COMPUTER AND VIDEO GAMES IN FAMILY LIFE
The digital divide as a resource in intergenerational interactions

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In this ethnographic study of family life, intergenerational video and computer game activities were videotaped and analysed. Both children and adults invoked the notion of a digital divide, i.e. a generation gap between those who master and do not master digital technology. It is argued that the digital divide was exploited by the children to control the game activities. Conversely, parents and grandparents positioned themselves as less knowledgeable, drawing on a displayed divide as a rhetorical resource for gaining access to playtime with the children. In these intergenerational encounters, the digital divide was thus an interactional resource rather than a problem.

> *Grandpa:* can you teach me how it works then? ((to Anton, 10 years old))
> *Grandma:* yes teach grandpa how it works
> *Anton:* yeah
> (Video observation)

It has been claimed that children have moved, or have been moved, from the streets into their homes (Zelizer, 1985) or more specifically, into their bedrooms (Livingstone, 2002).[1] But, what do children do in their homes and in their bedrooms? Recent studies show that almost every child in Scandinavia has experience of computer games (Kløvstad and Krisitansen, 2004; MMI, 2003). Digital technology[2] – video games, computer games, the internet and email – is a part of children's everyday lives in the western world, whether they have access to it or not (Livingstone, 2002). Often these digital technologies are referred to as *new technology* or *new media* when they are discussed in relation to school and other social institutions, but, as media researchers like Drotner (1999) emphasize, the computer medium is not a new medium as such, rather it is a well-known component of young people's leisure activities. But what *is* new are the ways in which researchers (e.g. Gee, 2003; Prensky, 2001) and politicians talk about children's use of technology.[3]

The written texts have changed, as have the reading and writing practices. We are moving from the paper to the screen, from written texts to pictures (Bolter and Grusin, 1999; Gee, 2003; Kress, 2003; Tyner, 1998). Skills and knowledge regarding how to use and move around in digital environments require competence in reading texts and pictures in the new media (Gee, 2003). This new competence is seen and treated as a new form of literacy, *digital literacy* (Tyner, 1998). It is often argued that children, as regular users of new media, develop knowledge concerning how to use them, which is followed by the assumption that they handle and relate to digital technology in different ways from their parents and grandparents (Livingstone, 2002; Tapscott, 1998). Those who have studied the qualities of the new media[4] argue that the texts created are radically different from books and television or video (Kress, 2003; Poster, 1995), which becomes an argument that those who are seen as non-users (adults and especially elders) do not know how to deal with these texts.

Children's activities are often talked and written about in terms of play (e.g. Corsaro, 1979; Garvey, 1984). What differs when it comes to children's use of computers compared to children's use of, for instance, skateboards, is the *idea* that knowledge about computers is important for people living in western societies. In the Nordic countries, this idea can be seen in discussions about society's responsibility for developing the next generation's digital literacy, where schools are given the task to educate digitally literate citizens. In Sweden, society's celebration of digital literacy, can, for instance, be seen in the large-scale economic investment in the national ITiS (IT in School) projects, and in Norway, in projects like Pluto (Programme for Teacher Education, Technology, and Adaptation) and Pilot (Project Innovation in Learning, Organization and Technology).[5] The main purposes of these projects is to improve children's knowledge in how to use computers and related digital technologies.[6] On the political level, 'digital literacy' is discussed as the *fourth cultural technique*, which places it in line with reading, writing and mathematics.[7] The talk about digital literacy has generated questions on the political agenda about how to deal with those who do not seem to acquire this competence.

Digital divides and the generation gap

The difference between those who know and those who do not know how to act in a digital environment is referred to as the *digital divide* (Becker, 2000; Papert, 1996; Tapscott, 1998). The main focus of studies in the late 1990s was on what characterized people who had *access* to, compared to those who did not have access to computers and the internet (Hess and Leal, 2001; Holloway and Valentine, 2002; Tapscott, 1998; Wagner et al., 2002). Later on, the focus moved away from computer and internet access to *how* these technologies are used in different contexts (Becker, 2000; Facer, 2002; Holloway and Valentine, 2002; Miller and Slater, 2000; Murdock, 2002). According to the debate, socioeconomic background, ethnicity, gender, geography and generation are seen

as social variables explaining a digital divide (Buckingham, 2003; Buckingham and Scanlon, 2003; Facer et al., 2003). The digital divide is seen as a problem, where the school has become society's main instrument in bridging these gaps (Holloway and Valentine, 2002; Livingstone, 2002; Tapscott, 1998; Wagner et al., 2002). The task given to the educational system rests on the ideas that differences in children's digital literacy are a result of activities that take place outside school, and that such differences constitute a problem.

Tapscott (1998) contributes to the discussion of a digital divide by focusing on generation as an explanation of an asymmetrical knowledge-relation,[8] where he claims that adults are not able to handle or adjust to the 'new' technology in the same 'natural' way as children do. Tapscott (1998) uses the notion *generation gap*, as a structural category for explaining the differences in digital literacy between two or more groups. An aspect of the generation gap discussion is that children, as a result of just being young, are celebrated and seen as competent computer users (e.g. Erstad, 2003; Papert, 1996; Tapscott, 1998). In the case of digital technology, the romantic view of the competent child has to be seen in relation to a deterministic optimism in relation to a new technology.[9] These aspects underscore the need for researchers to describe how, when and where children become competent in using digital technologies (Buckingham, 2000).

In the study of children and childhood, generation has been introduced as a concept that emphasizes the relational character of childhoods as well as the political project of making children visible as actors (Alanen and Mayall, 2001; Christensen and James, 2000). The use of generation as an analytical concept in what has been called the sociology of childhood, or the new social study of childhood, has been criticized as vague and unclear (Närvänen and Näsman, 2004). What seems problematic in a qualitative study of the digital divide is that generation, as a structural category, does not explain how this gap is socially produced, or what it looks like or how it works. On a somewhat polemical note, generation easily becomes a gloss, a 'black box' of restricted explanatory value. Yet, generation is used as a concept in the present text to emphasize that I am studying the use of new media in families, which are social institutions of kinship-based relations. By directing the focus on the *activities* that may create a digital divide, I unpack the 'black box', to explain how generational differences may be drawn upon as social resources in social interaction. As such, I would argue for a study of generation gap not as a study of a fixed relation between categories, but rather as a study of the relation between the actors involved in gaming. Thereby, my focus is on agency, which is much in line with studies within childhood sociology.

