

TRADITIONAL MEDIA SKILLS AND DIGITAL MEDIA SKILLS: MUCH OF A DIFFERENCE?

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Abstract. Although traditional and digital media skills contain many similarities, digital media literacy increases the differences observed in traditional literacy. On the one hand computers and the Internet make things easier as they enable systematic information retrieval from innumerable sources simultaneously. At the other hand computers and the Internet make information seeking and improving literacy more difficult as they assume a number of new operational and formal skills to start with. Additionally, they require particular information and strategic skills that partly are different from those required for the use of traditional media. All four skills taken together probably make the gap between people with different educational, occupational and age backgrounds bigger in the new than in the traditional media. Very few operational definitions and measurements of traditional media literacy are available. In this paper a general framework has been proposed to define and measure media literacy that can be applied to both traditional and digital media. The similarities of literacies have been emphasized: they all require operational, formal, information and strategic skills. The differences are caused by the characteristics of the medium under consideration and by the social and usage context that inspire special attention to particular skills.

1. INTRODUCTION

Media literacy as a concept was invented for traditional media, specifically print media and broadcast media. With the arrival of the computer, the Internet and other digital media the question rises whether this concept can simply be extended to cover these new media or that these media have different characteristics and usage opportunities requiring other types of literacy. This is the core question in this paper.

Media literacy builds on different underlying concepts and there is no agreement on what media literacy exactly is. There is an overabundance of related terms, e.g., print literacy, audiovisual literacy, critical literacy, oral literacy. A fairly common and broad concept of media literacy is defined by Potter (2004, p. 58-59):

“Media literacy is the set of perspectives from which we expose ourselves to the media and interpret the meaning of the messages we encounter. We build our perspectives from knowledge structures. The knowledge structures form the platforms on which we stand to view the multifaceted phenomenon of the media: their business, their content, and their effects on individuals and institutions. (.) The more people use these knowledge structures in mindful exposures, the more they will be able to use media exposures to meet their own goals and the more they will be able to avoid high risks for negative effects.”

This definition is a bit broader than the usual ones, such as those of Pattison (1982), Aufderheide (1993), Silverblatt (1995), Messaris (1998) and Meyrowitz (1998), that purely define media literacy in terms of *knowledge* of the media. Potter and some others such as Hobbs (1996), Brown (1998) and Adams & Hamm (2001) add the notion of *skill*. Potter (2004, p. 59) lists a number of skills of media production and seven primary cognitive skills required to attain knowledge:

The skills of production (writing, photography, acting, directing; editing, sound recording, etc.) can help people become more media literate by adding more information to their knowledge structures. But the production skills are secondary to the more primary skills of analysis, evaluation, grouping, induction, deduction, synthesis, and abstracting.

Potter and many others working with the traditional concept of media literacy develop a cognitive view on literacy. However, it is doubtful whether even this enlarged concept of media literacy as media knowledge and cognitive (intellectual, analytical) skills to process media messages is broad enough to capture everything that is required to successfully use digital media as they require not only knowledge and cognitive skills but also practical skills of (trans)actions, interactions and all kinds of applications in work, education and leisure time. We will come back to this question below.

In 1981 the term *computer literacy* was published in the Washington Post (Warschauer, 2003, p. 111). The concept as described was very narrow and only indicated

basic forms of computer operation, like turning on a computer, opening a folder and saving a file. Unfortunately, such narrow definitions of literacy required for computer use have remained customary since that time. Broader concepts appeared under the names of *information literacy*, *computer literacy* and *digital literacy*. The American Library Association (1989) introduced the concept of information literacy indicating that one has the ability to recognize when information is needed and to locate, evaluate and use it effectively. The concept of computer literacy and digital literacy have been used more often. Paul Gilster (1997: 1) 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”. Clearly, in all these definitions use is put on an even par with media knowledge.

