Life was bacalao – life is Internet? Should we develop a "fishing culture" mentality in schools?

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This article presents results of a study on Internet use of 311 Icelandic students ages 6 to 19. The types of webs visited during observations (139 in 2001 to 2003 and 117 in 2005) were games, entertainment, sports, information/learning, communication, and search. Younger children mostly used games but older ones used the Internet frequently for acquiring information and for communication. The participants used various methods to find or access the materials they were using, most common was to type in URL's and clicking links within webs but as students got older they used more varied methods and took advantage of the possibilities available in the browser. Online activities increased with age. Keeping a home page (blog) appears to have become the norm among Icelandic teenagers, reading blogs others have written, and chatting online on a daily basis. Many are participating in a wider online community in relation to their areas of interests. Teachers should take advantage of and enhance these new skills and literacies.

Keywords Internet use; schools; literacy; Iceland

1. Introduction

"Life is bacalao" are famous words in Icelandic literature [1] that reflect well times in the country's fishing villages for the earlier half of the 20th century when bacalao (salt cod), which was mostly sold to Spain, was Iceland's main export [2]. During that time industrialization had hardly reached Iceland but the economy was based on fishing and primitive life stock farming. Toffler [3] predicted the coming of the third wave that would hit the world after the second wave of industrialization. According to him we would be changing our "info-sphere" to the core and adding new ways of communication to the social system (p. 183), making, as a result, mass media, post office, and telephone look hopelessly primitive. According to Toffler we would have new ways to think about problems, synthesize information, and anticipate the results of actions, thereby possibly transforming our minds. In addition, the role of literacy would likely change dramatically. With the advent of the Internet, mobile computers and telecommunication, Toffler's predictions are being rapidly realized in the Western world . The Internet has become "the bacalao" for many Icelanders, not the least the youngest generation affecting life patterns and thinking. But what evidence is there for these changes and how should schools and educators react?

In our paper, we will present results of a qualitative study of Internet use of 311 Icelandic children and adolescents (ages 6 to 19) who were observed using the Internet 2001-2003, and 2005 and interviewed about their use of it. We will describe how these children and adolescents were "fishing" on the Net and what their "catches" were. We will also examine their methods, and how they seemed to be acquiring a literacy concerning this medium.

2. Method

The study could be described as distributed research [4]. That is, students or individuals who are distributed or located over different areas participate in one or more part of the research process, e.g., in data gathering and analysis. In this study, data were collected by 66 graduate students among 227 chil-

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dren or adolescents in 2001 to 2003, and more data are being gathered this spring by 22 graduate students with 84 additional observations/interviews made so far[1]. Most of the graduate students are also practicing teachers at different school levels, who live in different places all over Iceland while completing their degree online. The graduate students:

- Selected individuals (2 boys and 2 girls) at school (randomly) or at home.
- Got permission to study them using the Internet.
- Made the observations – (during on average 14 to 15 minutes).
- Interviewed the individual concerned about Internet use and use of other types of technology.
- Coded the observations for certain behaviour.
- Entered data and preliminary coding on the project web site http://soljak.khi.is/netnot.
- Examined the data and discussed some of the results on the course web conference.

Table 1 shows the number of observations from each year of Icelandic study participant in the age range 6 to 19 seen using the Internet. As can be seen in the table there were about the same number of girls and boys observed each year, and there tended to be more students in the younger age groups (6-12) than the older in 2001 to 2003 but similar ratio in 2005. Also, in 2005 there tended to be relatively lower number of the observations made in schools (24%) than 2001 to 2003 (58-67%).

Table 1 Number of graduate students involved and observations by year with ratio of girls vs. boys, younger (6-12) vs. older (13-19) students, and observations made at school (vs. homes or other out of school places).

Year	Number of grad. students gathering data	Number of observations*	Observations - ratio %		
			Girls: Boys	Age 6-12: 13:19	At school
2001	15	47	49:51	68:32	64
2002	22	79	49:51	59:41	58
2003	29	101	47:53	60:40	67
2005**	22	84	50:50	51:49	24
Total	*88*	*311*	*49:51*	*59:41*	*54*

* Of Icelandic children, age 6-19; engaged in Internet use. More were made but are not included in this report of the study (did not meet this criteria).
**The 2004 cohort in the course participated in a study on Internet use among Icelandic teachers.

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3. Results

3.1 The "catches": Web sites and online activities

[1] More observations and interviews were made but of individuals that did not fit that age group or nationality.