Several large-scale research programmes concerning computer practices in homes have been conducted, but these have mainly been done through questionnaires and interviews (Buckingham, 2003; Buckingham and Scanlon, 2003; Fromme, 2003; Holloway and Valentine, 2000, 2002; Livingstone, 2002; Tapscott, 1998; Turkle, 1996; Vered, 1998). According to Buckingham

(2002: 79), 'there has been very little attention to the social contexts in which the technology is used, or to the social relationships of which it forms a part'. A similar remark is made by Corsaro (1997: 100), who claims that we know little about how children 'appropriate, use, and extend information from the media'. These comments point at what can be seen as problematic, namely that many of the studies are more or less decontextualized, and that we need to investigate uses of digital technology in social interaction. If it is correct that almost every child and adolescent in the Nordic countries has experience in using computers, and that gaming is part of young people's everyday lives (Drotner, 1999; Gee, 2003), then it becomes interesting to study how children use digital technology and how such practices create and recreate relations to other persons in the family. A study of children's use of digital technology together with and among others will make it possible to make sense of episodes as the one in the vignette opening this article, where the child was positioned as someone 'in the know'. The fact that the debate about digital divides has paid minimal attention to how these are situated in social inter-action makes it particularly interesting to study children's digital practices in family life and other situations outside school. The present article discusses the digital divide as a generation gap, while focusing on children's use of computer technology in family environments. If there exists a generation gap when it comes to reading digital texts, there is reason to believe that this is relevant in computer and video game activities.[10] The questions asked are: in what ways are generation gaps produced in social interaction, and what are the consequences for the social order created?

Data

Setting and analytical unit

The present study is part of an international study of family life, 'Everyday Lives of Working Families', in Italy, the US and Sweden. There were three criteria for selecting families in the project: (1) two adults working full-time, (2) who own their own house and (3) where there are at least two children, one of whom is 8–10 years old. These criteria resulted in data that consist of families with a minimum of four members. All of the families have at least one game console in the house. The material was gathered in a mid-size Swedish city over a period of 1 year. Eight families were video recorded, answered questionnaires and were interviewed.

In order to analyse the interaction between family members and between children and digital technologies, two video cameras were used for simultaneous recordings of family life. The recordings took place in the families' homes and went on for 1 week. It started when the first family members got up in the morning, and it went on until they went to work/school. Then, the recordings started again when they came home from work/school and until they went to bed. The video recordings amount to about 300 hours. For the

purposes of the present study, instances were selected in which children, adults and computers were co-present in time and place. These situations were then transcribed and analysed.

All the sequences chosen have been transcribed in a simplified version of conventions employed within discourse analysis (see Appendix). The sequences were initially transcribed and analysed in Swedish before they were translated into English.

The idea of a 'generation gap' served as a sensitizing concept (Hammersley and Atkinson, 1995) to identify situations to concentrate on during the fieldwork. The analytical units of the present study are gaming practices in the everyday life of families. All of the present episodes involve instances of intergenerational computer game activities. There is reason to believe that chatting and surfing on the web are activities where there is a potential digital divide, but there were no situations in my data where the children chatted or were engaged in 'googling' or other internet activities together with their parents.

Methodological orientation

The present analyses have been informed by two areas in social science. First, I have employed ethnographic techniques in my fieldwork and the theoretical aspects of my study and the selection and analysis of episodes as part of on-going family life. This can be seen in the design of the study, which is based on participant observation, but also includes interviews, questionnaires and field notes. One can claim that information concerning the families, their habits, their way of talking and relating to each other is a knowledge that one cannot access merely by watching episodes on a video. As Duranti (1997: 100) writes, 'the pathos of performance' is something one gets through participating in the field, which influences how data are selected and interpreted.

Second, discursive psychology, and its way of thinking about humans as actors in discourses, has contributed to the way I understand and analyse interaction (Edwards, 1997; Potter, 1996). The topic of discursive psychology is to study how descriptions are constructed in particular settings, in a way that is oriented to a range of actions. One reason for adopting principles from discursive psychology is that my focus is directed towards social practices. Another reason is that discursive psychology focuses on what have been called 'naturally occurring' activities, which can be seen in the fact that the present episodes have not been initiated by the researcher. The third reason is that discursive psychology analyses participants' construction of reality.

The digital divide used as a resource by adults

In line with a perceived digital divide, children can be seen as more competent with computers than their parents. In the following extract, we see how the mother is positioned, and positions herself as a novice in a computer game. In the present episode, we encounter two sisters, Felicia and Sara, and

their mother. They are seated in a room next to the living room, playing Patience on the computer, while using a watch to keep track of time. The room is used as a guest room and as the parents' workplace at home. If somebody enters the room, it is primarily to use the computer. During the week I visited this family, playing Patience on the computer was a regular occurrence. The father commented on the girls' playing by saying 'it's fun, I sometimes do it as well'. At this point, the mother told the girls that when she was young, they 'used to do something like that with real cards'.[11] The adults are familiar with Patience as a card game activity, and sometimes even the father plays it on the computer. The present episode takes place in the evening, just before the children go to bed, and the mother has just entered the room.