Mark Warschauer (2003, p.111-119) composed a summary of types of literacy required in working with computers and networks. He made a list containing computer literacy, information literacy, multimedia literacy and CMC-literacy. He defined computer literacy as basic forms of computer and network operation, information literacy as managing vast amounts of information and multimedia literacy as the ability to understand and produce multimedia content. He added Computer-Mediated Communication literacy as the skill to manage online communications (email, chatting, video-conferencing) in an effective way keeping to the rules of ‘netiquette’.

A Dutch SCP-research team (Van Dijk, L. et al., 2000) has tried to extend the traditional literacy of print media with *numeracy* (handling numbers, calculating) and *informacy* (having the specific skills needed to use and understand ICTs). Finally, the most general definition came from Cees Hamelink. He did not use the concept of literacy, but proposed *information capital*, as used in the tradition of Bourdieu’s forms of capital (Hamelink, 2001). It indicates four abilities: 1) the financial ability to pay for the costs of computers and networks, 2) the technical skill to deal with them, 3) the capacity to filter and evaluate information and 4) the motivation to look for information and the capacity to use this information in society. This concept is extremely broad; the first ability clearly indicates that it means more than skills. In fact it has become a synonym for access.

Jan van Dijk (2005) further developed the concept of media literacy and used the term digital skills. He regarded digital skills as a sequence of operational skills, information skills and strategic skills needed to work with computer media. Strategic skills refer to the ability to use digital media as *means* to reach particular personal and professional *goals* in daily life. Additionally, he made an attempt to apply these three types of skill to print media, audiovisual media and computer media (Van Dijk, 2005, p. 74-75).

As discussed above, many different concepts that relate to the new forms of literacy have been adopted. These concepts primarily cause confusion since they are referred to in many ways. The spawning of new literacies, as diverse academic disciplines and stakeholder interests join on the debate “seems infelicitous” (Livingstone, 2003: 5). The varied terminologies and meanings mainly cause confusion (Bawden, 2001). Bawden (2001) conducted an extensive review and stated that it is appealing to spend a lot of time in discussing existing definitions, but that it is more important to explain rather than define terms. To avoid becoming entangled in terminological disputes, and to facilitate a dialogue

between the academy and policy makers, in this thesis the straightforward term of digital skills is used, in line with the definition as proposed by Van Dijk (2005). The focus of this paper is to gain more clarity on how digital skills relate to earlier concepts of literacy, e.g., print literacy or audiovisual literacy (Livingstone, 2003). The research questions are:

1. What are the similarities and the differences between traditional media skills and digital media skills?
2. Should digital media skills be measured differently than the skills necessary in traditional media?
3. What are the theoretical and practical consequences when in actual measurements of digital skills the distribution of these skills appears to be different from the distribution of skills in traditional media? Theoretical consequences might be the attainment of an operational definition of media literacy that can be specified for print, audiovisual and digital media. Practical consequences could be educational solutions that make a difference between general media education in terms of knowledge and digital skills training learning the operational, intellectual/analytic and practical abilities required to work with computers and the Internet.

2. SIMILARITIES AND DIFFERENCES OF TRADITIONAL MEDIA AND DIGITAL MEDIA SKILLS

2.1 Introduction

Closely related to the original notion of media literacy – media knowledge and to some extent cognitive (intellectual, analytical) skills – is the knowledge-gap hypothesis. The knowledge-gap hypothesis theory suggests that every new medium increases the gap between the information rich and the information poor (Tichenor et al., 1970). *As the infusion of mass media information into a social system increases, segments of the population with higher socioeconomic status tend to acquire information at a faster rate than the lower status segments, so that the gap in knowledge between these segments tends to increase rather than decrease.* (Tichenor et al., 1970: p. 159–60). With the rise of the Internet, information became accessible in amounts that no other media ever provided before, turning the information rich into the so-called information elite. The availability of information gives the information elite the power to understand things in their correct perspective and to defend against wrong decisions, which affects both their lives and activities (Goulding, 2001). While the original knowledge-gap hypothesis suggested that differences in socioeconomic status are responsible for the acquisition of knowledge, now other explanations are suggested, for example Internet skills that influence both the amount of information and the kind of information found online.