In 2001, 2002, and 2003 there were a total of about 139 identified webs visited. Just over half of the webs were Icelandic (.is rather than .com or other) ca. 25 of 52 (or 48%) in 2001, 27 of 56 (or 48%) in 2002, and 41 out of 70 in 2003 or 59%. A list of the identified sites can be found on the project web (http://soljak.khi.is/netnot). During the observations, each individual visited on average 1,9 named webs[2] but 4,3 web pages (sometimes several pages were visited in each web). The maximum recorded was 8 webs during an observation and 13 websites. Individuals visited on average at least 3,2 pages per 10 minutes. The total number of webs and pages was actually higher because the observers did not always identify the sites or exact number of shifts between pages.

In 2005, however, the graduate students gathered this type of data in a more accurate way by recording the URL's from the browser History which had been emptied prior to the observation (rather than trying to record the URL's be watching where participants were going). There were a total of 117 webs recorded (list available on project web site, http://soljak.khi.is/netnot) – with about 68 Icelandic (or 58%) which was very similar to the ratio in 2003. During the observations, each individual visited on average 3,0 webs but about 8,5 web pages (sometimes several pages were visited in each web). The maximum recorded was 8 webs during an observation and 30 websites. Individuals visited on average 2,1 webs per 10 minutes and 5,6 web pages per 10 minute period – or a switch to a new web page every two minutes or so - which seems considerably higher than in earlier years. However, the data gathering method in 2005 was far more accurate and likely to result in more named webs. During that year only about a quarter of the recorded webs were visited by more than one person, and about 14% visited by more then two. Not many webs stood out in number of visits but the most popular among younger girls (6-12) was http://www.folk.is (Icelandic entertainment and blog/communication web), visited by 22%; among younger boys http://www.leikur1.is (Icelandic game web), visited by 35%; among older girls (13-19) http://www.blog.central.is (Icelandic blog web/communication), visted by 32%; and among older boys http://www.hugi.is (Icelandic discussion and entertainment web), visited by 23%.

The observations were examined and coded for the type of websites and/or activity. The main types were games, sports, (other types of) entertainment, information/learning, communication, and search engines. Information/learning sites were varied and included sites that were visited, apparently for "serious" (non-entertainment) purposes, e.g. through school assignments during school use or at home. Such webs included sites such as school or class home pages, science webs, news webs, and bank webs. Those types of sites also tended to be more frequently in Icelandic than the game or entertainment webs, e.g. in 2003, 89% of information/learning sites were in Icelandic,and 80% in 2005. But in 2003 only 50% of entertainment and 43% of game sites were in Icelandic and 47% of entertainment and 25% of games in 2005, even if concerning games "visitors" tended to be younger. However, use of text for information and communication becomes more prominent with age. Table 2 shows the percentages in each year that visited each type of sites.

There were interesting trends regarding communication. In 2003, MSN and blogging had suddenly become very popular among teenagers, particularly girls. In 2003, MSN was actually the most frequently recorded activity, used by 17% of those observed (21% of girls and 12% of boys, mosty 13 or older, about one third of the students in that age group were observed using MSN). In 2001, on the other hand, only one student was observed using MSN and the same was true in 2002. Also, in 2003, 10% of the students were observed using blog (http://www.blogger.com), especially students from the oldest age group (16-19), the majority. However, there were only very few students observed in that age group in 2003 (10). But no students in 2001 and 2003 were observed using blog.

[2] Webs that was either recorded exactly by url (e.g. http://www.disney.com) or by name (e.g. the home page for Liverpool soccer team).

3.2 The "fishing methods" - developing multiliteracies

In 2005 the graduate students gathering the data were asked to indicate how students were accessing the webs and materials they were seen using during the observations. The analysis was partly based on a framework used by Chandler-Olcott and Mahar[5] and also on categorization with examples of behaviour gained from the data analysis on previous data. Chandler-Olcott and Mahar looked at how two teenagers girls acquired multiliteracies online with participation in online communities where through situated practice, overt instruction, and using critical framing, potentially resulting in transformed practice. The authors also examined how the girls constructed their identity online.

Table 2 Types of webs by gender and age group. (Entertm = Entertainment, not games; Info/lrn =webs used mainly for information and/or learning; Communic. = webs used mainly for communication). (Most commonly observed web type used in each group shown in bold.)

