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# Mobile Learning and Social Media in Adult Learning

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## Introduction

There is an increased use of information and communication technologies in adult learning. This is mainly due to three reasons: ICT has the capacity to enhance learning; it can widen access to learning opportunities; and while using ICT in adult education, the learner also acquires digital skills which are pivotal for living and working in today's society. This paper will summarize the research on the use of social media and smart devices in adult learning.

## ICT has the capacity to enhance learning

One of the most commonly reported effects of the introduction of computers or tablet PCs in school is that students' motivation and engagement increases. A literature review conducted in 2010 found 20 studies that demonstrated increased motivation and fewer discipline problems due to the introduction of ICT enhanced learning.<sup>1</sup> Although this review mainly builds on research regarding younger learner it is echoed in many other research briefings, which covers a broader range of learners.<sup>2</sup> The results are of importance since motivated learners are more engaged and are likely to spend more time on their learning.

Already ten years ago Gulek and Demirtas concluded that: "There is substantial evidence that using technology as an instructional tool enhances student learning and educational outcomes."<sup>3</sup> This research used multiple indicators of learning to find significantly higher test scores and grades for writing, English and mathematics with the strongest impact being seen in special education students. Similar findings are compiled in a literature review done by the State of New South Wales, Australia.<sup>4</sup>

One of the largest and most long term initiatives with one laptop per learner has been carried out in the State of Maine, USA. It started in the academic year 2002/2003 when over 17,000 seventh graders and their teachers in over 240 middle schools across Maine received laptop computers. The following year all eighth graders and their teachers also received laptops, and each subsequent year thereafter, all seventh and eighth graders and their teachers have received laptop computers, paid for by the State. In 2011, eight years after the inception of the programme, a team of researchers from the University of Southern Maine concluded that the "program has had a significant impact on curriculum, instruction, and learning in Maine's middle schools". Furthermore they said that: "Results indicate that students' writing has improved. In mathematics there is evidence that a well-designed and executed professional development resulted in improved student performance in mathematics. A science study also found significant gains in student achievement, both short term and longer term, when students used their laptop to learn science."<sup>5</sup>

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<sup>1</sup> Hylén & Grönlund (2011): Bättre resultat med egen dator – en forskningsöversikt. Datorn i Utbildningen nr 1, 2011.

<sup>2</sup> Condie, Munro, Seagraves, Kenesson (2007): The impact of ICT in schools – a landscape review. Becta Research, January 2007.), samt Holcomb, L (2009) Results & Lessons Learned from 1:1 Laptop Initiatives: A Collective Review. TechTrends: Linking Research & Practice to Improve Learning; Nov2009, Vol. 53 Issue 6.

<sup>3</sup> Gulek & Demirtas (2005): Learning with technology: the impact of laptop use on student achievement, Journal of Technology, Learning and Assessment 3 (2)

<sup>4</sup> State of NSW (2009): One-to-one computing: literature review. State of NSW, Department of Education and Training, Curriculum K-12 Directorate, January 2009

<sup>5</sup> Silvernail et al (2011): A Middle School One-to-One Laptop Program: The Maine Experience. Maine Education Policy Research Institute, University of Southern Maine, August 2011

The research evidence also suggests that not every programme initiating computers in education is successful. It is not enough to invest in technology.<sup>6</sup> Computers can never substitute the teacher. To be successful there need to be a balance between investments in technology, in teachers' competence to use the technology, and in digital learning content. Furthermore there need to be leadership to guide all the systems and processes so that the right choices are made and so that collaboration is possible within and outside the institution. This is clearly pointed out by the Dutch foundation Kennisnet, when they summarise their experiences after more than 15 years of monitoring ICT use Dutch schools.<sup>7</sup> These findings are most likely to be true irrelevant of the age of the learners since they regard the learning environment more than the learner himself.