The concept of the digital divide is linked to the knowledge gap hypothesis, but emphasizes the digital media that provide the information. It strongly relates to computer literacy. In digital divide research there is a shift from only considering access to the digital

media – in most cases the Internet – to a focus on other kinds of digital inequalities (e.g., Hargittai, 2004; Van Dijk, 2005; Mossberger et al., 2003). Taking these into consideration, it has become clear that improved physical access to technology does not necessarily result in a closing digital divide. In the explanation of different usage of the Internet for example, the level of digital skills appears to be one of the most important factors. It has a strong independent weight according to contemporary digital divide research (Mossberger *et al.*, 2003; Van Dijk, 2005). By elaborating the basic digital skill definition from operational skills to information skills, Van Dijk (2005) anticipated the appearance of a usage gap between parts of the population that systematically use and benefit from advanced digital technology (and the more difficult applications) for work and education, and other parts of the population that only use basic digital technologies for simple applications with a relatively large part being entertainment (Van Dijk & Hacker, 2003). This anticipated usage gap relates to computer literacy, since it considers the shift from relatively passive media knowledge and cognitive skills to more active behaviour such as actually using digital applications, making transactions and employing information in practical contexts.

Both in digital divide research and in the knowledge gap hypothesis, digital skills are proposed as an explanation for either differences in knowledge and usage, or for digital inequality in general. The level of someone's digital skills affects both the knowledge gap (Bonfadelli, 2002) and the digital divide, specifically the usage gap. An important lack of digital divide research is that it has often neglected to show the particularity of the digital media. Concerning digital skills, researchers often make the mistake of regarding these skills as being special and totally different from the skills needed in traditional media. Therefore similarities and differences with traditional media skills are not articulated. In our view it is important to take the traditional media skills into account identifying the new media skills, since they partly overlap as is shown in Figure 1. Conversely, the shift from knowledge gap to usage gap, caused by the digitalization of media and the characteristics of digital media, should also be emphasised more. We will further discuss this shift in the explanation of Figure 1.

In this figure both traditional media and digital media are listed, together with the skills necessary to use them. These skills are divided in medium related skills and content related skills. This division corresponds to the distinction suggested by Potter (2004) between competencies and skills. According to Potter competencies are the abilities people have acquired to help them interact with the media and to access information. They are learned more or less automatically and they are dichotomous: people are able to operate the medium, or they are not. However, skills are developed through practise and their level of command is highly variable. There is always room for improvement through practise (Potter, 2004). For the purpose of analyzing digital skills, Van Deursen & Van Dijk (2009, in press) proposed a conditional range of four types:

- Operational skills: the skills to operate traditional and digital media.
- Formal skills: the skills to handle the structures of traditional and digital media.
- Information skills: the skills to locate information in traditional and digital media.

- Strategic skills: the skills to employ the information contained in traditional and digital media as a means to reach particular personal or professional goals.

The first two rows in Figure 1 list the skills of traditional media that will be explained in paragraph 2.2; in the last two rows the skills that belong to digital media to be explained in paragraph 2.3 are listed.

	<i>Medium related skills</i>		<i>Content related skills</i>	
	Operational skills Level 1	Formal skills Level 2	Information skills Level 3	Strategic skills Level 4
Print media	Read and write texts and figures.	Understand and possibly edit the structures of texts: chapters, paragraphs, references, index and table of contents.	Search, select, process and evaluate information from printed texts and figures.	Orient, act, and decide upon information in printed texts and figures to reach a particular goal and eventually gain benefits.
Audiovisual media	Read and write texts and figures; Watch, listen, record and edit audiovisuals, possibly guided by text or icons.	Understand and possibly edit the structures of audiovisuals: scenes, shots, sequences, scenarios, starts and endings.	Search, select, process and evaluate information from video, images, sounds, texts and figures.	Orient, act, and decide upon audiovisual information to reach a particular goal and eventually gain benefits.
Computers	Read and write texts and figures; Watch, listen, record and edit audiovisuals, possibly guided by text or icons; Operate hardware; Operate software.	Understand and possibly edit the structures of computers: drives, folders, files; Keep a sense of orientation while browsing folders and files.	Search, select, process and evaluate information from video, images, sounds, texts and figures in computer software.	Orient, act, and decide upon information in computers to reach a particular goal and eventually gain benefits.
Internet	Read and write texts and figures; Watch, listen, record and edit audiovisuals, possibly guided by text or icons; Operate internet browser.	Understand the structures of the Internet: web portals, websites and web pages; Keep a sense of orientation while surfing; Use different website and menu layouts.	Search, select, process and evaluate information from video, images, sounds, texts and figures on the Internet.	Orient, act, and decide upon online information to reach a particular goal and eventually gain benefits.

