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Digital Literacy and Adult Learners

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Over the past decade, Information and Communication Technologies (ICT) have become more and more embedded in our everyday lives and they have produced rapid changes in society by fundamentally transforming the way people work, communicate and have access to information, government/public services, education and entertainment. Increasingly, a wide range of services, administration, businesses and citizenship processes are transferred online. In addition, ICT are perceived to be inherent to the reform efforts necessary for the 21st century society.

Academics, researchers, educators, experts and policy officers, at international level, have acknowledged digital skills as one of the key competences for work force, lifelong development and active participation in social and economical life. The main argument is that people who can understand and effectively use digital means and facilities are significantly empowered and advantaged in terms of educational opportunities and success, professional development, employment prospects, civic participation and many other aspects of their personal and social life (e.g. public and social services, cultural and everyday practices, online shopping, social networking etc.).

ICT are increasingly considered as the critical factor in widening participation in learning and life-long learning and, thereby, establishing opportunities and conditions for a 'learning society' for all. On the other hand, it seems quite clear that the amount of online government, public and social services will be consistently growing. Considering the rapid demographic changes in our modern societies (e.g. a growing number of older people), ICT could offer solutions for the needs of older people to be constructive participants in modern society (e.g. easier access to social and healthcare services, contact with family and friends, avoid marginalization, opportunities to contribute to political, civic and social life).

However, 21st century literacy demands have changed along with changes in society and technology. In order to be literate in today's media-rich environments, both young people and adults, need to develop knowledge, values and a wide range of critical thinking, communication and information management skills. Therefore, there is a critical need to conceptualize digital literacy beyond the simple notion related to the use of computers and the Internet.

This paper explores how the concept of digital literacy was emerged and how it has been related to the demands of our modern society, i.e. to become informed and active citizens, well-prepared employees and lifelong learners. Digital literacy is considered as the convergence between computer and ICT literacy, information literacy, media literacy and visual literacy. The paper outlines the multiple aspects of digital literacy and presents an operational framework addressing the various skills, competencies and attitudes determining digital literacy for adult learners.

From Literacy to Digital Literacy

In its traditional perspective, literacy is considered as the ability of individuals to read, write and use written information appropriately to solve problems in a range of contexts, in order to achieve personal goals, to develop knowledge and potential, and to function constructively and independently in workplace and society. Literature suggests that literacy is a wide concept, viewed as a flexible set of knowledge, skills, strategies and attitudes that are closely linked to context and purpose. It involves the integration of reading, writing, communication skills (speaking, listening, and viewing) and critical thinking, which enable an individual to recognise and appropriately use language into different social situations; it incorporates also numeracy, scientific literacy and cultural literacy.

In our advanced technological society, the objective is an active literacy which empowers people to enhance their capacity to think, create and question in order to effectively participate in society and achieve more opportunities for societal movement. Therefore, literacy should be seen as a continuum or a combination of knowledge, skills and attitudes related to a field of work, study or learning area. It includes the ability to apply knowledge and use methods, tools and instruments as well as the appropriate attitudes (e.g.

motivation, responsibility, autonomy, values, ethics etc.) to complete certain tasks and solve problems.

Contemporary views have moved beyond the printed format of literacy to encompass the new notions of information and communications technologies, critical thinking, active citizenship, linguistic and cultural diversity etc. The multiplicity of literacy practices has led to a new term, multiliteracies, which emphasises the diverse ways and tools used by people today for written, visual and multimodal information and communications practices.

Defining Digital Literacy

In the last decade, digital literacy has become a new form of literacy. The concept was introduced by Paul Gilster in his classical book. Taking a broad view, he defined digital literacy as 'the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers'. Gilster put forward the notion that new technologies and media require new skills and abilities for searching, navigating and interpreting the meaning of information in multiple formats.

Although the narrow reference to computers sounds outdated in 21st century era, this definition is still useful, given that it describes a broader concept than computer literacy which goes well beyond a restricted meaning of digital literacy as the simple ability to operate computers and digital devices or to use general purpose software and Internet services. While digital literacy was built upon elements of ICT literacy, it includes a variety of knowledge, attitudes and complex skills (technological, cognitive, learning, social and emotional) which people need to function effectively in contemporary digital environments in order to create, adapt and share information and knowledge in multiple formats. Therefore, many literacy concepts, e.g. information literacy, media literacy and visual literacy, although initially arose in pre-digital contexts have been developed and extended with the emergence of digital tools and Web media.

Towards outlining a conceptual framework of digital literacy, the assumption that digitally literate persons need to deploy all the above dimensions in an integrated manner was the starting point. To achieve this objective, e.g. integrating the various features of digital

literacy in a meaningful framework, we have determined five interrelated components-dimensions which describe individuals' ability to use, understand and create with digital media.

