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# The uses and challenges of the “New literacies”

## Web 2.0 in education and innovation

Examples of *Web 2.0* interactive Internet applications are blogs, wikis, *Facebook*, *Flickr* and *Twitter*. The importance of framing their use as a literacy issue in education rather than a technological issue is maintained. The first results of research on the experiences of teachers, students and entrepreneurs of using the new literacies in education, innovation and democratic action are presented. The findings suggest a very positive attitude to their use in innovation, networking and democratic action. In education, in spite of positive examples, their use is controversial because of various possibilities of abuse, around identity theft, information inaccuracy and copyright infringement. The greatest challenge for education is to prepare our students to read, manipulate and produce all the kinds of texts needed for them to function effectively in modern society. Suggestions are made for further research and educational policy.

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Tækifæri og áskoranir tengd „nýju læsi“: Web 2.0 í menntun og nýsköpun  
Fjallað er um áskoranir gagnvirkra samskiptamiðla (Web 2.0 vefnotkun) fyrir skólastarf og nýsköpun. Dæmi um slík verkfæri eru blogg, vikar, *Facebook*, *Flickr* og *Twitter*. Færð eru rök fyrir því að líta á gagnvirka vefnotkun sem hluta af læsi í skólastarfi, fremur en sem tækni- eða miðlamál. Greint er frá fyrstu niðurstöðum eiginlegrar rannsóknar á reynslu kennara, nemenda og einstaklinga úr nýsköpunargeiranum af notkun þessara verkfæra í skólastarfi, nýsköpun og lýðræðislegri þátttöku. Niðurstöður benda til markvissrar notkunar og jákvæðra viðhorfa í nýsköpunarfyrirtækjum, m.a. til lýðræðislegrar þátttöku, en skiptari skoðanir eru um notkun þeirra í skólastarfi, m.a. vegna mögulegrar misnotkunar, þó að dæmi séu um mjög jákvæð viðhorf og notkun. Helsta áskorunin fyrir menntakerfið er að móta stefnu um hvers konar texta nemendur okkar þurfa að lesa, meðhöndla og framleiða til að dafna og starfa sem best í nútímasamfélagi. Loks er fjallað um æskilegar leiðir til frekari rannsókna og stefnumörkunar.

## Introduction

In an earlier article, the author referred to Victoria Carrington's (2004) citation to a young editor of *Game Zone* using the concept of *Shi Jinrui* meaning *New Humankind* about the

young generation in Japan, who act so differently from their parents mostly because of the new technologies available (Guðný Guðbjörnsdóttir, 2006). The importance of investigating the meaning these new media can have was pointed out, in order to understand to what extent literacy and reading habits are changing with ICT or Internet related media.

In this paper the focus is on the use of the so-called *Web 2.0*, or Internet use where the focus is on interaction, with an emphasis on social networking sites. This topic is taken up recently in the *Educational Researcher* (2009) as an urgent policy issue for educational research, with a leading article by Greenhow, Robelia and Hughes (2009) and several responses by other researchers. This discussion shows that there are debates about the use of key concepts, what is new about *Web 2.0* and whether the use of these media should be framed as a literacy issue or a technological issue in schools or education. Leu, Kinzer, Coiro and Cammack (2004) suggest that no single theoretical perspective can explain the full range of changes to literacy brought about with the Internet and other ICTs. Three different approaches and key concepts are discussed: critical literacies, multi-literacies and media literacies. The authors consider all of them limited and propose a dual level theory a “New literacies” perspective, to understand how reading, writing and communication are being fundamentally transformed and how it is good to proceed in the classroom. New literacies theory works on two levels, uppercase (New literacies) and lowercase (new literacies). Each research on the multiple new literacies contributes to the larger, changing theory of the New literacies. In this paper the concept of new literacies will be used which is in agreement with the view of framing the use of these interactive applications as a literacy issue (Leu, O’Byrne, Zawilinski, McVerry and Everett-Cacopardo, 2009). It is considered vital to education to see the Internet as a context to read, write and communicate in, that the Internet is no more a technology than a book, and should therefore be of concern to teachers of all subject matters, not only in separate technology or media classes. This view is also more likely to avoid resistance to technological innovations common to schools.