Excerpt 1:
Participants: Mother, Felicia (10), Sara (8) and PC
Place: Office/guest room

01	*PC:*	((moves a card when Sara double clicked on one of them))
02	*Mother:*	Sara
03	*Felicia:*	you can move the knight over there ((pointing at the screen))
04	*Sara:*	what can you do with the four then? ((looking at the screen))
05		(2)
06	*Mother:*	is this a different game? ((standing behind Felicia leaning over
07		to Sara whiles looking at the screen))
08	*Felicia:*	yes this is king
09	*Mother:*	king ↓((looking at the screen))
10	*Felicia:*	then you move them over there ((points at the screen))
11	*Mother:*	Sara do you want (.) something more to eat tonight? ((looking at
12		Sara))
13		(4) ((Sara moves the card and gets a notification of a fault)
14	(*Felicia*)[12]*:*	°like that° ((placing the card in a different place))
15	*Felicia:*	yes that one ((to Sara while looking at the computer))
16	*Mother:*	Sara ↑ do you want something more to eat tonight?
17		(4.5)
18	*Sara:*	I don't know ((to the mother in a tiny voice))
19		(2.5) ((the mother picks up a piece of paper and puts
20		it on the bulletin board. She then comes back and
21		stands behind Sara))
22	*Felicia:*	nice ((gets off the chair and stands beside Sara looking at the screen))
23	*Mother:*	do you want me to make you a sandwich? ((looking at Sara))
24	*Felicia:*	Sara you can move the six over there ((bending over and pointing
25		at the screen))
26		(4)
27	*Sara:*	but then I need a five ((gets up on her knees on the chair))
28	*Mother:*	well what's this all about? ((looks at the screen))
29	*Felicia:*	one is supposed to place all up there ((pointing at the screen while
30		she looks at her mother)) but one has every card out so and one has
31		to move them away but now one is allowed to move only one
32		card by the time ((turns her head to the screen))
33		(2)
34	*Felicia:*	well, this is difficult ((looking at the screen))

35	*Mother:*	but then you are allowed to move the cards wherever you like
36	*Felicia:*	m:: no ((shakes her head))
37	*Mother:*	no?
38	*Felicia:*	it has to be::
39	*Sara:*	like that xxx

Sara and Felicia are seated on the same chair, playing Patience with the computer, and while Sara moves the cards with the mouse, Felicia is commenting on her playing. Both girls are directed towards the computer screen with their bodies and gazes (lines 3 and 4). Kendon (1992) claims that participants in social interaction direct body and gaze to those with whom they interact. In the present excerpt, Sara and Felicia are not only bodily directed towards the computer screen, but all that they say and do is related to what happens on the screen. The only exception is when Felicia answers her mother's question (line 18). The bodily orientation can be seen as a way of framing the activity (Goffman, 1981, 1986), as a computer game. In addition, when the mother enters the room she calls for Sara's attention (line 2), but neither of the girls answers. The mother then makes a comment about the activity in which the girls are preoccupied, while directing both her gaze and her body to the computer screen (lines 6 and 7). Thereby, she can be seen to position herself as a co-participant in the ongoing game. By jointly deciding what practice takes place, it is also decided what kind of rules are valid in this practice. This has been called the *participation framework* (Goffman, 1981, 1986). One distinction can be made, between 'ratified' participants, who are treated as part of the activity, and 'bystanders', who are part of the situation but not of the communicative frame (Goffman, 1981: 132).

When we focus on the interaction between the computer and the two sisters, it can be seen that Felicia is telling her younger sister, Sara, how to play Patience; explaining 'then you move them over there' (line 10) and 'yes that one' (line 15). In this situation, Felicia is taking the position of the one 'in the know' who offers instruction to Sara. Sara keeps asking Felicia for advice, thereby validating and sustaining her sister's position as the knowledgeable one. The interaction in lines 10, 13 and 15 is similar to what Mehan (1979) claims to be the prototypical classroom pattern (initiative–response–evaluation). Like a teacher in a classroom, Felicia takes the initiative for the next move, while Sara does the move, positioning herself as a pupil. Ultimately, Felicia positions herself as a teacher, in that she evaluates Sara's move. When the mother asks what is going on in the game, Felicia answers that they are playing King (line 8), and the mother goes on to ask questions about the game. This question and answer sequences show that she confirms her subordinated position in relation to Sara. The fact that Felicia is the one who answers the mother's questions and the one that the mother orientates herself to when she follows up her questions (lines 8 and 35), strengthens Felicia's position as the one in the know. In this example, the knowledge-relation is asymmetrical, not only between Felicia and her mother, but also between Felicia and Sara.

It should be noted, Felicia answers her mother's question at the same time as she comments on her sister's playing (lines 29–34 and 36). Despite the conversation with her mother, Felicia returns to Sara and the computer game (line 34). This return can be understood as her claiming the right to make comments on Sara's playing, and that the main activity is gaming. Thereby, through acting as knowledgeable and through being confirmed as the most knowledgeable, Felicia strengthens her position as the one in the know, both in relation to her sister and in relation to her mother. Felicia seizes the power to govern different levels in the interaction. This is done by acting as a 'teacher' in the computer game situation and by acting as a mediator between the game activity and the mother.

When the mother asks if they are playing a different version of Patience (line 6), she shows at the same time that she does not recognize the game that they are playing as she makes Felicia confirm that they play King (line 8). Both Felicia and Sara have their faces directed towards the screen, and their backs to their mother. They show no sign of turning round towards her, and they do not follow up her question or look at her. The mother calls for Sara's attention once again: 'Sara do you want (.) something more to eat tonight?' (line 11). This time, the mother's mission is made visible. She wants to know if Sara is going to eat anything before she goes to bed. The question does not produce any response from Sara, which makes her mother repeat it in exactly the same words, but this time with a raising intonation, indicating that she expects a response (line 16). Sara's response, 'I don't know' (line 18), can hardly be seen as an answer to the question. Then, the mother moves to a more specific question (line 23). In brief, the mother apparently enters the room in order to check if Sara wants anything to eat before she goes to bed.