Year	Age	Gender	N	Games %	Entertm %	Sports %	Info/lrn %	Communic. %	Search %
2001	6-12	Girls	15	40	**60**	0	27	13	20
		Boys	17	**76**	24	29	47	6	12
		Total	*32*	***59***	*41*	*16*	*38*	*9*	*16*
	13-19	Girls	8	25	38	25	**50**	**50**	50
		Boys	7	0	57	29	**100**	71	43
		Total	*15*	*13*	*47*	*27*	***73***	*60*	*47*
2002	6-12	Girls	24	**50**	33	0	38	13	13
		Boys	23	**65**	26	9	17	13	22
		Total	*47*	***57***	*30*	*4*	*28*	*13*	*17*
	13-19	Girls	14	29	29	0	36	**57**	14
		Boys	18	28	**50**	11	28	17	17
		Total	*32*	*28*	***41***	*6*	*31*	*34*	*16*
2003	6-12	Girls	29	38	31	3	**41**	21	14
		Boys	32	**34**	**34**	22	28	19	13
		Total	*61*	***36***	*33*	*13*	*34*	*20*	*13*
	13-19	Girls	18	11	44	6	**61**	50	17
		Boys	22	18	36	14	**50**	41	9
		Total	*40*	*15*	*40*	*10*	***55***	*45*	*13*
2005	6-12	Girls	23	**65**	26	9	30	26	13
		Boys	20	**85**	15	10	30	5	10
		Total	*43*	***74***	*21*	*9*	***30***	*16*	*12*
	13-19	Girls	19	42	42	5	53	**58**	32
		Boys	22	45	27	18	**64**	14	27
		Total	*41*	*44*	*34*	*12*	***59***	*34*	*29*

The interviews from 2005 revealed that to access the web sites students visited they used several methods which tended to become more sophisticated and/or be used more with age. Most popular were methods that could be described as situated practice. About two thirds of the students were observed accessing material by clicking links within a web (81% of the oldest, 16 to 19 years old) and/or typing the URL's successfully (81% of the oldest). However, about 8-10% of students younger than 16 were observed making errors typing URL's directly but none of 16-19 year olds. Students also frequently

used web links to get between webs (42%) and 30% used search engines successfully (62% of the oldest age group). Some of the younger students were also observed imitating peers (5%) to find their way on the web. Another category, overt instruction, was used less. But students younger than 16 were observed asking for and getting help from peers (ca. 14%), using written direct instructions (2%) from the teacher or getting help from family members. But many knew the features of the browser environment and took advantage e.g. of the browser opening page (37%), used the Address drop-down box (27%; and 56% of the oldest 16+), the bookmarks or favorites (19%; 38% of the oldest.) or the History (8%; 31 % of the oldest).

Online activities in daily life increased a lot with age. In 2005, results from the interviews showed that having a home page has become the norm among Icelandic teenagers: 64 % of 13-15 year old teenagers kept their own home page (blog) and 53% of the 16-19 age group (and even 46% among the 10 to 12 year olds); an additional 8% had different type of home page among 13-15 and 13% of the 16-19. And there were some indications that the girls tended to update their pages more regularly than did the boys. Participants also liked to follow other people's blog, (especially the girls); 45% of the 10-12, 68%of the 13 to 15 and 76% in the 16 to 19 age group. Chat has also become very frequent: well over half of the 13 to 19 year olds chatted online on a daily basis, mainly using MSN, but also Skype, IRC, and some other programs. Most had a regular group of 1 to 5 they chatted with, although the oldest (16 to 19) often had more people in their online chat group(s). In addition, it was considerably common that participants reported being a part of a wider online community where they could e.g. discuss or get help in relation to their interest areas. Examples included game „clans" or groups (especially among the boys), sports, animals, church group, politics, sports, as well as old friends.

4. Discussion

As the above results show, Internet use is influencing heavily life patterns and styles of young people. What can be done in schools to make the effects of Internet use on our young generation positive and/or minimize potential negative effects? During the times and places in Iceland where bacalao defined life styles, large families often worked together to catch the cod and to produce high standard bacalao for export. They watched out for and taught each other. In a similar spirit teachers could work with their students, promoting a learning community on the Net and in the classroom. There are also methods and materials that can be used to promote safe used of the Net. An example is the SAFT project - Safety, Awareness, Facts and Tools (http://www.saftonline.org) – which is a cross-European project that aims to promote safe use of the Internet among children and young people. The ocean presents dangers of drowning and shipwreck and catches are sometimes small, but the advantages for the community and individuals outweigh the dangers – people cope with the challenging – they learn to swim, build better ships, work on accident prevention, and quality control of products.

5. Further information

Further information on the study can be located on the project web – http://soljak.khi.is/netnot .

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