Figure 1. Four types of skills for different media (extended from van Dijk 2005, p. 75, Inspired by Steyaert 2000)

2.2 Traditional media skills

The term media literacy originally involved the ability to analyze respected works of literature and to communicate effectively by writing well (Brown, 1998). The minimum required skills to derive meaning from print media are the ability to read and write. In Figure 1 these are labeled under operational skills. For print media, these are the only operational skills.

Since research related to reading and writing was particularly valuable to policymakers as well as practitioners, it has gained a lot of attention. In the other hand, formal skills to make use of print media are often neglected. In print media formal skills are the skills to understand and possibly edit the structures of texts. Formal skills are necessary to understand the way texts are organized. These are the chapters, paragraphs, tables of content, indexes and the

references used in books, magazines, journals, newspapers etcetera. Together, operational and formal skills are the foundation to use every print medium.

Information skills and strategic skills relate to the content provided by the medium, for example the book. Here, information skills are seen as a set of actions by which users try to fulfill their information needs. Information skills are the skills to search information, select relevant information, process the information and also evaluate the information found in a print medium. Applying information skills in print media can be hard, since these are mainly text based and therefore require a lot of mental effort to extract narrative meaning (Salomon, 1979; Newhagen & Bucy, 2004). Strategic skills relate to the purpose of using the print medium and the potential empowerment that this usage accompanies. Based on the information obtained, a user might take actions, make decisions by placing the information obtained in the correct perspective and finally gain certain benefits that directly affect ones personal or professional life. Entertainment might also be a goal among these purposes; the goal or the means do not have to be 'information' in a narrow sense.

Besides print media, traditional media literacy often includes audiovisual media, like radio and television programs, movie pictures and videos. Originally, audiovisual media mainly provided sounds, video or images that could largely be processed without print media skills (Reeves & Nass, 1996). After some time, audiovisual media have increasingly been filled with text in introductions, subtitles, textboxes and banners. Besides reading and writing, operational skills for using audiovisual media encompass watching, listening, recording and possibly producing and editing audiovisuals. Formal skills needed for audiovisual media include the understanding and possibly editing of the structures of audiovisuals: scenes, shots, sequences, scenarios, starts and endings.

Information and strategic skills that belong to the content provided by the audiovisual media require different mental operations than processing texts, for example processing images and sounds. However, the set of actions required - searching, selecting, processing and evaluating information - can be described in the same words. Regarding strategic skills, it is relevant to know what information can be used for taking actions and for making decisions. Here strategic skills also serve as the means to reach a particular goal and to gain benefit from using audiovisual media. When the goal is information retrieval the actions required will be different as compared to the goal of entertainment (Salomon, 1979).

In both print and audiovisual media knowledge can be derived. The characteristics of traditional media, (e.g., low levels of selectivity and accuracy of information) stimulate a relatively passive manner of someone using these media, despite all justified claims of the so-called active audience. In this respect they are different from predominant digital media use. While traditional media *enable* active mental processing, digital media *require* a minimum level of active engagement with the medium and they offer the possibility for interactions, transactions and interpersonal communication. This is further explained in the next section.

2.3 Digital media skills

Remarkably, people often think that for using digital media only button knowledge is required and that this will be automatically learned by the younger generation. An explanation for this

shortsighted view might be that traditional media literacy research has often focused on the analysis of messages provided by the media (Livingstone, 2003). Operational and formal skills in traditional media literacy research are less discussed, because these are more or less taken for granted (in developed societies most people are able to read and write). With the arrival of the new digital media suddenly new skills that appeared to be difficult were required. The new operational and formal skills attracted most of the attention. Other characteristics and content related aspects of digital media often have been neglected.