## ICT can widen access to learning opportunities

The European project Mobile Technologies in Lifelong Learning: best practices (MOTILL) aimed to investigate how mobile technologies may impact on the diffusion of a social model where learning and knowledge are accessible to all.<sup>8</sup> In their MOTILL Best Practices booklet they noted numerous benefits to the incorporation of mobile technologies into lifelong learning.<sup>9</sup> One observation made by the project is that mobile technologies can play an important role in supporting learners who are changing their "state" – moving between different grade levels or institutions, switching from individual to collaborative work, or even recovering from illness back to good health. Mobile learning can help provide continuity for learners during these periods of transition, when traditional educational opportunities may be unavailable. Additionally, the flexibility afforded by mobile learning, which makes learning possible from any location at any time, can encourage learners to take more responsibility in directing and managing their own education. The ability to access learning opportunities outside the classroom can also help learners contextualize and apply their learning in the real world. Finally, it is noted that the networking and communication features offered by mobile technologies can help learners develop social skills and relationships by facilitating collaboration.

The Institute for Prospective Technology Studies (IPTS), which is one of eight institutes of the European Commission's in-house science services called Joint Research Centre (JRC), states in one of their reports that policy-makers and educational stakeholders recognise the role of ICT as a key enabler of innovation and creativity in education and training and for learning in general.<sup>10</sup> The same standpoint is reflected in the Renewed European Agenda for Adult Learning where the exploitation of the potential of ICT in adult education is one of five priorities.<sup>11</sup>

The widened access to learning by use of information technology is also demonstrated in the handbook for mobile learning, produced by the MyMobile project, carried out in Belgium, Germany,

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<sup>6</sup> IDB (2012), "Technology and Child Development: Evidence from the One Laptop per Child Program," Working Paper Series No. 304, Inter-American Development Bank (IDB).

<sup>7</sup> Kennisnet (2012): Let ICT work for education. Kennisnet Strategic Plan 2013 – 2017.

<sup>8</sup> See <http://www.open.ac.uk/iet/main/research-innovation/research-projects/motill-project> (National Lifelong Learning Strategies (NLLS) - Transversal programme - Key Activity1: Policy Cooperation and Innovation of the Lifelong Learning Programme 2007-2013)

<sup>9</sup> [http://www.motill.eu/images/stories/motillbooklet\\_en.pdf](http://www.motill.eu/images/stories/motillbooklet_en.pdf)

<sup>10</sup> Brečko, Kampylis & Punie (2014): Mainstreaming ICT-enabled Innovation in Education and Training in Europe. Policy actions for sustainability, scalability and impact at system level. JRC Scientific and Policy Reports, 2014. <http://ftp.jrc.es/EURdoc/JRC83502.pdf>

<sup>11</sup> European Commission (2011): Council Resolution on a renewed European agenda for adult learning. (2011/C 372/01) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:372:0001:0006:EN:PDF>

Italy and UK. This will be discussed further in coming sections of this paper. Numerous practical examples of how ICT can increase flexibility in terms of time and space, thus enabling personalised learning “anytime and anywhere”, will also be demonstrated in the upcoming study Adult Learners in a Digital Environment. It is also echoed by a majority of the European population. In Flash Eurobarometer 241, 11/2008 72 % of the interviewees responded that the internet had improved their opportunities to learn.<sup>12</sup> Unfortunately the question seem not to have been repeated in more recent Flash Eurobarometer reports.

When ICT is used in education, the learner also acquires digital skills

The insight that by using digital technologies in education, the learners simultaneously develop digital skills, as well as other skills that are relevant for the 21<sup>st</sup> century, is one of the foundational elements of the Commission initiative Opening up Education.<sup>13</sup> The PIAAC study revealed that one out of three young European shows low levels of ICT proficiency.<sup>14</sup> The Opening up Education initiative, will allow knowledge to be more accessible through digital technologies which in turn is meant to contribute to enhancing digital technologies. The PIAAC study also shows that there is a strong relationship between ICT use and proficiency in literacy, regardless of level of education. Furthermore there seems to be a similar positive link between ICT use and reading practice.

