How to strengthen digital literacy?
Practical example of a European initiative “SPreaD”

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Summary
Digital Literacy has become one of the main competences in the 21st century. Without being able to use digital media effectively and responsibly the chances on the global market are very low. Nowadays more than 250 million Europeans are regular visitors to the Internet. Yet despite this encouraging figure, large sections of the population continue to be barred from the multiple new opportunities, such as Web 2.0 or mobile learning. But even those who are using the new digital media regularly are not imperatively digital literate. Digital literacy does not only mean that the people possess the technical infrastructure, it also means that they are able to maximise the possibilities these new technologies offer to them. What does this mean exactly? And why is digital literacy of such importance? In the following article we will give answers on these questions.

After presenting the different theoretical point of views on digital literacy we will present one best practice example: the European project SPreaD. By developing a toolkit on the management of digital literacy projects SPreaD aims at disseminating digital literacy all over Europe and to raise awareness on this important topic. The SPreaD toolkit gives useful hints regarding the development, coordination and financing of large scaled digital literacy projects. So far we have received very positive response to the toolkit from all over Europe.

Keywords: Accessibility, Digital Literacy, Competence, Skills, Inclusion, Spread, management, dissemination

1 Introduction
Modern communication and information media are no longer technologies for ‘early adopters’, but have grown to become a daily routine for the majority of the European populace (van Ingen, de Haan and Duimel, 2007). There is nevertheless still a small group which does not participate in this modern information society (Steyaert, 2000). These persons lack digital literacy and the possibilities to productively and maximally utilise ICT within their work environments and private lives (Warschauer, 2003). Without application, the benefit people derive from this competence will remain limited. In other words: surfing can be learned, but are there also waves that can be applied to what has been learned to enable its benefits to be experienced? With this in mind, Steyaert argues for a greater emphasis on digital literacy instead of technology in order to bring about a decrease in the number of persons who are blinded by digital science. What for that matter is digital literacy? And why is digital literacy of such importance?

Besides seeking answers to these questions this article will also show one best practice example, the European project SPreaD, aiming at strengthening digital literacy initiatives and thus digital literacy in general all over Europe. On the basis of the experiences of six best practice projects already realised by the project partners, the SPreaD consortium has developed a toolkit to support institutions to develop and manage digital literacy initiatives. The main outputs and results will be highlighted in the second part of this article.
What is digital literacy?

It is not an easy task to substantively define what digital literacy implies. In order to obtain a better grip on the concept, both Aviram (2006) and Steyaert refer to the author Gilster (1997). He defines ‘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, 1997, p.1)

Steyaert further expounds on this definition by making a similar distinction, based on the types of business process control in organisations, between instrumental, structural and strategic skills.

- Instrumental skills are required in order to deal with the technology. This concerns not only simple actions, such as using a mouse, but also more complex activities, such as searching on the Internet and subsequently installing new software.

- Structural skills are what are needed to substantively deal with the presented information. These skills are also linked to the new structure in which information is contained. Whereas in a book we refer to the table of contents or the index, new skills now have to be acquired in order to cope with hyperlinks or dynamic content as well as knowledge in forums.

- Instrumental and structural skills are especially directed towards the efficient handling of information. With strategic skills, on the other hand, the emphasis is more on the effectiveness, application and use of this information. Strategic skills allow a person to apply information within their own life situation and derive benefit from it.

The same division of digital literacy can also be discerned in the definition by Martin (2006). He sums up digital literacy as follows:

“Digital literacy is the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesise digital resources, construct new knowledge, create media expressions, and communicate with others in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process.”

The concept is described more dynamically in Martin’s definition. Digital literacy is not static but subject to change. Reflecting on digital literacy leads to a honing or improvement of this literacy for the individual. Moreover, Martin indicates that digital literacy is dependent on a person’s life situation. Digital literacy changes in keeping with this personal context. At the same time, however, the question arises as to whether the learning process goes beyond this. Does new technology not demand new or other skills of people?

In a literacy research project commissioned by the Australian government, Synder, Jones and Lo Bianco (2005) are of the opinion that ICT-linked skills are especially subject to rapid change. People therefore adapt their existing literacy in different ways in order to respond to change in this manner. Digital literacy learning is therefore not a one-off process but a recurring one.

On the basis of the afore-mentioned, digital literacy learning can be regarded as a spiral - an ongoing process in which people become thoroughly familiar with instrumental (I), structural (S1) and strategic (S2) skills. These skills are not only honed but also subject to change on account of the constantly renewed personal, communicative and technological context in which they are applied. The entire learning process begins anew each time.