The question of food indicates that the mother tries to introduce a new activity (line 11). Sara answers her mother's questions with several silences (lines 5, 13, 17, and 19). According to discourse analytical conventions, pauses of the length seen in these lines can indicate unexpected responses (Hutchby and Wooffitt, 1998). Seen from the girls' point of view, as participants in a computer game, the mother's questions lack relevance as far as the ongoing activity is concerned. The pauses, and the interaction between the two sisters and the PC, may indicate that they are totally occupied playing a computer game. Sara does not answer her mother's question because she is so involved in the game that she cannot or does not want to let go. The computer demands her attention through the moves being made, and Sara has to keep up with it as a player. In other words, the computer game, in fact, calls on the two girls. It is not only the mother who summons their attention. One aspect of this interpretation is that through framing the activity as a computer game, Felicia and Sara keep their mother at the ringside, outside the activity, at the same time as they remain in charge of the game. Another aspect is that the mother does not seem to be interested in a position as a ratified participant. She wants to know whether or not Sara wants anything more to eat (lines 11, 16 and 23).

When Sara does not answer, the mother changes her strategy. She bends over the girls from behind, directing her body and gaze towards the screen, asking how the game works (line 28). To become a ratified participant, the mother needs to take the computer game into account. Since the digital cards on the screen look similar to regular ones, there is reason to believe that the mother's earlier experiences of cards make it easy for her to ask questions regarding the game. What is obvious is that the initiative to get to know King comes from the mother, who uses this when negotiating for access to the on-going activity (lines 28 and 35). Through this new move, she changes her focus from getting Sara to eat, to negotiating access to the computer game activity. The mother positions herself, and gets positioned as a person who 'asks for information' from Felicia and who then also 'secures' her attention. Yet, the mother is not accepted as a ratified participant, even though she displays some knowledge and interest in this particular computer game. What can be noticed is that the mother only asks questions about the game, she never asks if she can try it out, nor does she present suggestions that are discussed or that have con-sequences for the progress of the game. On a speculative note, it could be claimed that she primarily enters into the position of a learner to get into a dia-logue with the girls and to acquire the status of 'somebody' in the activity, not because she wants to play Patience. Accordingly, her displayed lack of know-ledge becomes a resource to enter the activity of gaming.

In the present excerpt, it can be seen, first, how children together exploit digital technologies, creating a 'social space', where they can act as competent participants. There is a displayed asymmetry of knowledge concerning the rules of the game, which are used by the children in ways that make them control the activity. Through exploiting this knowledge asymmetry, they create a position where Felicia creates and consolidates a divide between Sara and herself, on the one hand, and between her mother and herself, on the other. The framing of the activity as a 'computer game' makes Patience, a familiar activity, 'unknown' for the mother. It thus defamiliarizes something familiar. Framing the activity as a *computer* game works as a resource to keep Felicia in the know in relation to her mother. Second, according to Goffman (1981: 132) accessibility relies heavily on sight and not that much on hearing. Looking at the situation, it can be seen that the mother stands and moves behind the girls, out of sight. Her position behind them could explain why she becomes a bystander: standing behind puts her out of vision, which makes it problematic to use non-verbal acts in negotiating for a ratified position. Third, the mother does not display the knowledge needed to become an active participant in the game. Conversely, when the mother does not succeed in her attempt to make contact with Sara, she changes focus. Her now displaying a lack of knowledge becomes a resource to enter into a dialogue with the children. The divide is sustained by Felicia offer-ing the mother the position as the less knowledgeable in the activity, which becomes a resource for entering into the ongoing activity. When analysed like this, the asymmetrical knowledge-relation works as a resource for both parties,

but for two quite different reasons. It can be noted that Sara does not respond even when the mother changes focus, but the mother does enter into a dialogue with Felicia. Yet, it could be argued that the mother's actions strengthen Felicia's position as the one in the know, which, in turn, partly ratifies or explains Sara's lack of attention.

The digital divide used as a resource by children

The digital divide is created in social interaction, which also means that it can be sustained, and changed, through interaction. In the previous example, I showed how a digital divide is used as a resource to stay in the know and to keep a parent at the ringside of an ongoing activity, but also how a mother invokes the digital divide to enter into dialogue with her children. In the next episode, we meet Anton (10) and his grandfather, sitting in the living room, when they have just decided to play ice hockey on PlayStation 2 (PS2). This example illustrates how Anton invokes a digital divide when he adopts the position of instructor, and introducing Grandpa to the computer hockey game. When we enter the episode, Anton is about to finish his adjustments to the game, which has lasted for about 6 minutes. Grandpa is seated in an armchair to the left of Anton, who is sitting on a couch. They are both facing the screen.

Excerpt 2:
  Participants: Grandpa, Anton (10) and PlayStation 2 (PS2)
  Place: Living room

01 *PS2:*   ((Instructions of how to create your hockey team))
02 *Grandpa:* don't people use those buttons? ((referring to buttons on the
03   console controller))
04 *Anton:*   well no not those but those (.) ones
05 *Grandpa:* only these four
06 *Anton:*   those and then you get to see when it comes on then you have to
07   read some of it do you know how to do that?
08 *Grandpa:* how much [time
09 *Anton:*   [what?
10 *PS2:*   ((instruction of how to use the console controller arrives on the screen))
11 *Grandpa:* English no I don't speak it (.) Spanish
12 *Anton:*   this one with a triangle like [like this
13 *Grandpa:*   [what about with a triangle?
14 *Anton:*   there (.) there you dribble
15 *Grandpa:* oyea
16 *Anton:*   with the square you shoot (.) or tackle hard
17   with a cross you pass then with a square when you got the puck
18   you shoot by pushing it
19 *Grandpa:* do you [push it in
20 *Anton:*   [with a square when you don't have the puck
21 *Grandpa:* [m::
22 *Anton:*   [then it is called tackled under the stick with a cross you pass the
23   puck

24   *Grandpa:* he he this then?
25   *Anton:*   when you don't have the puck
26   *Grandpa:* yes
27   *Anton:*   then you switch your man
28   *Grandpa:* oyea
29   *Anton:*   and then with