## The new literacies and *Web 2.0*

The concept of “new literacies” can be confusing as it is not defined in the same way everywhere (*Handbook of Research on New Literacies*, 2008). In a recent article, the utility of the new literacies is said to lie in online reading comprehension and learning skills, required by the Internet and other communication technologies (ICTs), including content found on wikis, blogs, video sites, audio sites and in e-mail (Miners and Angela, 2007). Lankshear and Knobel (2007) claim that what is new or central to the new literacies is not the use of the Internet, but rather the mobilization of very different kinds of values, priorities and sensibilities than traditional literacies. The new literacies are more participatory, collaborative and distributed in nature than conventional literacies, and less expert dominated. Other concepts used for the difference between the old and new literacies are Mindsets (1 physical-industrial and 2 cyberspatial-postindustrial) to characterize the frame of mind and *Web 1.0* and *Web 2.0* to characterize what is done or used on the web. A new literacy reflects mindset 2 and *Web 2.0*. The logic of *Web 1.0* is of use rather than participation, consumption rather than agency. Directories of *Web 1.0* are “authoritative” and reflect the experience and wisdom of their designers. Examples of *Web 1.0* are Internet applications like *Britannica Online*, personal websites and publishing. In *Web 2.0* collective participation, collaboration and distributed expertise are valued. Examples of Internet applications and approaches of *Web 2.0* are *Flickr*, *Wikipedia*, Blogging, Participation, Wikis, Tagging (folksomany), *Google* as well as social networking sites like *Facebook* and *Twitter*. The more a literacy practice can be seen to reflect the insider mindset (2) and the qualities associated with *Web 2.0*, the more it can be regarded as a new literacy. The more a literacy privileges participation over publishing, distributed over central-

ized expertise, collective over individual intelligence, dispersion over scarcity, shared ownership, creative-innovative rule-breaking over generic purity and policing, relationship over information broadcast, the more it is regarded as a new literacy.

Cormode and Krishnamurthy (2008) maintain that a precise definition of *Web 2.0* is elusive and that many sites are hard to categorize with the binary label “*Web 1.0*” or “*Web 2.0*.” But they emphasize a clear separation between a set of highly popular *Web 2.0* sites such as *Facebook* and *YouTube* and the “old Web.” These separations are visible when projected onto a variety of axes that are technological, structural and sociological.

Although the binary split between *Web 2.0* and *1.0* is advocated by many for practical purposes (Greenhow, Robelia and Hughes, 2009), others prefer to see the development of Internet use as more continuous as the difference is not clear cut and sometimes it is not clear if a literacy is *Web 1.0* or *Web 2.0* (Leu *et al.*, 2009). I conclude that we have to live with is unclarity, but it is useful to use *Web 2.0* for the interactive use of the Internet, including the social networking sites where the focus is on collective participation, collaboration and distributed expertise is valued.

### **Challenges for education and innovation**

Young people use digital communications—instant messaging, cell phone texting, and social networking websites—mostly to maintain their social capital (Carrington, 2004, 2005). *Facebook* was developed by young students at Harvard but is now used all over the world by an increasing number of people. Ellison, Steinfeld and Lampe (2007) have found a strong association between American College students’ use of *Facebook* and three measures of social capital: bridging social capital, bonding, and the ability to stay connected with members of a community that one belonged to previously. In addition they found *Facebook* usage interacted with measures of psychological well-being, suggesting greater benefits for students experiencing low life satisfaction or low self esteem. Although research on the use of social networking sites is enormous (<http://www.danah.org/researchBibs/sns.php>), most such research is not on the use of social networking in education or innovation.

The main challenges of the new literacies, or *Web 2.0*, to education have been discussed in various research and international reports. An OECD (2007) report uses the term User-Created Content (UCC) for the use of *Web 2.0*, wikis and social networking. The main challenges mentioned for education and innovation concern the effects of copy rights on new sources of creativity, how to preserve the freedom of expression on the UCC, issues related to information and content quality /accuracy and tools to improve these, how to avoid illegal content (community standards or filtering software), identity theft, impact of intensive Internet use and improve network security.