Most studies that attempt to measure digital skills lack theoretical justification and fail to cope with the full range of skills required. Just like media literacy, computer literacy has the problem of an overabundance of definitions and underlying concepts. A lot of interpretations are given to an extended range of terms and there is no agreement on what constitutes digital media skills or why they are needed (Martin, 2006). A glance at Figure 1 quickly reveals that what we have already learned in traditional media research also applies to the use of new digital media. However, there are two major differences. As mentioned in the former section, digital media are different since they require interaction in interfaces by users. Using computers or the Internet is (communicative) action, interaction and transaction. Livingstone (2003: 2) claims that “media literacy is not reducible to a feature or skill of the user, but is better understood as a co-production of the interactive engagement between technology and user. Consequently, literacy is dependent on interface design and it changes as technology changes”. Secondly, since the storage capacity, accuracy and selectivity of digital media are larger than those of traditional media (Van Dijk, 2006), more information skills and strategic skills are required. In no other media such a large amount of information and choice opportunities are available.

Basically, the primary operational skills for using computers are similar to those of print and audiovisual media. Read and write texts and figures, watch, listen, record and edit audiovisuals are skills that can also be used operating computers. This list of skills is complemented by special skills needed for the operation of computer hardware and software. The formal skills for using computers are also new since they deal with a different structure than any other traditional medium: e.g., using drives, folders and files. This structure needs to be understood and mastered before an effective use is possible. Not only should one know how to open folders or save files, it is also necessary to keep a sense of orientation while browsing through the numerous files and folders that hard drives often contain. Both operational and formal skills are conditional for using new digital media. However, a high level of operational and formal skills alone is not enough. This is often disregarded in digital skill research. The content related skills for using computers – information and strategic skills – are similar to the information and strategic skills in traditional media. In using computers information skills are searching, selecting, processing and evaluating information from integrated digital texts, images, sounds, videos and figures. Strategic skills are the orientation, action and decision on this information to reach a particular goal and eventually gain a personal or professional benefit.

Like computers (and television), the Internet provides both verbal and non verbal meaning. The difference is that on the Internet verbal and non verbal communication is

provided in a new way. Verbal communication on the Internet can be text or spoken words and non verbal communication can have a visual and/or auditory nature. To the operational skills for using computers one can add the operation of an Internet browser. Formal Internet skills require a unique form of digital skills needed for the use of a browser and hypermedia. In hypermedia users can choose their own non-linear paths giving them a lot of control. They cannot only move forward, but also backward and to unknown locations. Without a sense of location, distance, and direction, users often have a strong sense of disorientation (Kwan, 2001). They might get lost irrespective of their content domain expertise and the specific information topics being navigated (Danielson, 2002).

The Internet's information features are used in ways similar to print and audiovisual media. They have gained attention in the context of library research under the label of information literacy. Shapiro and Hughes (1996) for example, have defined information literacy as "a new liberal art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure and its social, cultural, and philosophical context and impact." The acts of searching, selecting, processing and evaluating of information from online video, images, sounds, texts and figures are further operationally defined in the next section. These steps largely correspond to the information skills in traditional media and computers. However, the information provided by the Internet is infinitive, putting much more pressure on the content related skills. When, for example, a broad search strategy is used in an Internet search engine, a large amount of unsuitable results will appear, making the selection part of information skills harder to achieve. Information skills are required to reach a particular goal by one's own initiative following a particular explicit question. Sources found should also be evaluated for their validity and reliability.

The fourth type of Internet skills, strategic skills, assumes additional analytic abilities. Not only information sources should be analyzed but also distinctions should be made between goals and means, between what is more and less important to reach these goals and finally decisions should be made for a particular action. So, in order to acquire strategic skills and employ them on the Internet, users must be critical and analytical and they must have a high degree of information skills.