Anton's adjustments of the game are almost finished when his grandfather starts to ask questions about which buttons to use. Grandpa's question not only indicates that he wants to get started, but indirectly, he also displays a lack of knowledge about how to play the game (line 2). In other words, he needs some kind of instruction before they can start, and Anton is the one to offer it. By pointing to the console controller, Anton shows Grandpa which buttons to focus on (line 4), and then tells him that there will soon be an explanation on the screen (lines 6–7). When Anton asks whether Grandpa knows how to read (line 7), he indicates that he is aware of Grandpa's limited English skills. Actually, Grandpa told Anton 5 minutes ago that he is no good at English. Goodwin (1987) differentiates between *requests* and *telling*, where a request is seen as an episode where someone who asks a question does not know the answer. Telling is when the one who asks the question does know the answer. According to Goodwin, telling and requests create different patterns of interaction. Anton does not only request reading skills, he requests English skills as well, and he tells Grandpa that he knows that he does not have the English skills required to read the information (lines 6–7). It is not likely that Anton really wants to know whether or not Grandpa can read. Then what can be seen in this situation is an episode where both Anton and Grandpa know the answer (lines 7 and 11). When Anton asks his grandfather if he knows how to read the instruction on the screen, he is also telling that he himself actually knows how to do it. Note, it is when the English instruction appears on the screen that Grandpa confirms that he does not speak English. Despite this, Anton's question is treated as a question, which can be seen when Grandpa confirms that he cannot read English (line 11).

By asking about the buttons on the console controller (line 2), Grandpa creates a situation where he asks questions while Anton answers them. When the instructions become visible on the screen, Anton explains how the different buttons work in relation to which movements the player wants to make (lines 12–29). The telling about his grandfather's language skills together with the computer game's English instruction strengthen Anton's position as an instructor. If we look at Grandpa, we can see that he demands more concrete instruction like 'only these four' (line 5) and 'do you push it in' (line 19). He also confirms that he has understood Anton's explanations in utterances like 'oyeah' (lines 15 and 28) and 'm::' (line 21). Through his acting, it can be claimed that Grandpa enters a type of learner position, at the same time as he validates Anton's position as instructor.

When we look at Grandpa, it seems that he is creating and dealing with two types of interface in the present activity that make him dependent on Anton's supervision. First, he has to learn how to deal with the console controller, which is to become the physical prosthesis needed to play the game. Second, the computer game communicates in English, which becomes a problem when Grandpa tries to learn how to play. In sum, through the console controller and the language, the computer game becomes a problem. The moment that the computer game becomes problematic for Grandpa is also the moment when the different components of gaming become visible. In order to take part in the activity, it is necessary to know how to play the game. In short, when problems in the communication appear, interfaces get created at the point where the communication system breaks down or turns into separate ones.

Anton has created a position where he is the one who knows the game and the language that is needed to access information about the game: a position where he in fact has a monopoly concerning the progression of the game. These two areas of displayed knowledge 'gaps' (language and procedure) establish a power asymmetry between Grandpa and Anton. It can be seen as a difference in competence of how to deal physically with the game console, and as a difference in competence in how to adjust to the rules and the expectations that are part of the game. Anton both knows the overall structure of the game and he has 'the hands on' competence needed to play the game. When Anton invokes an asymmetrical knowledge-relation between himself and Grandpa, he uses this asymmetry to control the game situation, and to keep his position as the one in the know. Through using both his English-language skills and his knowledge concerning PS2 games, Anton invokes a digital divide between himself and Grandpa.

Claiming to be in the know is a position where the person displays that she or he is actually the one who knows the practice best. In the next excerpt, I look at how Anton deals with the problem of making sense of the information given in the phase of adjusting the game. In Sweden, children generally learn English from grade 3, which means that Anton (grade 4) probably has restricted English skills. The example shows how Anton's own lack of language skills is a problem he has to resolve if he wants to claim the position of expert. When we enter this episode, Anton is putting together his hockey team. Since the instruction is given in English, and Grandpa is positioned as the one who knows neither English nor the game, Anton has to trust his own language abilities and experience from earlier games.

Excerpt 3:
    Participants: Anton (10), Grandpa and PlayStation 2 (PS2)
    Place: Living room

01 PS2:   ((text in English concerning the adjustment of the hockey players))
02 *Anton:*   here what is this then 'height' ((height said in English))
03 *Grandpa:* why would you have that

04   *Anton:*   you don't you don't understand
05   (3)
06   *Anton:*   height (.) height is that speed?
07   (3) ((looking at the cameraman who raises his right hand))
08   *PS2:*   ((height given in feet))
09   *Anton:*   height o:h (.) not 6 meters

At first glance, it seems as if Anton is speculating about what kind of function height has (line 2). When his grandfather asks why he needs to do the adjustment of height (line 3), Anton bluntly points out that Grandpa does not really grasp things: he is in the position of the one who is not in the know, the 'learner' (lines 4). Yet it becomes obvious that Anton himself does not know the meaning of the English word 'height' (line 6). The way I interpret it, it is 'impossible' for Anton to confess that he does not know because it would make him look like a less competent player and instructor. At the same time, we can see that he uses prior knowledge and experience from games when he suggests speed instead of the correct meaning of the word 'height'. This is a variable that is connected to the logic of the game, and it can therefore be interpreted as displayed computer game competence. Then, Anton demonstrates that he knows how to get the information to overcome this challenge when he draws on information from the cameraman. But in the next turn, when reading 'feet' as 'meters', he once again displays a lack of language skills for fully adjusting the game. When the game demands a certain level of English-language skill to make the adjustment run smoothly, there are thus problems for this 10-year-old boy. We can see how a lack of language skills risks a misunderstanding and a repositioning of the actors. We can also see how the computer game as such becomes a mediator that changes the situation (Latour, 1999), or at least disturbs it. In this specific case, though, Anton keeps his claim of sovereignty when it comes to language and game knowledge, and so remains in the position as the one who knows how to play the game.