In his report on the implications of *Web 2.0* for education, Anderson (2007) claims there is very little reliable pedagogic research and evaluation on the use of social software in education. The key *Web 2.0* services Anderson includes are blogs, wikis, tagging and social bookmarking, multimedia sharing, audio blogging and podcasting and RSS. Having reviewed available research, Anderson concludes that for education there are three significant challenges ahead: Firstly, as the web facilitates more new communities and groups, the growing power of the online crowd will lead to tensions over online identity and privacy. Secondly, the growth in self-generated content and the rise of a culture of DIY will challenge conventional thinking on who exactly does and knows things, the meaning of status and hierarchy. Thirdly, Anderson claims there will be profound intellectual property debates ahead between individuals, the public realm and corporations over the huge amounts of data that *Web 2.0* is generating and how it will be processed.

Minocha (2009) uses the term “social software” for this range of software tools which allow users to interact and share data with other users, primarily via the Internet, e.g. blogs, wikis, social networking websites, such as *Facebook* and *Flickr*, and social book-marking sites, such as *Delicious*. The key aspect of a social software tool in his opinion is that it involves wider participation in the creation of information that is shared. His research examined the use of social software in UK further and higher education, and of the effective use of social software in enhancing student learning and engagement. Data from 26 initiatives were collected and analyzed with a case study methodology where both educators and students were interviewed. The investigations found that social software tools support a variety of ways of learning: sharing of resources (bookmarks, photographs), collaborative learning, problem-based and inquiry-based learning, reflective learning, and peer-to-peer learning. Students gain transferable skills of team working, online collaboration, negotiation and communication, individual and group reflection, and managing digital identities. Although these tools enhance a student’s sense of community, sharing and collaboration, there is also a sense of additional responsibility and workload, which some students find inflexible and “forced”. The study found that students have concerns about privacy and the public nature of the tools for their academic activities. The educator’s role is changing from being a provider of information to a facilitator or moderator, which raises training needs, workload issues, and adjusting to a “new” way of teaching. Institutions face the dilemma of adopting and recommending tools in the public domain over which they have no control. On the other hand, the institutions may not provide tools with as rich functionality as is available in the tools in the public domain. The analysis answers questions educators and policy makers may have about social software initiatives and the results highlight the different pedagogical roles of social software: communication, nurturing creativity and innovation, and collaborative learning.

Carrington (2005) has pointed out that institutional pressures restrict the “literacy” of our classrooms to a particular set of practices. To do other than this is to leave schools open to critique and sanction. At the same time, it is evident that new texts and new social configurations are in demand outside the school where children need to read and construct various forms of text, as well as the more traditional texts of modernist society, in order to ensure their own successful participation in economic and information flows. She finds no easy answer to this dilemma, but calls for a professional dialogue around the purpose of literacy in contemporary society.

Finally the views of Jenkins *et al.* (2006) are worth considering. In their opinion resistances to what they call “media literacy” training in schools, is related to the fact that the school day is bursting or to curriculum overload. Therefore it is recommended to see media literacy as a paradigm shift similar to multiculturalism and globalization. Like Carrington (2006) they maintain that these skills are needed for modern individuals and workplaces. Access to this culture can be seen as the *new form of the hidden curriculum*, shaping which youth will succeed or be left behind as they enter school and the workplace.

As this discussion suggests, there is an open cry for more research on the role and use of *Web 2.0* in education (see also Alexander, 2006). In Iceland two recent articles have been published on the use of *Web 2.0*. One is on the use of *Facebook* as a social medium (Hilmar Thor Bjarnason and Guðbjörg Hildur Kolbeins, 2010). There it is pointed out that according to *CheckFacebook*, 112% (!) of Icelanders in their twenties are on *Facebook* and also that the death of *Facebook* has been predicted as young people aged 13-17 are losing interest in it because of its popularity among the older generations.

The other article is on entrepreneurial networking (Þór Sigfússon, 2010), and focuses on *Facebook* claimed to have over 400 million users world-wide, and the more professional networking site *LinkedIn*, claimed to have 75 million members. It is maintained that *Facebook* is nowhere in the world as popular as in Iceland. Eleven entrepreneurs from software firms based in Iceland were followed for three months. They used *Facebook* much more than *LinkedIn*, but many used *Facebook* more as a domestic network than for professional purposes. The main purpose of the professional networking of these entrepreneurs was an exploration of weak ties, partly because of the availability of this new communication technology on the web.