3. OPERATIONAL DEFINITIONS FOR INTERNET SKILLS

The four types of digital skills presented in the former section and Figure 1 can be made operational for both traditional and digital media. We are most interested in the digital media, specifically the Internet, since at present the ability to use the Internet and the information and services it contains are central issues in policy discussions and the importance of the Internet grows rapidly in all fields of human life. It is therefore necessary to crystallize the digital skills debate by providing operational definitions that might result in actual measurements. As explained in the former sections, the skills needed in traditional media skills should be involved by the process of defining operational definitions for the skills needed in digital media. This would mean that especially the skills related to the content part gain more

attention, since measurements of digital media skills often only consider operational, formal and to some extent information skills. Research that considers the full range of skills required would help to better understand how digital inequalities built upon already existing forms of inequality. Van Deursen & Van Dijk (2009, in press) proposed an operational framework for Internet skills, based on operational, formal, information and strategic Internet skills. The framework proved to be a powerful tool for understanding the complexity of the digital skills among segments of the population. Results of the study are discussed in the next section. See Table 1 for the operational framework for measuring Internet skills.

Table 1. Operational definitions for operational, formal, information and strategic Internet skills

Operational Internet Skills	<ul style="list-style-type: none"> • Operate an Internet browser: <ul style="list-style-type: none"> ○ Opening websites by entering the URL in the browser's location bar; ○ Surfing forward and backward between pages using the browser buttons; ○ Saving files on the Hard Disk; ○ Opening various common file formats (e.g., PDF, SWF); ○ Bookmarking websites; ○ Changing the browser's preferences (e.g., start page); ○ Using hyperlinks. • Operate online search engines: <ul style="list-style-type: none"> ○ Entering keywords in the proper field; ○ Executing the search operation; ○ Opening search results in the search result lists. • Complete online forms: <ul style="list-style-type: none"> ○ Using the different types of fields and buttons (e.g., drop-down menus); ○ Submitting a form.
Formal Internet Skills	<ul style="list-style-type: none"> • Navigating on the Internet, by: <ul style="list-style-type: none"> ○ Recognising and using hyperlinks (e.g., menu links, textual links, image links) in different menu and website lay-outs. • Maintaining a sense of location while navigating on the internet, meaning: <ul style="list-style-type: none"> ○ Not getting disoriented when surfing <i>within</i> a website; ○ Not getting disoriented when surfing <i>between</i> websites; ○ Not getting disoriented when browsing through, and opening search results.
Information Internet Skills	<ul style="list-style-type: none"> • Locating required information, by: <ul style="list-style-type: none"> ○ Choosing a search system or appropriate website to seek information; ○ Defining search options or search queries; ○ Selecting information (on websites or in search results); ○ Evaluating information sources
Strategic Internet Skills	<ul style="list-style-type: none"> • Taking advantage of the internet, by: <ul style="list-style-type: none"> ○ An orientation towards a particular goal; ○ Taking the right action to reach this goal; ○ Making the right decision to reach this goal; ○ Gaining the benefits belonging to this goal.

ACTUAL MEASUREMENTS OF DIGITAL SKILLS

The only way to obtain a direct measure of a skill is by means of a test which measures that skill. There are only few serious scientific experimental tests of Internet users' skills (e.g., Hargittai, 2002a; Eshet-Alkalai & Amichai-Hamburger, 2004; Van Deursen & Van Dijk, 2009, in press). Van Deursen & Van Dijk (2008, 2009) measured the in this paper discussed conditional range of four skills, opposing the academic split between online and offline behaviour by considering skills needed in traditional media. This section of the paper is primarily based on two studies among the Dutch population (2008a, 2009), different in the context of the kind of tasks subjects had to complete on the Internet (a governmental context and a leisure context). In both studies subjects - randomly selected using a quota sample with a distribution of age, gender and education - had to complete assignments on the Internet that were specifically designed to measure one of the four skills (the method and assignments are fully described in Van Deursen & Van Dijk, 2008). Both studies indicate that the Dutch population on average has a fairly high level of operational and formal Internet skills, but that the levels of information skills and especially strategic Internet skills attained are much lower. The level of digital skill performance appeared quite different among categories of the Dutch population. Educational level attained was the most important correlating factor, significant on all four types off digital skills. Age was the second most important correlating factor, but only for operational and formal skills.