Anton is a competent player who played computer games every day during my period of fieldwork. After Anton has announced that they are going to play, he starts adjusting the computer game, and after 6 minutes Grandpa says for the second time: 'how much time' (Excerpt 2, line 8) (he had first asked this one-and-a-half minutes after Anton started the adjustment). Before we enter the present episode, Anton has asked Grandpa if he wants to adjust his team, but he did not. For Grandpa the game apparently starts when the ice hockey match starts. For Anton, though, the game started when he began to adjust his players and their speed, height and weight. This is the pre-game phase, where the attributes of the team are created. The question is, then, why does Anton play with Grandpa? Why does Grandpa play with Anton? What seems clear is that the game is not a 'competition' where we do not know the outcome of the match. What, then, is at stake for the participants? Grandpa does not even know which buttons to push when he is playing, and since the whole game rests on the participants' abilities to master these functions, the

game cannot be considered as 'fair' in the sense that both parties have the same chance of winning. In sum, he is quite a poor co-player. One interpretation is that by establishing ice hockey as a joint activity, Anton is able to put himself in charge of the situation, where he has the possibility to 'control' the progress of the game and the conversation. Anton is drawing on and creating a digital divide in that an asymmetrical knowledge-relation is created and sustained. It could also be argued that Grandpa participates, not out of his interest in playing PS2, but to take part in a social situation with his grandson and doing 'being Grandpa'. Once again, this makes it possible for Anton to use game competence as a resource in organizing the activity.

Looking at Grandpa's project, it could be argued that if this is about doing Grandpa, then Grandpa exploits the digital divide in order to join his grandson in a shared activity. Seen like this, the digital divide becomes a resource for Grandpa to enter into a dialogue with his grandson, much like the mother in the first example.

The digital divide in bedtime negotiations

Creating a digital divide can also be a resource when negotiating matters that are not part of the particular game situation. In the next example, we explore how the co-participants' lack of familiarity with the design of computer games is used as a resource for negotiating bedtime. Half an hour before we enter the situation, Grandma made a deal with Emil about when he was supposed to finish the game. When we enter the situation, Grandma has activated this deal.

In this episode, we can see two different types of logic in negotiating bedtime. On the one hand, we find the grandparents' way of construing time as linear (clock time), and, on the other hand, Emil's task-oriented way of thinking about time. Moreover, it can be seen how Emil exploits the grandparents' lack of understanding of what a 'few things' may mean in terms of clock time. During this episode, Grandma is sitting to the left of Emil on the sofa, while Grandpa enters the room and sits down in an armchair to the left of the sofa.

> Excerpt 4
> Participants: Emil (5), Grandpa, Grandma and PlayStation 2 (PS2)
> Place: Living room

73	*Grandpa:*	can he play video games? ((sits in the armchair looking at the tv))
74	*Grandma:*	°yes° but he is going to have a shower now
75	*Emil:*	((shakes his head))
76	*Grandma:*	you know my little lad ((turns to Emil))
77	*Emil:*	but it's only there are a few things I have to do ((Grandma turns her
78		head to the screen))
79	*Grandpa:*	just do them then
80	*Grandma:*	((turns her head quickly towards Grandpa)) but he has a time
81	*Grandpa:*	oyeah but if there is one thing he would like to do first then he

82		may do that ((looking at the screen))
83	*Grandma:*	one then ((turns to Emil, lifting a finger))
84	*Emil:*	well I need to manage all of this
85	*Grandma:*	((turns to the screen))
86	*Emil:*	((looks quickly at grandma))
87	*Grandpa:*	hm::
88	*Emil:*	xxx ((gets up and turns to the window))
89	*Grandpa:*	only 'cos you are Grandpa's boy you may do it

The situation entails bedtime negotiations between Emil and his grand-mother. This negotiation starts when the activity is framed as a computer game. This can be seen in the way that all three participants in the situation are oriented to the screen, through their talk, body orientation and gaze.

Grandpa directs his attention to Emil and his playing, and asks Grandma if Emil can play. In her answer, Grandma confirms that Emil knows how to play, but she makes it clear that he soon has to end this activity (line 74). Emil shakes his head (line 75). Grandma pleads (line 76), but he insists, 'but it's only there are a few things I have to do' (line 77). The use of 'a few' can be seen as a tactic that is opposite to 'many' or 'a lot', and could be seen as a compromise between Grandpa, who wonders whether he knows how to play, and Grandma's project of getting him to bed. Despite not knowing what 'a few things' are, Grandpa supports his doing them (line 79). This support can be interpreted as an alliance between Grandpa and Emil, where he legitimates Emil's playing. Grandma's response indicates that the negotiation is no longer only between Emil and her, but also between her and Grandpa (line 80). When she invokes the time contract she made with Emil (line 80), Grandpa positions himself as Emil's spokesman, when arguing that he should be able to do '*one thing*' (lines 81–82; emphasis added). Grandma's bedtime project becomes even more complicated through Grandpa's alliance with Emil.

The relational nature of power can be seen in the interaction between Grandma and Grandpa. Through taking Emil's side, Grandpa creates an alliance, and thereby he chooses to openly disagree with Grandma (lines 80–81), positioning himself and his grandson as those in charge.

If we look at the logic beneath the present argument, we can see that Grandma develops her arguing along a *linear time*, which is presented as something that everybody knows the meaning of: 'but he has a time' (line 80). Whether Emil has managed the game is of no interest to her. When time is up, the game activity is supposed to be over. In contrast, Emil has a *few* things to do. He knows that Grandma wants him to stop playing and start the bedtime routine, but he first has a task that he wants to solve. Grandpa supports him by saying, 'oyeah but if there is one thing he would like to do first then he may do that' (line 81–82). In Grandpa's account, the number of things is reduced from a *few* things to *one* thing. When Grandma then tells Emil that he is allowed to do 'one' thing, he upgrades it to 'I need to manage *all* of this'. The way I understand it, 'all of this' means to make it to the top level of the game.

As a resource in his bedtime negotiations, Emil thus exploits his grandparents' lack of knowledge about computer games. Linear time is not the logic that Emil uses when he plays computer games. Instead a *task-bound* reasoning seems to be what determines how much time is needed.