This vision that when ICT is used in education, the learner also acquires digital skills is also grounded in research findings such as the Innovative Teaching and Learning (ITL) Research study. The study was conducted across seven countries and 154 schools, and it has demonstrated that innovative teaching, using ICT, supports students’ development of the skills “that will help them thrive in future life and work”.<sup>15</sup> Furthermore the study concluded that: “ICT integration is an important enabler to innovative teaching. To support integration, students’ access classrooms is an important factor. Survey data show that student access to computers in the classroom is more strongly associated with ICT integration than is teacher access, and both are stronger predictors than access in public areas such as computer labs or libraries.” The findings have been implemented into a professional development programme for teachers. The programme is based on five dimensions out of which the use of ICT for learning is one.<sup>16</sup>

Similarly the research and development project ATC21S<sup>17</sup> started with the notion that today’s curricula do not fully prepare students to live and work in an information-age society. As a result, employers today are often challenged with entry-level workers who lack the practical skills it takes to create, build and help sustain an information-rich business. Although reading, writing, mathematics and science are cornerstones of today’s education, the ATC21S project states that curricula must go further to include skills such as collaboration and digital literacy that will prepare students for 21<sup>st</sup>-century employment. They developed a prototype set of assessment tasks on collaborative problem solving and ICT Literacy, which were tested on 5 000 students in six countries. The findings of the

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<sup>12</sup> <http://is.jrc.ec.europa.eu/pages/documents/RedeckerPunieEC-TElfinal-print.pdf>

<sup>13</sup> [http://europa.eu/rapid/press-release\\_IP-13-859\\_en.htm](http://europa.eu/rapid/press-release_IP-13-859_en.htm)

<sup>14</sup> European Commission (2013): The Survey of Adult Skills (PIAAC). Implications for education and training policies in Europe. DG Education and Training, October 2013.

<sup>15</sup> <http://www.itlresearch.com/research-a-reports/10-reports/40-2011-itl-research-findings-and-implications>

<sup>16</sup> Shear et al (2011): ITL Research Phase II Design: Introducing ITL Professional Learning, November 2011

<sup>17</sup> Assessment and Teaching of 21st Century Skills, Cisco, Intel, and Microsoft Education alliance  
<http://www.microsoft.com/education/en-eg/leadership/Pages/assessment.aspx>

project will be used in the PISA 2015 collaborative problem solving framework. PISA is testing 15 years old students and the specific items are designed to fit the age group, but the underpinning theoretical and psychometric framework can be expected to be valid also for adult learners.

Furthermore, the previously mentioned evaluation of the one-to-one laptop programme in Maine concluded that two of their studies “demonstrated the impact of students’ laptops in learning an important 21<sup>st</sup> Century Skill, the skills of locating and evaluating information”.<sup>18</sup>

## Social Media in Learning

The use of ICT to enhance learning goes back at least some 20 years in most European countries. But often this is done from the perspective of the educational institutions rather than the learners. Learning Management Systems (LMS) that integrate geographically dispersed learners have been widely available to educational providers for many years. They are often well suited for managing course descriptions, lesson plans, exams, messages etc. but they are designed for the management and *delivery of learning*, not for supporting self-governed and problem-based activities of learners. Social media or social software, that allows the user to create, contribute, communicate and collaborate online without need for specialized programming skills, is better suited to support an open-ended learning environment and provide the learner with multiple possibilities for activities. They also support interaction between mobile devices and internet, making way for increased mobile learning (or the use of “smart”, mobile devices in learning).

As society continues to be influenced by the plethora of emerging technologies, the methods for information exchange continues to proliferate. Popular online tools such as Facebook, Twitter, YouTube, and Google have changed the way in which we experience the internet by providing a platform for unlimited information mining and peer-to-peer content sharing that is relevant to our needs. This new approach to information exchange has not only affected the way we communicate and conduct business, but has also presented new opportunities within the context of teaching and learning. Increasingly social media is used in an educational context. But this is a fairly recent phenomena which as yet has not resulted in a large body of research. The research area is still nascent.

One of the most cited articles in the field of social media and adult learning is LeNoue et al (2011)<sup>19</sup>. In their work they list a number of social media including:

- Wikis, which are web sites which allow collaborative content creating. The opportunity to edit or contribute to any content about any topic makes these web sites collaborative. The best-known wiki is Wikipedia. There are different services on the web that enable creating wikis.
- Internet forums. Forums are the oldest form of social media which have already existed since even before the term “social media” was invented. Forums are online discussion areas for people who share specific interests, be it cars, music or technology etc.