## Aims

One of the aims of this paper is to report preliminary results from a qualitative study of the experiences and attitudes of a selected group of teachers, students and entrepreneurs with respect to their use of the "new literacies" and their challenges in modern Iceland after the recent bank collapse in 2008 and the present economic recession.

The main research question in focus is as follows:

What are the experiences and attitudes of teachers, students and entrepreneurs with respect to the "new literacies" or *Web 2.0* in education, innovation and democratic participation?

This research is part of a larger research project on cultural literacies (Guðný Guðbjörnsdóttir and S. Morra, 1997, 1998; Guðný Guðbjörnsdóttir, 2006; Morra and Guðbjörnsdóttir, 2009). Here the focus is extended to the new literacies and to innovation besides education, as one of the main themes of the new literacies is innovation.

## Method

The purpose of this exploratory phase of the research is to investigate how selected teachers, students and entrepreneurs use *Web 2.0* and their attitudes toward that use. A qualitative research method was used, as the aim is to understand human experience and the meaning it has for the participants (Bogdan and Biklen, 2003). In-depth interviews were taken with a group of teachers, students and entrepreneurs at different sites in the spring of 2010.

## Participants

The participants were selected by the snowballing method, nineteen in all so far. Firstly five teachers of ICT or the "new literacies" from three school levels, compulsory, upper-secondary and the university level participated, four men and one woman. The university teachers pointed out the teachers at the other school levels, in view of their interest in the use of Internet in education. The teachers then selected two interested pupils each. In all, four pupils age 14-15 from two schools in Reykjavík were interviewed, two boys and two girls; three students from two upper secondary schools in the greater Reykjavík area, one man and two women; and three University students, one woman studying in Iceland, one man studying in Denmark and one woman studying in the US. The university students were selected by convenience by the author. Finally four entrepreneurs in start-up businesses in Reykjavík were interviewed, three men and one woman. They were selected by the author as representing different spheres of innovative start-ups.

## Procedure

The interviews were conducted in the spring of 2010 by the author either in the schools, the offices of the participants or at the University office of the author. One interview was conducted on Skype as the participant was abroad, and one was conducted by a re-

search assistant. The tenth grade pupils and teachers, and two university students were interviewed in pairs, for practical purposes; others were interviewed individually.

The interviews were semi-structured with the research question in focus. Participants were asked about their use of the Internet with focus on interactive media in education, innovation and democratic participation, and their attitudes towards using the Internet for those purposes. Each interview took about one hour. The interviews were transcribed verbatim [1] and content analyzed. Each interview was reread many times with a focus on the following themes: education, innovation and networking, use, attitudes and challenges. The interviews were all conducted in Icelandic. The quotations are translated by the author.

## The “new literacies” in education

Generally there was a positive attitude to the use of the Internet in schools both from the teachers and students. The new literacies, or *Web. 2.0* interactive uses of the Internet, were mostly in closed inner nets of the schools, like moodle or blackboards. One school teacher that used *Facebook* was an exception.

Two distinct views appear among both teachers and students. The resistant or negative view was against using social networks like *Facebook* in schools, as those could be closed anytime and are privately run on a commercial basis. *Facebook* was considered time consuming and distracting at school both by teachers and students. Some thought it should be banned in schools, even if it was accepted for leisure and networking purposes.

One upper secondary-school teacher called for an open source network that could be shared between schools, and was very impressed with how fast students learn in this sphere. His experience was that the pupils help each other and he mostly tells them where to look for solutions to problems, that it is often possible to use *Google* for solutions:

The students will always be ahead of us, but we can guide them and assist them in finding the relevant information. It is not our role to teach much on the use of interactive media...

Most pupils in 9th and 10th grade and older are considered to be on *Facebook*. However, three years ago there were only three pupils on *Facebook* and everyone was on MSN in the class of one of the teachers. Most of the teachers and students agreed that *Facebook* and other interactive media like *Youtube* are wonderful and very popular for leisure and social networking, but generally do not see them as tools for learning. The pupils are on *Facebook* in the school but turn it off when the teachers see, or when the teachers tell them to stop.