Computer literacy (ICT literacy): It is determined by the basic operational skills regarding computers and software applications, and the understanding of the potential and the limitations of ICT.

Internet literacy: This dimension relates to the ability of individuals to successfully function in Internet resources and networked environments, e.g. navigation skills, sense of hyperlinking, orientation in the Web, access and evaluation of Web resources, e-safety etc.

Information literacy: Information literacy reflects the ability to identify, access, evaluate, manipulate and create information to effectively achieve personal, social, employment and educational goals.

Visual literacy: Visual literacy is essential to both learning and communication, and refers to the ability a) to understand visual design and information in multiple visual formats, and b) to manipulate and produce visual messages through objects, actions or symbols using a variety of digital environments.

Media literacy: It is the ability to access, understand, critically evaluate, participate and create media content and communications in a variety of forms and contexts. Media structure and interfaces upon content is delivered must also be considered. In the past decade, the tremendous evolution of Web 2.0 technologies (e.g. blogs, wikis, media-sharing sites, podcasting, content aggregators, social media and networks, social bookmarking) enhanced media literacy conceptualization. Literacy 2.0 is a new notion which embodies new forms of active participation, expression, communication, connectivity, archiving, publishing, content and knowledge sharing, and collaboration.

In conclusion, digital literacy reflects a wide range of skills, knowledge, understanding and attitudes about purposeful, critical, safe and creative use of ICT to achieve goals related to personal development, education, employment, entertainment, inclusion and many other social participation and civic engagement activities. It is a broad concept reflecting the awareness, attitude and ability of individuals to appropriately use ICT tools in the context of specific life, work and learning situations

- to identify, access, manipulate, evaluate, integrate and synthesize digital resources
- to communicate, create media expressions and construct new knowledge
- to collaborate, co-create and share content with others
- to reflect upon all the processes above.

Mapping a digital literacy framework for adult learners

On the basis of our systematic research on digital literacy and the design of educational programs, we propose an operational framework aiming to provide concrete objectives and guidelines for the design and the implementation of adult digital learning programs. The proposed integrated framework of digital literacy (Figure 1) is underpinning in four dimensions of digital skills, knowledge and attitudes to be achieved by adult learners:

Operational skills: These are derived from a set of basic knowledge and skills in using digital technologies (computers, ICT, general purpose software, Internet browser, Web applications, smart devices etc.). Formal skills related to hypermedia structure of information and the Internet are also included (navigation skills, sense of menu layouts, orientation in Web resources etc.).

Information skills: These skills are derived by adopting an explicit set of actions via which individuals cover their information needs to solve a problem, e.g. identify and access information sources, define search queries, select relevant information, evaluate, transform and create new information.

Strategic skills: These skills determine and enhance individuals' capacity for purposeful use of digital media to reach particular goals and cover personal and professional needs. The emphasis lies on problem solving procedures, critical thinking and analysis, planning and evaluation strategies, on-going development and collaborative learning in order to reach an optimal solution.

Digital culture and identity: This dimension is interrelated to the other three dimensions of digital literacy and represents the social attitudes and skills which form digital culture, e.g. the identity of digital citizen (e-citizenship), information management codes, ethics, e-safety, privacy etc. The ultimate goal is that digitally literate people should achieve a

broader view and digital culture shaping attitudes and values that will help them to understand the new social, economic and cultural environment of the digital era.

Research results emphasized that adult learners consist a population with specific characteristics and traits regarding instruction and learning about (and with) ICT. The key-principles for the pedagogical design and the implementation of successful digital literacy programs for adults are a) promote engagement through active and self-directed learning, b) use cross-thematic and authentic learning activities, and c) use purposeful and everyday life contexts to support adults learning and help them to built their digital culture and identity.