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<sup>18</sup> Silvernail et al (2011)

<sup>19</sup> LeNoue, Hall, Eighmy (2011): Adult Education and the Social Media Revolution. Adult Learning March 2011 22: 4-12

- Blogs. Blogs or weblogs are online journals where the most recent entry appears first. They allow people to easily publish content including various kinds of media like images, videos as well as texts.
- Podcasts or pods are audio and video files that are available to download by subscription, through services (like iTunes). “Vodcast” is another term used specifically for video services. People can download podcast files to their computer, tablet or mobile phone.
- Virtual worlds. Although they are often thought of as online games in fact virtual worlds, like Second Life, are 3D environments which allow people to socialize and act in an online world. Users have to register to enter the virtual world and download the software on their computer. With their avatar they can meet new people and create social networks.
- Microblogging: Microblogs are the blogs that combines social networks, messaging and blogging. This type of blogging is limited up to 140 characters and can be distributed through the mobile phone network. These features means that microblogging have the characteristics of instant messaging. Twitter is the most popular microblogging tool.
- Social Networks: Social networking sites are the communities which allow people to create personal pages and connect with friends to share content. Popular social networks are Facebook, Instagram and LinkedIn. Yammer is another social networking site.

Among these different kinds of social media, social networking sites are particularly used in education. As already mentioned social networking sites can support interaction, communication, and collaboration. These applications makes it possible for learners, also with modest digital competence, to actively create their own learning process rather than passively consume content. Learning can become a more participatory, life-long social process. LeNoue et al argues that learners build and maintain communities of learning in online environments by engaging in many of the processes and behaviours associated with offline communities. “Ongoing interaction is the foundational theme underlying all these community-building behaviours.” Well-designed courses take this into account and harnesses the opportunities offered by the online tools.

On the other hand, LeNou et al notes that some adult learners may be resistant to use new technologies. They may simply lack experience, skill or access. But the authors conclude that: “while this may initially seem to be a substantial downside to deploying these new online tools, any negative effect is easily outweighed by the secondary learning represented by gaining proficiency in the use of the technology tools that are becoming prominent and permanent fixtures in modern life.”

The openness of the social networking sites and their participatory design might be of particular importance to learning. In a book dedicated to improve adult literacy instruction Lesgold and Welch-Ross looks at literacy in the digital age.<sup>20</sup> They conclude that “after years of absence from formal learning situations or having negative earlier schooling experiences, adult students can be intimidated by overly structured, test-centred programs (Stanley, 2003). Many times these programs, full of young people, presume basic computer literacy or English proficiency, and they do not take into account how adults who have not been involved with ICT use can be intimidated and anxious about adopting these new roles in unfamiliar educational settings (Attar, 2005; Stanley, 2003). Furthermore, many of these programs have a narrow view of technology and literacy, prescribing

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<sup>20</sup> Lesgold and Welch-Ross (eds) (2012): *Improving Adult Literacy Instruction: Options for Practice and Research*. <http://www.nap.edu/catalog/13242/improving-adult-literacy-instruction-options-for-practice-and-research>

constrained uses of computers and not taking into account the wide range of purposes people might have in using technology (Kvasny, 2006).”

According to the statistics available, the proportion of adults not using internet and social networking sites is fairly limited and diminishing. Pew Research Centre (2014) reports that 80-85% of United States people aged over 18 use internet or email at least occasionally. 58% report to use Facebook and 23% LinkedIn. Looking only at the proportion using internet, at least 74% used a social networking site of some kind, 42% of them use multiple social networking sites.<sup>21</sup> The proportion of women is larger than men, 76 percent of the women compared to 72 % of the men. eMarketer shows that 68% of internet users around the world uses a social network site at least once per month.<sup>22</sup> These figures suggest that many adults already use social networking sites of some kind, lowering the threshold of using social media in learning contexts. Statistics from the European Union is less easy to find. According to the social media research company “We are social” 78% of the total population in Europe (including Russia) were unique mobile phone users. We had an internet penetration of 68% and 40% of the total population used social networking sites.<sup>23</sup>

Fernandez-Villavicencio (2010) looks at ways in which learners can become competent in information and media literacy by embracing social networks and other digital tools that allow users to find, produce, and share digital information.<sup>24</sup> The author contends that it is absolutely essential that all individuals learn to become information and media literate in this digital world in which we now find ourselves. Additionally, the author states that social networking tools, including the rich portfolio of applications they encompass, can substantially assist people in achieving that goal.