A more positive view towards using *Facebook* for educational purposes comes from one compulsory school, a teacher and his pupils. In that school most of the school curriculum material is on the school web, as the school has a green school policy. This teacher started using *Facebook*, formed a group in his subject, natural sciences, and placed all his material on *Facebook*. Many parents and other teachers have joined the group. The teacher places quizzes and various educational material on *Facebook*, and the pupils say this means that these are accessible not only to parents, but to grandmothers and aunts as well, so the whole family is more involved in the child's education. But how does it work to have the curriculum on the web, both as text and as sound files? Do the pupils read or only listen? A 14-year-old girl responds:

Most kids read and listen, some read only and some kids listen only. If you listen to the homework it sticks better to your brain.

Both the pupils that participated from this school were very content about the use of *Facebook*, and saw their school as “in” by using “their” media.

It is very convenient to get messages just before school starts about bringing extra clothes or something because of school trips or other unexpected events. It is the best school I have known and I have been in many of them.

Student participants from secondary schools and universities knew about *Twitter*, but there was only one example from a university student about using it for educational purposes.

I have learned more about my field (graphic design) on *Twitter* in two months than in the school for a year and a half. Now I am much more interested and goal directed in reading about my field having started using *Twitter* and other social networks on the web.

One secondary school teacher is in a European project about media use in schools, and uses *YouTube* or similar technologies (*Vimeo*) or websites for the material of his students on a closed school net. He mentions that the technology changes so fast that it is often best to have the students teach each other and the class about the latest developments:

Once I had students buy a book, but when I started teaching it in the fall, it had already been updated from edition 4 to 5. The knowledge grows faster than teachers or schools can cope with, so it is best to give students a vision and some tools to learn themselves. We talk about issues, and they solve the problems themselves, but thank me.

He calls for a policy on curriculum development for the web for his school or for Icelandic schools, something that he knows is more advanced in the European network he is working in.

One of the teachers was very interested in innovation in schools. He wanted to get out of the closed school web environment, preferably to open source media and share curriculum development and ideas with other colleagues, including international ones. One student used the Internet to co-compose music, even if most of the time they just met and composed together, and he used *Facebook* to get regular feedback on his music from a focus group. He and his classmates use *YouTube* and *Vimeo* and *Flickr* for their photographs and videos, both as part of the school work and in their extra-curricular activities. One student decorates tee shirts with her artwork and shows and sells them on *Facebook*. Generally the teachers and students had a very relaxed attitude about protecting their ideas, and were interested in sharing, creating, advertising and selling.

## **The “new literacies” in innovation**

First it is of interest to find out how these entrepreneurs saw the role of education for the new literacies and innovation. The educational background of the participants that were entrepreneurs from start-up businesses was as follows: One had a PhD degree, one was a fashion designer, and two had dropped out of school, one from the university and one from secondary school. Generally the entrepreneurs saw the school as out of touch when the role of the new literacies in education was discussed.

I am mostly self-educated, I took the informal faster way; my first start up business was at age 17 (grew to be 300 employees, eventually bought up in 2000).

One entrepreneur mentioned that formal education can be a hindrance for people in innovation if they are creative in other fields.

One person said, “I am only a biologist, not an expert in this...” and therefore did not believe in herself as an entrepreneur in another field.

The entrepreneurs see the Internet and the new literacies as essential for learning and education for innovation and for their work. Most of them think that education has been too resistant to the use of the web, and that education needs to be more online so that students can learn what they need at their own pace and time. More freedom in the curriculum is being called for because “the school curriculum is often too fixed with little room for individual interests, innovation and creativity”.

The main focus of the interviews with the four entrepreneurs was on the role of the new literacies in innovation. All of them are heavy users of *Web 2.0* technologies, including *Facebook*. They present new ideas on *Facebook* and let them mature, discuss collective problem solving and networking, besides selling and advertising innovations that range from music to technical products and solutions and fashion designs.

*Twitter*, a social networking and microblogging site enabling its users to send and read messages called *tweets* or text-based posts of up to 140 characters, was used extensively by two of the entrepreneurs. They use *Twitter* to spread ideas and events and to follow tweets from experts in their field, from all over the world. One followed tweets from about 100 and the other from about 200 people or sites.

You subscribe to tweets of your interest, I for example follow experts in my field some in the Silicon valley ... and it is great at conferences, you can meet those that think like you. It is a society of nerds... On *Facebook* you meet your friends—I have about 750, but on *Twitter* you meet those you would like to be your friends—professionally.