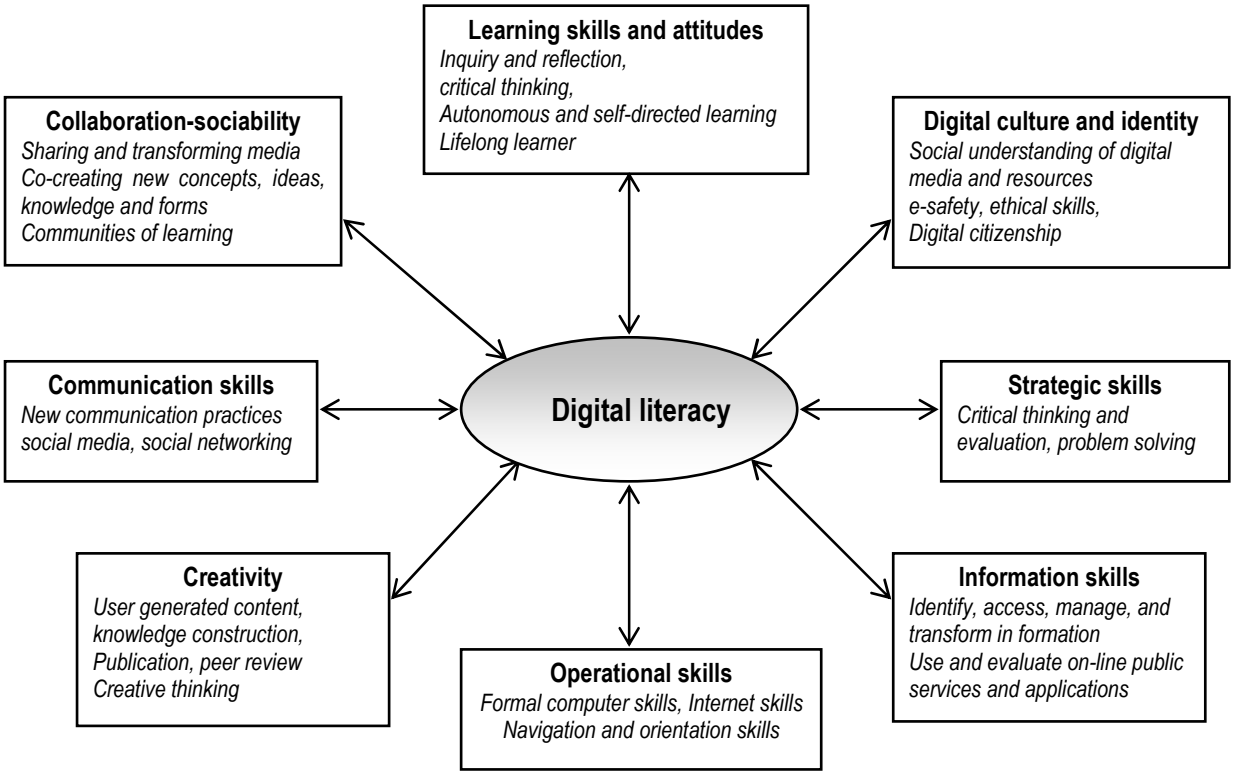

***Figure 1*. The dimensions of digital literacy.**

Note: This figure was developed by the author and not previously published

Good practices for adult digital learning should include a) ICT competence tasks, based on active and discovery learning, combining digital knowledge, operational and strategic skills, digital culture and societal aspects of ICT; b) multi-literacy sessions, involving two or more literacies, designed to support task-based and cross-thematic learning, information and operational skills, inquiry and reflection; c) ICT-based projects, with the aim to support constructivist and collaborative learning, information and strategic skills, critical and analytical thinking, problem solving skills, and digital culture development.

Implications for adult learning

Digital literacy is fast becoming a prerequisite for citizens to fully participate in society and acquire the skills and knowledge necessary to enhance learning, creativity, innovation and employment opportunities. Fostering digital literacy means that adults should be able to go beyond the functional and the operational digital features and acquire knowledge, skills, attitudes and personal values by using a wide range of technologies collaboratively, creatively and critically within life situations, which may include personal development, lifelong learning, work, social participation, active citizenship, entertainment and other aspects of everyday life.

Education and training on digital literacy should not concentrate only on the young generation. It appears that the general population lacks the skills to keep up. The majority of adults who are already past the formal education phase have enhanced needs to develop their digital competence. Improving adult digital literacy levels is fundamental in the sense that a) it motivates people to develop literacy and language skills, numeracy, scientific and cultural literacy, b) contributes to strengthening human capital and c) bridges the digital divide and confronts exclusion and marginalisation that accompany the increasing importance of ICT-mediated activities in modern social life.

As digital practices are being developed by users themselves, new skills and needs are created through these practices. Therefore, there is an imperative need for organized societies and educational systems to ensure and support equal access to the critical aspects of digital literacy for all groups of citizens. There are many groups at risk of digital exclusion among adults (e.g. elderly, unemployed, low-skilled, low-income, immigrants). Current

policy should address the organization of educational programs to increase their interest, skills and confidence for digital participation.

In conclusion, this paper has reviewed the concept of digital literacy and proposed the convergence between multiliteracies, e.g. computer and ICT literacy, information literacy, media literacy and visual literacy to prepare active citizens and lifelong learners. The proposed operational framework is sufficiently flexible to be tailored and applied into different digital literacy programs for adult learners. Undoubtedly, there are still many issues open to clarify and study regarding the way adult learners perceive digital literacy, their difficulties when using computers and solving problems with ICT, as well as the appropriate ways that should be used by educators to support and encourage adults learning about and with ICT.

See also Digital competence, e-skills, learning society, adult education, digital inclusion

Further Readings

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