Experiences in favour of using social networks in adult learning includes the fact that social networks closely resemble what happens in face-to-face discussions, which according to some, makes the students feeling more committed, engaged, and known to each other.<sup>25</sup> Online collaboration is not new in the adult learning context, but the increase of social networking engagement makes it easier because of their availability and familiarity. Since many people are familiar with social networking sites such as Facebook, they can easily adopt any similar social network without feeling burdened by having to learn anything new. A feeling of learner ownership is another positive argument as well as the ease and speed of questions being asked and answered, by other participants rather than by the teacher or trainer.

Critics of using social media in adult learning point to the fact, that adult learners appear to be more guarded about distinguishing their personal and professional identities online.<sup>26</sup> An EU project looking at the use of social media in adult learning state that adults firstly associate social media with

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<sup>21</sup> Pew Research Centre (2013): Social Media Updates 2013. <http://www.pewinternet.org/2013/12/30/social-media-update-2013/>. See also Pew Research Centre (2014): Social Media Update 2014 <http://www.pewinternet.org/2015/01/09/social-media-update-2014/>

<sup>22</sup> eMarketer report, “Worldwide Social Network Users: 2013 Forecast and Comparative Estimates,” - See more at: <http://www.emarketer.com/Article/Social-Networking-Reaches-Nearly-One-Four-Around-World/1009976#sthash.QGppQ9GO.dpuf>

<sup>23</sup> <http://www.slideshare.net/wearesocialsg/social-digital-mobile-in-europe>

<sup>24</sup> Fernandez-Villavicencio (2010): Helping students become literate in a digital, networking-based society: A literature review and discussion. *International Information & Library Review*, 42(2), 124-136.

<sup>25</sup> [http://www.evollution.com/program\\_planning/how-social-networks-can-positively-impact-the-experience-of-adult-learners/](http://www.evollution.com/program_planning/how-social-networks-can-positively-impact-the-experience-of-adult-learners/)

<sup>26</sup> <http://www.eduventures.com/2014/08/facebook-wastebok-adult-learners-want-dont-want-social-media/>

pastime venues, not as educational resources.<sup>27</sup> Other negative factors listed were that using social media can become time-consuming and tiresome. People may develop a negative habit of constant urge to plunge into Facebook, time that could be better spent on other activities. The project concludes that methods of using social media in teaching and learning have to be developed and improved. They have to be considered in line with the necessity to develop critical and reflexive thinking skills and media and information literacy skills.

Another EU project has pointed to the need to overcome barriers of acceptance by both trainers and learners regarding the value of integrating social media.<sup>28</sup> An additional challenge is more technological. Many training institutions still do not have the capacity and the technical requirements to offer training in the use of social media tools. They also highlight the need of innovating the management structure of VET institutions.

To summarise the situation, it can be concluded that the use of social media in general - and social networking sites in particular - is growing. The same seems to be true regarding the use of such media in adult learning, although relevant statistics are scarce. So far, there are few research findings regarding how social network sites should be made of best use in a learning context or the results of such use. Experiences from learners as well as teachers and trainers suggest that the media are easy to use and enrich the learning experience. At the same time it should not be forgotten that there are some 30% of internet users who do not use social media, not to mention the numbers still without access to internet at all. As noted by the PIAAC study, the results from the assessment of problem solving skills in technology-rich environments show that close to 14% of the EU population aged 16-65 can only perform very simple IT tasks and another 13% could not even take the test due to having either no or insufficient computer experience.<sup>29</sup>

## Mobile Learning

Mobile technologies have undergone enormous changes in the past decade. Where mobile phones once simply enabled users to place voice calls, this functionality is now of almost secondary importance. Owners of smartphones can check their email, log in to social media platforms and download applications to assist them in a wide variety of tasks ranging from getting directions to learning a language or trading stocks in real time.

Since four or five years ago, mobile phones have been complemented by tablet PCs. Typically larger than smart phones, tablet PCs are better equipped for multimedia use and production. Given their lower price compared to desktop PCs and laptops, and their intuitive interface, they have become popular devices in educational settings. But since they are relatively new on the market, there is so far only limited research on the use of tablet PCs in education. Most of the research published so far, relates to higher education.<sup>30</sup> The results resemble findings from one-laptop-per-learner programmes

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<sup>27</sup> Vaičiūnienė & Mažeikienė (2012): Social Media in Adult Education: Insights Gained from Grundtvig Learning Partnership Project (ISTUS).