Two of the entrepreneurs stressed the importance of having everything on the Internet open source, and mentioned the importance of trusting collaborators. The other two entrepreneurs mentioned the tension between co-creation and publishing on the one hand and the need for protecting their ideas/products on the other, without seeing constructive solutions to these tensions. This tension was very real for the fashion designer, who wants to sell products on the Internet, including *Facebook*, but wants to protect her ideas from being copied by other designers and producers.

## Democratic participation and networking

In view of the collapse of the Icelandic bank system in 2008 and the widespread distrust of politicians and other power holders, the demand for an improved democracy is widely discussed. It was therefore of interest to ask the participants about their experiences and attitudes to the use of the new literacies for democratic and networking purposes. Two of the entrepreneurs experienced and assisted in political campaigns and democratic action, with the use of *Facebook* and *Twitter*. They mentioned that the two new parties in Icelandic politics used *Facebook* and *Twitter* both during their campaign and after, that the other parties and politicians are increasingly doing so as well and that a crowd sourcing startup firm (<http://agora.is/tag/iceland/>) is preparing a National meeting of 1000 participants for a new constitution. To this it can be added that many of those running for the



constitutional senate in November 2010 (<http://www.kosning.is/stjornlagathing/english/>), have announced their campaigns on *Facebook*, and used their *Facebook* page to promote their ideas.

Many of the participants see the use of the new literacies, particularly the use of blogs and *Facebook*, as revolutionary for democracy, as it is possible to run campaigns, call for action and discuss political agendas in much cheaper and effective ways than before. “Therefore it is possible now for people from the margins to gain political power”. One of the university students, living in Denmark, complained about many messages about the “pot and pan” revolution activities in Iceland on his *Facebook*.

A student from upper secondary school mentioned using *Facebook* for student elections in their school. “We formed a *Facebook* group for our campaign and won. Everyone in the school is on *Facebook*”. School and university students also use *Facebook* to network as graduation groups, and to gather for sport events, concerts, beer nights or other events. Their attitudes were generally very positive in this respect. One student participant said that if he wanted to go to the movies or to a particular event, he announced on *Facebook* or *Twitter* that he was going and often his friends then came and joined him. Examples of using *Facebook* to network around antisocial behavior were also known by the participants, both in relation to clique feuds and the state of social unrest in Iceland.

One entrepreneur, who has much insight into governance on the Internet was convinced that the present freedom on the Internet would be restricted in the near future for security reasons. Another entrepreneur was convinced that *Facebook* and similar media, will remain open and free: “They will not charge for their use in the near future as some rumors say; their income is greater by having their services free”.

## Conclusion and discussion

These preliminary findings suggest that the new literacies are an important part of the social capital of individuals and interest groups. The new literacies are considered very important for innovation, especially *Facebook* and other social networking sites, blogs and *Twitter*. Some see *Twitter* as more useful for professional work, and *Facebook* more for social-networking. This is comparable with the findings of Þór Sigfússon (2010), except that he found that the social-networking site *LinkedIn* was preferred professionally to *Facebook* by the entrepreneurs. Apparently he did not ask about *Twitter*. The new literacies are seen as important tools for democratic action, making it possible for political parties and individuals at the margins to make their ideas and actions known, without much cost for advertising. The government is also making use of social networks or crowd sourcing with the assistance of start-up firms to prepare for proposed constitutional changes.

When it comes to education, the picture is more complicated. The entrepreneurs emphasize the importance of the new literacies for education, but distrust the school or formal education in that respect, unless it changes drastically. They call for more flexible curricula and distance education. The teachers generally experience the school as being resistant to the use of the new literacies, unless it is on a closed school network. Some schools have discussed banning *Facebook*, but one teacher points out that in his school they know that bans will not hold, as students will find ways around them. One teacher has a different opinion and uses *Facebook* in his teaching of one subject. In his school many teachers and parents have joined the *Facebook* group and the pupils like it very much, the participants maintain.