When Grandpa undermines Grandma's bedtime project, he simultaneously invokes Emil's relationship with him as his grandson. Through categorizing him as 'Grandpa's boy' (line 89), he invokes the positions of grandfather and grandchild. Grandpa makes it explicit that the reason for allowing Emil to keep on playing is because they have a privileged relationship; 'only 'cos you are grandpa's boy you may do it' (line 89). Grandpa makes it clear that the rules that govern the relationship between grandfather and grandson are not the same as for other relations as, for example, a father–son relation.[13] Then, it could be claimed that he makes their relationship something special in this situation, where Grandma is also kept outside.

The negotiation between Grandma and Emil shows that Grandma moves away – and is moved away – from a linear logic of time to what I would call a task-bound logic. What then happens is that bedtime is no longer related to a particular time, but to when Emil either manages the computer game level or fails. As is well known among computer game players, many games involve a hierarchy of play levels, and someone may not play on a higher level until she or he has fulfilled all the requirements of a lower level, which can take anything from some minutes to weeks of playing. What can be noticed is that, later on, Grandpa asks Emil when he is done. Meanwhile, Emil has entered a new and higher level in the game. This may indicate that Grandpa either does not know the logic of the game, because he does not know when a task is solved, or that Emil has the option to store his progress in the game and can thus continue on the same level, if he decides to quit for the night. When Grandpa endorses Emil's project, it seems like he draws on the time logic of task solving, but that he does not know what a task means in this particular game. If Emil's purpose is to keep on playing, his knowledge about the game and its logic become a resource in his negotiations about bedtime with his grandparents. In other words, through using the grandparents' displayed lack of knowledge about game time in his negotiations about bedtime, Emil can be seen to create and exploit a digital divide, which is here also a generational divide, where the logic of the game does not follow clock time. Furthermore, it seems it is his alliance with Grandpa that enables him to succeed in his attempt to keep on playing.

The digital divide as a strategic resource for different purposes

In this article, the generation gap concerns knowledge asymmetries when it comes to handling digital technology. What seems clear is that digital divides are considered a national threat in the political arena. The seriousness is rhetorically underscored through talk of *the fourth cultural technique*,[14] which puts the lack of digital literacy on the same level as dyslexia (where the worst

case scenario is a nation of digital illiterates that creates a national economic crisis). Put differently, the digital divide is treated as problematic on the individual level as well as on the social level.

Studying the generation gap as an communicative phenomenon offers us a more nuanced picture when it comes to how asymmetrical knowledge-relations are created and sustained, and it contributes to an understanding of some of the social mechanisms that create discourses of which digital divides are a part. The present study supports the idea that children display a competence in playing computer games that parents do not display, and it could therefore be claimed that the traditional knowledge asymmetries between children and adults are bracketed. But it is not that the generation gap exists de facto: it is not a black and white situation where children just display superior knowledge in the field, while adults display a total lack of knowledge. Rather, the digital divide seems to be a result of *joint* actions taking place in encounters between children and adults, where the child is placed and ratified as someone in the know, while the adult is placed and ratified as the less knowledgeable. A question, then, is: what do children and adults gain by creating a digital divide?

The present examples show how digital technology is used as a resource to invoke a digital divide in interactions between family members. In these examples, it can be seen that the digital divide becomes a space where generations meet and do something together. The rhetorical work done by the concepts digital *divide* and generation *gap* indicates a situation where we have groups that will not and cannot meet. Somewhat paradoxically, it is here argued that the digital divide in fact becomes a resource for both children and adults to enter and sustain participation in activities. The digital divide is not seen as a essentialist gap, or a fixed divide between the generations, but it emerges as asymmetrical *relations* that get *co-construed* in social action. This in turn implies that we have to be quite specific when it comes to where, when and how generation gaps are made relevant.

In the present article, I argue that the participants use the digital divide as a resource for different purposes in social interaction. Starting with the children, they use it to keep the adults on the edge of the playing field of the ongoing activity (Excerpt 1). In this sense, it could be claimed that the digital divide is used to demarcate activities as 'non-adult spaces', where adults are kept outside. Thereby, it creates a distance between ratified participants vs non-ratified participants, which prompts questions concerning inclusion and exclusion. Similar patterns in children's interaction can be seen in research on play, where negotiation for entrance to ongoing activities has been described in the literature (e.g. Corsaro, 1979; Garvey, 1984). Moreover, we have seen how the generation gap can be used as a resource in negotiations. In Excerpt 4, the adults did not know or fully understand the consequences of the deal they make with their grandson. The grandson is able to postpone bedtime activities, and then also the family's schedule for the evening. From the grandparents'

point of view, their lack of knowledge concerning the logic of the present technology becomes a problem because they do not know on what grounds to negotiate and make deals. Put differently, the children exploit the digital divide to 'control' the social organization of the activity. It could be claimed that this is a communication problem, where one party keeps the other uninformed. In fact, this imbalance is precisely what the players use as an interactional resource.

As mentioned, the generation gap can be seen as a result of joint actions, but what is in it for the adult? Adults, as well as children, seem to exploit a digital divide, but for other purposes than children. In the present examples, it could be argued that displaying a lack of knowledge can work as a resource to enter into social intercourse with children. Being the person who does not know, the person who asks questions in order to understand the practice, is to enter the position of novice. Being positioned as a novice means that a situation has been created that opens the way for the adult to enter the activity as ratified participant, while the child controls the activity. Creating and sustaining the digital divide in social interaction does not necessarily mean that the adults succeed every time they try to enter game activities, but this, what we could call, *displayed digital divide* can be read as a type of strategic act where children's competence is celebrated and where the child is cast at the centre of the attention. In other words, the displayed digital divide involves rhetorical work (Potter, 1996), where a certain kind of reality gets constructed, while alternative versions are strategically undermined.

Studying the generation gap as a product of social interaction indicates that the digital divide has to be related to activities *in situ* that involve the handling of software and hardware. How to read and understand, and how to move and act in virtual space is knowledge that can be created by playing computer games (Gee, 2003). In the present analysis of gaming activities as presumed asymmetrical knowledge-relations with the child in the know, it has been possible to study how the construction of children as digital literates is made, and how it works in the social framework in where they are situated.