<sup>28</sup> SVEA (2010). eLearning Papers No 22, December 2010

<sup>29</sup> European Commission (2013): The Survey of Adult Skills (PIAAC). Implications for education and training policies in Europe. DG Education and Training, October 2013.

<sup>30</sup> See for example Angst & Malinowski (2010): Findings from eReader Project, Phase 1. Use of iPads in MGT40700, Project Management Fall 2010, Module 1, August 23-October 8.

Bebbel, Dorris, & Muir (2012): Emerging Results From the Nation's First Kindergarten Implementation of iPads.

only the threshold to get started seems lower and the positive impact seems to come quicker. These technological developments create new pedagogical challenges and offer opportunities for learning at any location. The use of mobile phones – particularly smartphones – in adult learning is growing. The authors of a handbook on the use of mobile phones in adult learning note that, at first glance, the use of mobile technologies for learning is not obvious.<sup>31</sup> This is because mobile technologies are commodity items and originally not designed for learning but for entertainment, communication, networking etc. and they are sold as part of users' lifestyle choices and for media consumption. At a second glance, though, a manifold range of opportunities emerges.

Almost eight out of ten European citizens have a mobile phone. But, as the MyMobile project points out, even more important than the high distribution is the high degree of personalization of mobile devices and their level of penetration in everyday life: mobile devices and mobile phones in particular, are highly individualized, and always available in physical proximity to the subject. A further strength of using mobile devices in learning is that they enable linkage of formal and informal learning contexts.

Although the use of smartphones in learning on a larger scale is a fairly recent phenomenon, computer-supported mobile learning in Europe began in the 1980s when handheld devices were first tested in a few schools.<sup>32</sup> A broader perspective arose in the mid-1990s with research projects to exploit a new generation of handheld devices for learning. The European Commission has been the most important player in Europe in promoting mobile learning by financing research and development projects. A few countries have initiated national or co-financed international research and development projects in mobile learning, most notably the UK, Denmark and the Netherlands.

The early projects were mostly technology-driven and explored the utilisation of new mobile technology to support teaching and learning. The techno-centred view was soon challenged by an ecological approach to mobile learning which is not "delineated by the use of mobile devices to deliver content, but by the transformation of everyday life worlds into spaces for learning". As regards the concept of mobile learning, UNESCO argues that a definition should focus on the mobility of the learner, the learning tool and the experience of learning with mobile devices, rather than devices and technologies. The MyMobile project<sup>33</sup> takes this view even further and views mobile devices as cultural/learning resources, considering them not so much for their technical functionalities but for the role they may play in people's everyday life as strategic tools for identity formation, social interaction, the derivation of meaning, and entertainment. In such a perspective, mobile devices can provide multiple learning opportunities such as supporting exploration and

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Burden, Hopkins, Male, Martin and Trala (2012): iPad Scotland Evaluation. Faculty of Education, the University of Hull, October 2012.

Chou, Block, & Jesness (2012). A case study of mobile learning pilot project in K-12 schools. *Journal of Educational Technology Development and Exchange*, 5(2), 11-26.

Clarc & Luckin (2013): What the research says: iPads in the Classroom. London Knowledge Lab, January 2013.

Heindrich (2012): The iPad as a Tool for Education. A study of the introduction of iPads at Longfield Academy, Kent. Naace.

Kinash, Brand & Mathew (2012): Challenging mobile learning discourse through research: Student perceptions of Blackboard Mobile Learn and iPads. *Australasian Journal of Educational Technology* 2012, 28(4), 639-655

Moore (2012): Piloting the iPad®: A Case Study Evaluation in a K-12 School District. Dissertation submitted to the faculty of Wilmington University, August 2012.

<sup>31</sup> [http://www.mymobile-project.eu/IMG/pdf/Handbook\\_web.pdf](http://www.mymobile-project.eu/IMG/pdf/Handbook_web.pdf)

<sup>32</sup> UNESCO (2012): Turning on Mobile Learning in Europe. Illustrative Initiatives and Policy Implications. Paris 2012. <http://unesdoc.unesco.org/images/0021/002161/216165E.pdf>

<sup>33</sup> <http://www.mymobile-project.eu/> LLP 2007-2013

widening the learning context, enhancing self-expression and self-representation, enabling media production, and supporting social networking and connections.