The first important conclusion was that the so-called 'digital generation' (18-29), that also scored relatively high on operational and formal skills, did not perform significantly better in information and strategic skills than the older age groups, despite the fact that the elderly scored lower on operational and formal skills. A second important conclusion was that the level of Internet skills has a weak relation with years of Internet experience and the amount of hours spent online weekly. Internet experience only correlated with operational skills. It appeared that information and strategic skills did not grow with years of Internet experience and amount of time spent online weekly. This finding, together with the observation that the older age groups are not inferior to the younger age groups on information and strategic skills, temper the popular assumption that with the extinction of the oldest age groups, the skill problem will solve itself. Thus, operational and formal Internet skills are a necessary but not sufficient condition for the performance of information skills and strategic skills in a digital environment (the Internet). Surveys that usually only try to measure operational and formal skills, give a flattering picture of the actual digital skills of populations.

The next question that rises is how the levels of the traditional media skills in digital media (information and strategic) actually relate to the use of traditional media. A follow-up questionnaire among the same subjects that participated in the performance tests described above did not give decisive answers. It only revealed that the part of the subjects that scored the lowest on all four skills (the lower educated part) significantly watched more television and listened more radio. The nature of the programs watched on television also differed. The lower educated part was far more interested in entertainment, while the highly educated part

for example watched more news, science and documentaries. More research is needed on how these differences directly affect the levels of the four types of skill.

5. CONCLUSIONS AND DISCUSSION

5.1 What are the similarities and the differences between traditional media skills and digital media skills?

On the one hand the very broad classical notion of media literacy has been narrowed in this contribution. It no longer focuses on the derivation of knowledge and the interpretation of messages offered by media but on the competencies and skills of users. First of all, the frequently held normative notion of a particular critical evaluation of ‘wrong’ media contents has been cut out of it. This has been transformed in the general skill to evaluate the validity and reliability of information sources without a normative assumption about contents. At the other hand the classical notion of media literacy has been expanded here to also cover the (inter) active engagement required for interactive digital media and this certainly is much broader than the derivation of knowledge or the interpretation of messages.

As we have seen traditional and digital media skills contain many similarities. However, we also believe that digital media literacy increases the differences observed in traditional literacy. On the one hand computers and the Internet make things easier as they enable systematic information retrieval from innumerable sources simultaneously. Finding information in a traditional library might be more difficult for inexperienced information seekers than finding the same information on the Internet using a ‘simple’ search engine. At the other hand computers and the Internet make information seeking and improving literacy more difficult as they assume a number of new operational and formal skills to start with. This raises an extra barrier above the skills of reading and writing. Additionally, they require particular information and strategic skills that partly are different from those required for the use of traditional media. Otherwise one drowns in the wide ocean of information provided by the digital media. All four skills taken together probably make the gap between people with different educational, occupational and age backgrounds bigger in the new than in the traditional media.

The phenomenon of the knowledge gap that is related to traditional media skills also seems to expand in the digital media environment. Here we have discussed the transition to a usage gap that is considerably broader. This is not only about differences of knowledge derived, but also about differences of media use in all kinds of practices. Computers and the Internet are not only used for information, news and entertainment but also for work, career, education, business, political and cultural participation, social networking and even for dating and marriage. These media increasingly support interactions, transactions and conversations in every aspect of contemporary daily life. The usage differences observed here cannot only be explained by traditional divides of social and cultural capital or age, gender and ethnic differences but also by an unequal command of the four digital skills we have distinguished. Currently, there is too much attention to operational digital skills while special (formal) Internet skills are somewhat neglected, information skills mostly are disregarded and strategic skills acquire no attention at all. This is not justified because in this sequence they are increasingly difficult to repair. Operational and formal skills can be ‘easily’ repaired in computer classes, courses and on the job training or even learning them yourself in practice.