With the exception of this one school, the views of the participants in innovation and education with respect to the importance of the new literacies for education are very different. It is important to understand better why this is so. Leu et al. (2009) mention the importance of framing the use of the Internet as a literacy issue rather than a technology issue and avoid the resistance to technological innovations common in schools. More research is needed to find out to what extent these findings can be generalized to schools in Iceland, but resistance in schools is also mentioned by Jenkins et al. (2006). They claim that the reason is the sense of curriculum overload and suggests that what they call “media education” should not be treated as an extra subject, but rather as a prelude to a paradigm shift that, like multiculturalism and globalization, affects how we teach every school subject.

The results are in agreement with Minocha (2009) who found that teachers prefer the “walled” learning environments of school and are skeptical towards social networks like *Facebook*, as they are privately owned and run on a commercial basis. In the mindset of *Web 1.0*, protection and control over the school’s knowledge production is dominant, but not in the mindset of *Web 2.0*, with its focus on cooperation and co-creation of knowledge. This is not surprising as the school has a national curriculum, which it legally has to follow. If teachers/schools were positive to the use of *Web 2.0* to promote the learning of the curriculum, then the pupils and apparently the parents were positive as well. It is not clear from this preliminary study to what extent the use of the new literacies in schools makes use of the educational challenges of these media besides communication. The extent to which the encouragement of creativity, innovation and co-learning or co-creation is in use, demands more detailed research as pointed out by Zhang (2009) who identifies conflicts between the chaotic emergent Web and rigidly organized schooling. Zhang suggests research questions that advance pedagogy, assessment and technology.

While the use of the new literacies like the social media *Facebook* and *Twitter*—despite their negative sides—is important in terms of social and cultural capital, their distribution is not clear, as they seem only minimally used within formal education in Iceland.

This preliminary phase of the study suggests that until a clear policy has been adopted by schools, research on “best practices” will continue to be more interesting than surveying the status of the use of *Web 2.0* in schools in general. The recommendations Greenhow, Robelia and Hughes (2009) make for a stronger research focus on students’ use and learning with *Web 2.0* in and outside the classroom is worth considering. They want to focus not only on learner participation, creativity and online identity formation, but also on issues of “equity, access, educational benefits, and risks that shape future research designs and technological and pedagogical innovation” (p. 255). These ideas are extended further by Zhang (2009) by focusing in more detail on the strengths and challenges of collaborative creativity and on supporting teacher learning and innovation. Dede (2009) adds to the ideas of Greenhow *et al.* (2009) and articulates how research infrastructure with capabilities for communal bookmarking, photo and video sharing, social networking and wikis might function and argues for an alternative more provocative use of this research infrastructure, “an experimental attempt to generate ‘wisdom’”. Dede sees wisdom as a five dimensional concept (cognitive, practical-experimental, interpersonal, ethical and meta-cognitive) which he contrasts with accepted definitions of knowledge (2009, p. 260).

The recommendation made by Leu et al. (2009) of framing the Internet use in schools as a literacy issue rather than a technological issue is worth reiterating. They argue that a dual-level theory of “New literacies” is a productive way to conceptualize this change for education, using the new literacies of online reading comprehension to illustrate this

process. They propose that their approach is likely to lead to greater equity, understanding and acceptance of continuously new technologies within education systems.

Finally I revisit the views of Carrington (2005) who after analyzing SMS texting and the views of those that see it as an end of civilization, points out that during times of fast technological changes there is a tendency to talk about “literacy crisis”, particularly if there are changes in the culture of young people, their music or media use, often with a sense of perceived “moral” decline. Literacy is in her view always the litmus paper for social change and the tensions that creates. Therefore it is important to ask: “What does it mean to be “literate” in contemporary economies and cultural landscapes? What kinds of texts will the students in our classrooms find it necessary to “read” and manipulate and produce in order to effectively participate in civic life?” (Carrington, 2005, p. 172).

The author agrees with the views of OECD (2007) and Anderson (2007) discussed in the introduction about the main challenges of *Web 2.0*. Perhaps, however, the question phrased by Carrington above, is the biggest challenge of *Web 2.0* for both schools and society. Research and policy work on the new literacies has to include all kinds of “text”, including the newest in video, visual images and social networking tools. This, as Leu et al.(2009) have pointed out, will improve flaws in public policies surrounding reading, improving opportunities for all students. In Iceland, the educational policy on reading and literacy is now undergoing change and hopefully these views can be accommodated in the new policy (Menntamálaráðuneytið, 2010).

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