants themselves the GRANKIT project was “a present and a gift for life”, as it has given them hope, prospect, self-respect, new meaning and a new zest for life.

Through the ICT training senior citizens felt that their lives have changed. Their involvement in lifelong learning activities introduced them to the unknown for many years world of technology: E-mail, the Internet and Social Media tools enabled them to understand the new means of getting informed and communicating that their grandchildren are using and share with them this excitement.

Seniors showed a real interest in continuing this collaboration at home with their grandchildren, in meeting again in the future to cover possible gaps and finally, hoped for a new series of ICT training sessions that would cover more topics in the future. Participants in each country exchanged e-mail addresses and Skype accounts among them and with the teachers in order to answer questions remotely and continue the communication even after the end of the project. The OPALESCE project will attempt to pick up where GRANKIT left off by exploring the new world of m-learning through the provision of free short courses on various cognitive fields to seniors that will be accessible from mobile devices such as Smartphones and tablets.

The continuation of such intergenerational learning activities will give seniors the opportunity to stay active, healthy, to maintain their cognitive ability, keep in touch with current information, find other people around the world who share their interests, and help fight feelings of loneliness, isolation and inactiveness. Studies have shown that it is the companionship while learning that is the secret to happiness during the latter stages of life. Policy and decision makers should take the above facts into consideration and continue to develop policies and strategies that will ensure the promotion and financing of such activities in order to permanently obliterate both the electronic as well as the social exclusion of the members of the third generation once and for all.

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References

- [1] United Nations, Department of Economic and Social Affairs, Population Division. World Population Ageing 2013, New York: United Nations, 2013.
- [2] European Commission (DG ECFIN) and the Economic Policy Committee (AWG), The 2015 Ageing Report: Underlying Assumptions and Projection Methodologies, European Union, 2014.
- [3] I. Orzea, and C. Bratianu, “Intergenerational Learning in Ageing Societies”, in 9th International Conference on Intellectual Capital, Knowledge Management and Organizational Learning (ICICKM 2012), 2012, pp. 193-2000.
- [4] E. Slaght, and C. Stampely, “Promoting Intergenerational Practice”, Journal of Intergenerational Relationships, Vol. 4, No. 3, 2006, pp. 73-86.

- [5] S. Cummings, M. Williams, and R. Ellis, "Impact of an Intergenerational Program on 4th Graders Attitudes towards Elders and School Behaviors", *Journal of Human Behavior in the Social Environment*, Vol. 6, 2002, pp. 91-107.
- [6] S.K. Fletcher, "Intergenerational Dialogue to Reduce Prejudice", *Journal of Intergenerational Relationships*, Vol. 5, No. 1, 2007, pp. 6-19.
- [7] S. Greengross, "Intergenerational Programmes as a Global Approach to Social Issues", *Journal of Intergenerational Relationships*, Vol. 1, No. 1, 2003, pp. 11-13.
- [8] P. Baumard, "Tacit Knowledge in Organizations", London: SAGE Publications, 1999.
- [9] D. Ropes, "Intergenerational Communities of Practice: Shedding New Light on Older Workers?", in *International Conference on Organizational Learning, Knowledge, and Capabilities*, 2012, Valencia, Spain.
- [10] E. Wenger, "Communities of Practice. Learning, Meaning, and Identity", Cambridge: Cambridge University Press, 1998.
- [11] C. Bratianu, "A Critical Analysis of Nonaka's Model of Knowledge Dynamics", *The Electronic Journal of Knowledge Management*, Vol. 8, No. 2, 2010, pp. 193-200.
- [12] W. Kirk, D. McMenemy, and A. Poulter, "Family Learning Services in UK Public Libraries: An Investigation of Current Provision and Ongoing Development", *New Library World*, Vol. 105, No. 5/6, 2004, pp. 176-183.
- [13] S. Newman, and A. Hatton-Yeo, "Intergenerational Learning and the Contributions of Older People", *Ageing Horizons*, Vol. 8, 2008, pp.31-39.
- [14] J. J. C. Sánchez, and E. C. Alemán, "Teachers' Opinion Survey on the Use of ICT Tools to Support Attendance Based Teaching", *Computers & Education*, Vol. 56, No. 3, 2011, pp. 911-915.
- [15] A.S. Drigas, and V. Tsolaki, "Lifelong Learning and ICTs", *International Journal of Recent Contributions from Engineering*, Vol. 3, No. 2, 2015, pp. 15-20.
- [16] M. Repetto, and G. Trentin, "ICT and Lifelong Learning for Senior Citizens", *Journal of e-Learning and Knowledge Society-English Version*, Vol. 4, No. 1, 2008, pp. 189-198.
- [17] B. Davey, and A. Tatnall, "The Lifelong Learning Iceberg of Information Systems Academics - A Study of On-Going Formal and Informal Learning by Academics", *Journal of Information Technology Education*, Vol. 6, 2007, pp. 241-248.
- [18] V.L. Gadsden, and M. Hall, "Intergenerational Learning: A Review of the Literature", *National Center on Fathers and Families*, University of Pennsylvania, 1996.
- [19] N. Selwyn, and S. Gorard, "Exploring the Role of ICT in Facilitating Adult Informal Learning", *Education, Communication & Information*, Vol. 4, No. 2-3, 2004, pp. 293-310.
- [20] A. Loureiro, I. Messias, and M. Barbas, "Embracing Web 2.0 & 3.0 Tools to Support Lifelong Learning - Let Learners Connect", *Procedia Social and Behavioral Sciences*, Vol. 46, 2012, pp. 532-537.
- [21] S. de Freitas, and J. Jameson, "Collaborative E-Support for Lifelong Learning", *British Journal of Educational Technology*, Vol. 37, No. 6, 2006, pp. 817-824.
- [22] N. Selwyn, and S. Gorard, "Exploring the 'New' Imperatives of Technology-Based Lifelong Learning", *Research in Post-Compulsory Education*, Vol. 8, No. 1, 2003, pp. 073-092.
- [23] N. Nordin, M.A. Embi, and M.M. Yunus, "Mobile Learning Framework for Lifelong Learning", *Procedia-Social and Behavioral Sciences*, Vol. 7, 2010, pp. 130-138.
- [24] H. Peng, Y.J. Su, C. Chou, and C.C. Tsai, "Ubiquitous Knowledge Construction: Mobile Learning Redefined and a Conceptual Framework", *Innovations in Education and Teaching International*, Vol. 46, No. 2, 2009, pp. 171-183.

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