However, information and strategic skills are not learned ‘automatically’ or simply by practice. Currently, information skills for the extremely vast and complex environment of the Internet and computer sources are not even sufficiently learned at schools. Finally, strategic skills are only trained in particular job and school environments where computers and the Internet are used to attain particular neatly circumscribed goals. But where should you learn systematic information retrieval on the internet for your own particular personal or professional purposes? The use of an online voting guide? The search for friends in a social networking site? And where should you learn the very strategic job of online dating?

While Livingstone (2003) argues that the social uses of information technologies work to reproduce and reinforce traditional literacy skills rather than to transform, or generate new literacy skills, Steyaert (2002) and van Dijk (2005) emphasize that information and strategic skills pose new demands and will be much more important in future information and network societies. Ultimately, they will become more important than operational and formal skills. An increasing number of activities is affected by purposive searching, processing and use of information and by attaining or retaining positions in all kinds of relationships. Information and strategic skills will largely determine people’s position in networks both on the labor market and in social life and the input and influence people will have in all kinds of policy processes. So, current preoccupation with operational skills is unjustified. More attention to information and strategic skills, among others attention in educational and government policies is required.

5.2 Should digital media skills be measured differently than the skills necessary in traditional media?

There are two main problems with the measurement of traditional media literacy. First, the concept of media literacy is still insufficiently defined. A lot of definitions are available (see the four page list in Potter (2004, p. 257-260), but most of them are vague and cannot be transformed into empirical operational definitions. This touches the second problem: very few operational definitions and measurements of traditional media literacy are available. So, this paper can be just as well read as a call to better define and measure traditional media literacy than as a call to define and measure digital media. The last call has at least been heard by a few investigators that have made attempt to design performance tests of digital skills in experimental environments (see Section 4). The only other, be it less valid option they have is to ask respondents to rate their own digital skills in surveys.

Current measurement options for traditional media literacy are surveys in which the knowledge derived from digital media is observed and educational tests for reading, writing and audiovisual editing are held. As has been claimed here, performance tests are the most valid option for digital media literacy. This goes stronger for digital media than for traditional media because, as it has been claimed in this paper, digital media assume relatively more (inter)actions that can only be validly observed in action tests.

5.3 What are the theoretical and practical consequences when digital skills appear different from the skills required in traditional media?

In this paper a general framework has been proposed to define and measure media literacy that can be applied to both traditional and digital media. To develop such a framework the similarities of literacies have been emphasized: they all require operational, formal, information and strategic skills. The differences are caused by the characteristics of the medium under consideration and by the social and usage context that inspire special attention to particular skills. Of course, the framework proposed is incomplete and should be further developed, especially the parts about operational, formal, information and strategic skills of print and audiovisual media. Such a framework could be very valuable for the study of multimedia literacy that is required in the present multimedia environment.

The practical consequences of this theoretical framework and the empirical results it might bring are to draw the attention of policy makers and educational authorities to particular skills that are currently neglected and that presumably will become very important for those that presently do not have these skills. In this article it has been emphasized that the command of operational and formal digital skills is a necessary condition for the attainment of information and strategic skills in the digital media. When the elderly generations have learned operational and formal digital skills they can perform just as well, or even better in digital environments – given the knowledge and wisdom they have developed during their life- than the younger generations.

However, information and strategic skills are not automatically learned in computer and Internet operations. So, both old and young have to learn them in regular or adult-educational contexts. At schools they have to be introduced in all normal courses of the curriculum using computers and the Internet as learning instruments and they can be contained in so-called media education. This part of the curriculum in some countries and in some schools currently pays most attention to knowledge derived from the mass media and effects of the media. Considering the Internet almost every attention goes to the dangers or risks for (mainly) young people on the Internet and how to deal with them. It would be wise to also pay attention to digital skills, for young people mainly information and strategic skills and for older people primarily operational and formal skills. For example, the young need information and strategic skills to learn about the risks of privacy intrusions in their daily Internet activities and to prevent the naiveté they frequently demonstrate in these matters. And the old need the operational and formal skills to learn the operations required to protect privacy anyway.

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