The Mymobile Handbook gives a number of examples on how mobile phones can be used in adult learning.<sup>34</sup> These range from using mobiles to integrate aspects of informal learning, to set up episodes of situated learning, to generate learning and media contexts, to construct conversational bridges, to support learners as experts of media use in everyday life, and to set up responsive contexts for development and learning. The authors also describe seven training scenarios using mobile phones, including bridging informal and formal education through mobile images, developing young adults' self-expression skills through mobile storytelling, connecting older people in rural areas, and exploring the possibilities of mobile phones in a university course for educators.

But it should be remembered that despite mobile devices and the internet being so widespread, people have very different levels of access to and competence in using technologies. Mobile phones come with many different levels of complexity; some are characterized by very basic functions whilst others support multimedia applications and internet navigation.

The authors to the MyMobile Handbook also highlight two implications related to the use mobile devices in adult learning. The first is to think "learning spaces/places" not "learning rooms". By this they mean that whilst a "learning room" is a finite and fixed place with a limited number of resources, a "learning space" is an open context of learning where the learner generates his/her own learning paths. In practice this means that the focus should be put on learners rather than content by providing the learners with a scaffold and support in order to enable them to manage their "learning space". The second implication is to think "activities" not "courses". Considering that mobile devices are mainly viewed by users as informal and personal tools to be used in daily life, they could hardly be seen as a means to deliver formal courses.

### Bring Your Own Device

Some adult learning providers offer their learners mobile devices, i.e. tablet PCs. Although no reliable statistics are available, this seems to be an exception. But providers that have the opportunity to provide their learners with tablets are recommended to follow the advice from UNESCO and view mobile technologies as another aspect of ICT in education, considering it to be one more element in a technological toolkit that can be used to support both formal and informal learning.

Increased use of mobile phones in adult learning means in most cases in practice to institutionalize the principle called Bring Your Own Device (BYOD). In short BYOD means that learners literally bring their own device to school in order to access the internet and/or school network by 3G or Wi-Fi, be it a smartphone, tablet, laptop or other device. BYOD is coming under serious consideration globally by education providers for many reasons, not only funding issues but also the integral nature of these devices to the learners' own world, and pressure from learners to use their own devices in class.<sup>35</sup> Concerns about the introduction of BYOD programs include mainly equity issues, which would appear to be more relevant in schools than in adult learning. Also, a BYOD programme which allows a

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<sup>34</sup> [http://www.mymobile-project.eu/IMG/pdf/Handbook\\_web.pdf](http://www.mymobile-project.eu/IMG/pdf/Handbook_web.pdf)

<sup>35</sup> Stavert (2013): BYOD in Schools Literature Review 2013. State of New South Wales, Department of Education and Communities, Australia 2013.

wide variety of devices may not supply the best tool for the task, though some argue that this is overcome by browser based apps.

To summarize the foregoing findings it can be said that:

- ICT is found in many studies to motivate learners;
- There is substantial evidence that ICT, if it is introduced and used in the right way, can improve learner outcomes;
- While using ICT in education, the learner also acquires digital skills which are pivotal for living and working in today's society; By using different kind of social media, in particular social networking sites, learning can become a more participatory, life-long social process;
- According to available statistics, the proportion of adults not already using internet and social networking sites seems to be fairly limited and diminishing;
- But at the same time it should not be forgotten that there are some 30% of internet users who do not use social media, not to mention the numbers still without access to internet at all;
- The development of smart phones and computer tablets create new pedagogical challenges and offer increased opportunities for learning at any location, not at least for informal learning;
- Increased use of mobile phones in adult learning means in most cases in practice to institutionalize BYOD, a principal coming under serious consideration by education providers for funding issues but also the integral nature of these devices to the learners' own world, and pressure from learners to use their own devices in class.

### Concluding remarks

When looking at research and policy implications on the use of social media and mobile devices in adult learning, a distinction made by Looi et al. (2011) is useful.<sup>36</sup> They characterize three levels in the education sector: macro, meso and micro. At the macro level are Ministries of Education and policy-makers, who dictate plans for nationwide implementation and devise strategies for sustainability and scalability. On the meso level are research institutions, telecommunications providers, information technology companies and non-governmental organizations (NGOs), who produce research, advise policy-makers, and provide technology and infrastructure. At the micro level are educational providers, school managers, teachers, and learners, who enact policies and programmes in educational institutions and classrooms.