Digital literacy learning is an ongoing process:
3 Why is digital literacy of such importance?

Digital literacy is of importance to everyone in the contemporary knowledge society\(^5\). Why is this? How bad is it to be left out in the cold?

Digital literacy is essential from both an economic and a social viewpoint. The effective use of ICT is an essential competency in order to realise the principal aim of the European Lisbon strategy. This objective, namely to become the most dynamic knowledge-based region in the world, is underscored by the European Commission in its programme for 2007:

> "The EU and its Member States must quickly adopt rapidly developing ICT in order to bridge the eSkills gap and be in a position to create a real knowledge based economy.”

(European Commission, 2007)

Additionally, the OECD (2006) is of the opinion that digitally skilled workers are important for productivity, innovation and employment. Van Ingen, de Haan and Duimel supplement these aspects with the more favourable climate for foreign companies to establish a business and the better competitive position. At the macro level, digital literacy therefore stimulates economic growth.

In its plan of action for 2010, the European Commission elucidates the social importance over and above the economic interest. In this connection it refers to eInclusion.

> "eInclusion is the use of Information and Communication Technology (ICT) to surmount social and economic deprivation and exclusion. optimal use of ‘digital possibilities’.”\(^1\)

In conclusion, De Haan and Huysmans (2001) claim that a lack of digital literacy entails a risk of social exclusion and more social inequality. This inequality manifests itself in several areas. Steyaert and de Haan imply, for example, deprivation as an eSurfing, eWorking, eConsuming, eCommunicating and eDemocratic citizen.

4 How can digital literacy be strengthened in practice?

4.1 The EU-project SPreaD - Practical example to strengthen digital literacy in Europe

As demonstrated in this article, the responsible and effective use of ICT is crucial for the competitiveness of the European information society. Even though over 50% of the EU population is using the Internet regularly, there are still over 40% who does not use it at all. This shows a great need to support the European citizens in using ICT responsibly in their daily life. New initiatives need therefore be implemented to strengthen people’s ability to use ICT autonomously, not only for communication and business but also for educational reasons.

In this sense a project “Strategic Project Management Tool-Kit for Creating Digital Literacy Initiatives” (SPreaD 2) aimed at assisting European public administrations and organisations in developing and managing large scale digital literacy initiatives with a lasting impact. As part of the project, co-funded by the eLearning programme, the consortium partners (MFG Baden-Württemberg3, DGM4, CINOP5) created and disseminated from March 2007 to October 2008 a user-oriented toolkit for designing, financing, implementing, coordinating, marketing and evaluating digital literacy initiatives on regional, national or European levels.

4.2 Best practice projects

The toolkit6 development was based on six digital literacy projects already successfully realised in the SPreaD partner regions:

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>start und klick!</td>
<td>start und klick! was a large-scale digital literacy initiative which promoted computer and Internet skills among Baden-Württemberg’s citizens from 2001 to 2004. 15.4 million euros were invested in comprehensive computer and Internet training courses with approximately 300,000 successful participants and 26,000 training sessions. start und klick! was initiated by the non-profitmaking Landesstiftung Baden-Württemberg and managed by MFG Baden-Württemberg.</td>
</tr>
<tr>
<td>klick - mach mit!7</td>
<td>klick - mach mit! is the follow-up programme to start und klick!. It was initiated in 2006 by the non-profitmaking Landesstiftung Baden-Württemberg and is managed by MFG Baden-Württemberg. This digital literacy initiative teaches Baden-Württemberg’s citizens the use of the Internet for everyday activities, such as job hunting, voluntary work in society and administration. The programme was launched in autumn 2006 and will run until September 2009</td>
</tr>
<tr>
<td>do-it.regional8</td>
<td>do-it.regional was a framework programme to initiate and support innovative IT and media projects in rural areas. From 2004 to 2007 these projects contributed actively to the attractiveness and competitiveness of rural areas and thus to their structural improvement.</td>
</tr>
<tr>
<td>Internauta9</td>
<td>Internauta is the largest digital literacy project planned and developed in the framework of the Strategic Plan to Consolidate Advanced Telecommunications and the Technological and Knowledge Society in the Valencia region (AVANTIC 2004-2010, <a href="http://www.avantic.es">www.avantic.es</a>). The initiative promotes the integration of Valencia’s citizens in the knowledge and technological society, facilitates access to advanced telecommunications services networks and supports the universal use of the Internet.</td>
</tr>
<tr>
<td>compeTIC10</td>
<td>compeTIC is a programme set up by the Valencian regional government to promote the use of ICT by SMEs, self-employees, business associations and federations as well as other communities in the Valencia region. It was specifically designed to facilitate their universal access to the Internet and improve innovation and competition both in individual productive sectors and in the Valencian economy as a whole.</td>
</tr>
<tr>
<td>ELD - Electronisch Leerdossier 11</td>
<td>The ELD programme started in 2004. The project has developed a standard for the exchange of digital information and a technical infrastructure to facilitate the secure, digital exchange of Learner Information Packages.</td>
</tr>
</tbody>
</table>