As shown by UNESCO until recently almost all mobile learning initiatives in Europe were initiated on the meso level. These meso-level initiatives are usually R&D projects led by researchers, technology companies and to some extent NGOs. In the last few years, the meso-level projects have tended to be complemented by a number of small-scale projects developed at the micro level. As regards the extent of use of social media in adult learning in Europe, very little is known. But it seems clear that in those cases where it is initiated, it is done on micro level – by educational providers, individual teachers and learners.

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<sup>36</sup> Looi, So, Toh and Chen (2011): The Singapore experience: Synergy of national policy, classroom practice and design research. *International Journal of Computer Supported Collaborative Learning*. Vol. 6, No. 1, pp. 9–37. Berlin, Springer-Verlag. <http://www.springerlink.com/content/15402pk726546884/fulltext.html>

The risk of having an inactive macro level in the area of the use of social media and mobile learning is that growing inequalities on the micro level between regions and local actors will result. Without guidance and stimulating policies from governments or government agencies, the digital divide may widen as some educational providers establish productive partnerships with actors on the meso level, while others remain static or as some energetic teachers begin pilot testing while others continue their traditional teaching. On the other hand, there is also a risk in soliciting detailed regulatory policies from the macro level. In a field where technologies change rapidly and pedagogy is constantly transforming in response to new research and development, tight government guidelines may slow or stifle innovation. The challenge for policy-makers is to guide micro-level actors and ensure equity without suppressing creativity or being overly restrictive. The following recommendations, made by UNESCO, may provide some guidance on navigating this difficult terrain.

**1. Provide a macro-level framework for the use of social media and mobile learning on the meso and micro levels.** There is presently a lack of interconnection between the macro level, on the one hand, and the meso and micro levels on the other. This deficiency needs to be addressed by developing a macro-level framework for fostering innovation in adult learning via the use of social media and mobile learning on the meso and micro levels. As is the case for ICT and education in general, it may be possible to benefit from the experience of other countries and borrow successful policies.

**2. Identify innovative projects and best practices for scaling up.** Traditional approaches to ICT development have typically focused on identifying successful small projects and scaling them up to the national level. Criteria for successful projects include four elements that should be in place in balanced proportions: infrastructure, competence development for teachers, digital learning materials and a pedagogical vision. The division of responsibilities between the macro, meso and micro level to develop the various components varies between countries, but regardless of where the responsibility rests, none of the parts should be neglected.

**3. Capitalize on the potential of informal learning in a formal learning environment.** As shown by the examples given in this paper, social media and mobile devices can be used for learning in everyday situations on an as-needed basis. Learners may use social networking sites to connect with peers and their mobile phones outside of learning for informal learning. To maximize the potential of social media and mobile technologies to enhance education, policy-makers need to imagine how different types of learning activities can be used in formal as well as informal learning environments. The main barriers to developing new modes of learning are not so much technical as social. According to Sharples (2009), we have “little understanding of context and learning outside the classroom, and even less about how this can be supported through new mobile technologies”.<sup>37</sup> Gathering more information about new ways of using social media in learning is a key step in adapting mobile technologies to formal education.

**4. Look to previous strategies for ICT in education.** In terms of policy, adult learning should follow best practice for the integration of ICT into education, namely:

- Develop pedagogical guidelines for teachers

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<sup>37</sup> Sharples (2009): Foreword. E. Brown (ed), *Education in the wild: contextual and location based mobile learning in action*. A report from the STELLAR Alpine Rendez-Vous workshop series. Nottingham, UK, Learning Sciences Research Institute (LSRI), University of Nottingham. [http://mlearning.noekaleidoscope.org/resources/ARV\\_Education\\_in\\_the\\_wild.pdf](http://mlearning.noekaleidoscope.org/resources/ARV_Education_in_the_wild.pdf)

- Develop technical standards for learning materials so they can be used on several platforms, such as computers, interactive whiteboards, tablet PCs and other mobile devices
- Support the development of digital learning materials and create efficient platforms and channels for their distribution
- Evaluate programmes and disseminate information about best practices

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