4  www.gva.es                                                                                                         10  www.competic.es                                                                                                 |
5  www.cinop.nl                                                                                                       11  www.eldvo.nl
4.3 Results of best practice evaluation

These six best practices were evaluated by the SPreaD partners in the early stages of the project. The evaluation delivered the following important factors for the successful implementation of digital literacy programmes which formed the basis for the subsequent toolkit development:

- Within the evaluation of our best practice projects we discovered that in regions where digital literacy and the use of ICT is relatively low, especially among adults, broad effects can be achieved by implementing low-threshold curricula for beginners in a classroom setting to enable blended learning approaches to be introduced gradually.

- In regions like the Netherlands, where digital literacy is widely developed, more innovative technologies such as Web 2.0 or mobile learning can be integrated into the curricula. There is no longer such a great need for basic digital literacy projects. Educational ICT projects in these areas tend to be specialised, addressing a specific target group. One example is CINOP’s ELD project, which aims to develop a standard for the exchange of digital information and a technical infrastructure to facilitate the secure, digital exchange of Learner Information Packages in the Dutch education sector.

- Generally, it was revealed that blended learning approaches and the use of innovative tools such as Web 2.0 increase the incentive to use digital media more regularly in daily life.

- Not surprisingly, younger people adopt the use of ICT for learning faster than the elderly. The use of ICT within class lessons often even encourages them to learn more enthusiastically and to be more creative and innovative by working with digital media.

- The availability of course material in both printed and online versions and the supply of binding teaching and learning targets created an innovative boost for educational institutions. This was especially true with regard to the opportunity to offer a wider variety of digital literacy courses. Furthermore, by providing learning material that includes detailed learning instructions for educational institutions, a certain minimum standard is assured for the courses offered. In addition to this, participants can benefit from the additional training and exercise materials that can be downloaded from the Internet. These materials enable them to systematically apply and deepen their knowledge after the course has finished. This supports learning flexibility in space and time and promotes the independent consolidation of acquired skills. It creates added value for all students and makes a vital contribution to quality assurance and sustainable knowledge teaching.

- Within compeTIC\textsuperscript{12} it was shown that the integration of a forum is a very useful tool for beginners to stay in touch with the project management and obtain helpful information beyond the scope of the offered offline courses. A forum can also be set up by tutors to support new ICT users and encourage them to continue using ICT. At the same time, it strengthens the overall feeling of security among beginners. The tutor must be constantly aware of the need to encourage students by sending messages and inviting them to participate in the Virtual Campus as a way to prevent them from giving up.

- The realisation of a successful project always implicates the establishment of a large and active network. Without the support of other institutions acting in the same field it is difficult to reach the target group and achieve project sustainability. Since the stakeholders are most familiar with the needs of the target group, it is important to integrate them early in the project development. They can provide useful hints and support the project management in promoting and disseminating the project. Open communication between the project team and the stakeholders is therefore important for the project’s successful implementation.

\textsuperscript{12} http://www.competic.es/
In four out of the six best practice examples innovative project management and evaluation platforms were used to manage the overall project. All administrative processes stipulated by the project management and the training institutions could be carried out online. Furthermore, the platform was used as a simultaneous evaluation tool. This enabled the project management to react directly to evaluation results and improve the project systematically and steadily, thus additionally strengthening its sustainability and lasting efficiency.

### 4.4 Characteristics of digital literacy projects

Besides the important factors for the successful implementation of digital literacy initiatives the evaluation showed that there are some characteristics typical for digital literacy projects:

- Different target groups are addressed and motivated
- Individual competitiveness is strengthened
- Most of the projects are non-profit and need public funding
- Government/stakeholder support is important for the successful realisation of the project
- Sustainability is essential for a digital literacy project to be successful and effective
- A network comprising stakeholders and interest groups is helpful for the sustainable realisation of the project
- The digital gap between different regions, social groups and generations is reduced

These specifications should be kept in mind by setting up new digital literacy initiatives.

### 4.5 SPreaD Toolkit

All these lessons learnt and characteristics were subsequently integrated in the SPreaD toolkit\(^{13}\) published in July 2008 in four languages.

The following table presents the structure of the toolkit.

<table>
<thead>
<tr>
<th>Phase according to the realisation of a project</th>
<th>Subjects (based on the best practice project analyses)</th>
<th>Contents of each subject in the toolkit (checklist)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiative phase</td>
<td>Target Groups Conceptual Design Benefit Analysis of Digital Literacy Projects Financing Strategies Political Strategy Stakeholders</td>
<td>Definition</td>
</tr>
<tr>
<td>Project phase</td>
<td>Didactical Design Technical Infrastructure Public Relations and Innovative Communications Communication Tools Monitoring and Quality Management Tools Human Factors and Change Management Feasibility Innovation Culture of Communication</td>
<td>Methods and instruments Recommendation</td>
</tr>
<tr>
<td>Sustainability phase</td>
<td>Sustainability Control and Evaluation</td>
<td></td>
</tr>
</tbody>
</table>

A checklist summarises all the key points of the different subjects. Toolkit users can thus acquire a brief outline of the main aspects involved in realising digital literacy projects. The following example gives an impression on how one topic is structured and treated in the toolkit:

![Figure 2: Extract of the SPReaD toolkit](image)

The toolkit was developed collaboratively, meaning that each member of the project team was responsible for the development of at least one topic. Furthermore, to develop the toolkit and assure the ability to work collaboratively on its development the consortium set up a wiki which can be reached at [http://wiki.spread-digital-literacy.eu](http://wiki.spread-digital-literacy.eu).

### 4.5.1 Community of Practice

Parallel to the toolkit development the consortium built up a European community of practice comprised of experts working in the field of digital literacy. Contributors willing to participate in the community presented their profiles in the SPReaD wiki, including their work focuses and contact data. In addition to the opportunity to communicate with one another, these experts can be contacted by people/institutions interested in obtaining more detailed information about a specific topic. The network currently comprises 33 experts from seven European countries. Together with the SPReaD consortium, it forms an extensive European knowledge community specialised in digital literacy.
4.5.2 Impact factors
So far, more than 2,000 copies of the toolkit have been distributed all over Europe. The Polish Cities on Internet Association\textsuperscript{14} has proved the usefulness of the toolkit and is going to translate it into Polish within their project Tr@nspod - Regional Partnership for eDevelopment and integrate the document in their digital library on Tr@nspods website\textsuperscript{15}. This will further strengthen the dissemination of SPreaD and thus support digital literacy Europe-wide.

Another positive example underlining the toolkit’s positive effect is the feedback from the Museo Tridentino di Scienze Naturali di Trento using the toolkit to develop online services for science teachers. This demonstrates the transferability of the SPreaD toolkit on other working fields which are not so much involved in digital literacy initiatives and enables or supports them to set up projects.

5 Conclusion
As shown in this article the definition of digital literacy is very broad and cannot only be focused on the use of the Internet or computers in general. Besides the technological ability to use a computer, the user also has to be capable to deal with all the information gained in the Internet and to continue to use this information in an effective and responsible way. To remain digitally literate is thus an ongoing process which means to learn and to use new technologies continuously and to adopt all these processes in everyday life.

This also implies that the need for support to strengthen digital literacy competences of all European citizens will continue to exist. If the fast development of new technologies does not decrease the demand to receive additional support to strengthen digital literacy will not decline, and the need to develop more large-scaled digital literacy initiatives will thus continue. The SPreaD project intended to strengthen this development and to encourage other institutions to develop new digital literacy initiatives. The first feedback is very positive and it seems as the SPreaD toolkit definitely encourages new digital literacy initiatives in Europe.

References

\textsuperscript{14} http://www.mwi.pl/index.php?id=55
\textsuperscript{15} www.mwi.pl ; www.mwi.pl/fileadmin/files/mwi/TRANSPOD/transpod_ulletka.pdf


Links
- SPReaD project: www.spread-digital-literacy.eu
- Klick-mach mit!: www.klick-mach-mit.de
- Do-it.regional: www.doit.regional.de
- Internauta: www.internauta.gva.es
- CompeTIC: www.competic.es
- Electronisch Leer dossier: www.eldvo.nl

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