In the introductory vignette, we encountered Grandpa, Grandma and their grandson, Anton. The 10-year-old boy was asked if he could teach his grandfather how the computer game worked. On the one hand, this dialogue could be seen as a question of knowledge, where the example illustrates a situation where children have become those who master digital technology. On the other hand, it could be argued that the vignette illustrates social intercourse, where the primary question is for Grandpa to enter the ongoing activity. Whether or not it is a matter of children as the most knowledgeable, or a question of 'doing something together', what has been called the digital divide is not a problem that can be merely related to a predefined generation. Rather, it seems to be a resource invoked for different purposes in social interaction, depending on time, place and activity.

Notes

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1.   Even the notion 'bedroom cultures' is used to describe children's and young persons' activities in their more or less privatized rooms outside the family members' gaze; see Bovill and Livingstone (2001).

2.   Digital technology is a part of what Manovich (2001) calls new media. According to Manovich (2001: 27–48), new media consist of five principles: (1) *numerical representation*: composed of a digital code, which means that they can be described formally (mathematically) and a media object is subject to algorithmic manipulation (media becomes programmable); (2) *modularity*: the fractal structure of new media, elements are assembled into larger scale objects but continue to retain their separate identities; (3) *automation*: the human intention can be removed from the creative process, at least in part; we are here talking about the interactive element in technology such as 'Boot' (Artificial Intelligence), computer games, menus, and search engines; (4) *variability*: a new medium is not something that is fixed once and for all, but something that can exist in different, potentially infinitive versions; it is part of the postindustrial logic, 'on demand', 'just in time' and customization; and (5) *transcoding:* cultural layer–computer layer, which influence the content through organization, and structure; these two layers influence each other. The concept 'new media' has been used since the 1960s by researchers in the study of forms, use and implications of information and communication technology (ICT) (Lievrouw and Livingstone, 2002: 1).

3.   For example, on 20 October 2005 the Swedish Minister of Culture and Education participated in a discussion about computer and video games as a cultural expression.

4.   What is considered as new in new media and what is seen as a development of an existing technique is often discussed (e.g. Bolter and Grusin, 1999; Manovich, 2001).

5.   ITU in Norway is an institution established by the Department of Education to coordinate research and development projects in Norwegian schools. In Sweden, the Knowledge Foundation (KK-stiftelsen) is a similar project.

6.   Today, debate about the importance of digital literacy features with regard to the national curriculum as well.

7.   To illustrate the political debate in this area, both the Norwegian and the Swedish governments discuss ICT in terms of digital literacy, digital divide and citizenship. For Norway, see ITU (2003) on 'digital competence', and work related to the new national curriculum for the primary, secondary and high school ('Kunnskapsløftet') and ITU (2005). For Sweden, see Myndigheten för skolutveckling (2005) and the Ministry of Industry, Employment and Communication (2005). A similar debate can be seen in the EU-financed project 'DigEuLit' (www.digeulit.ec/).

8.   Similar ideas can be seen in Mead's (1970) discussion of *pre-figurative cultures*, and in research on immigrants where the children become the link to the new society as the first ones to learn how it works (e.g. Orellana et al., 2003).

9.   For a similar critique, see Buckingham (1998) and Cuban (1986).

10.   By computer games I mean both games played on game platforms, such as PlayStation 2 and X-box, and games played on computers.

11.   Note that the mother is familiar with computers through her work.

12.   It is not entirely clear whether it is Felicia or Sara who is talking in this line.

13.   Sacks (1972: 328) writes that 'rules of the interpretation go beyond the speech', which means that the identity of being a grandfather brings certain expectations regarding what it means to be a grandfather and what kind of behaviours are seen as 'typical' for grandfathers. According to Sacks, this means that there are certain 'rules' that help the participants (and observers) make sense of the interaction.

14.   See ITU (2003) on 'digital competence' in European debate on education.

References

Alanen, L. and B. Mayall (2001) *Conceptualizing Child–Adult Relations*. London: Routledge.

Becker, H.J. (2000) 'Who's Wired and Who's Not: Children's Access to and Use of Computer Technology', *The Future of Children* 10: 44–75.

Bolter, J.D. and R. Grusin (1999) *Remediation: Understanding New Media*. Cambridge, MA: MIT Press.

Bovill, M. and S. Livingstone (2001) 'Bedroom Culture and the Privatization of Media Use', in S. Livingstone and M. Bovill (eds) *Children and Their Changing Media Environment: A European Comparative Study*, pp. 179–200. Mahwah, NJ and London: Lawrence Erlbaum.

Buckingham, D. (1998) 'Re-Constructing the Child Audience', in M. Haldar and I. Frønes (eds) *Digital Barndom*, pp. 34–50. Oslo: Ad Notam Gyldendal.

Buckingham, D. (2000) *After the Death of Childhood: Growing up in the Age of Electronic Media*. Cambridge: Polity Press.

Buckingham, D. (2002) 'The Electronic Generation? Children and New Media', in L. Lievrouw and S. Livingstone (eds) *The Handbook of New Media: Social Shaping and Consequences of ICTs*, pp. 77–89. London: Sage.

Buckingham, D. (2003) *Media Education: Literacy, Learning, and Contemporary Culture*. Cambridge and Malden, MA: Polity Press/Blackwell.

Buckingham, D. and M. Scanlon (2003) *Education, Entertainment, and Learning in the Home*. Buckingham: Open University Press.

Christensen, P. and A. James (2000) *Research with Children Perspectives and Practices*. London and New York: Falmer Press.

Corsaro, W.A. (1979) ' "We're Friends Right?": Children's Use of Access Rituals in a Nursery School', *Language in Society* 8: 315–36.

Corsaro, W.A. (1997) *The Sociology of Childhood*. Thousand Oaks, CA: Pine Forge Press.

Cuban, L. (1986) *Teachers and Machines: The Classroom Use of Technology since 1920*. New York: Teachers College Press.

Drotner, K. (1999) *Unge, medier og modernitet: pejlinger i et foranderligt landskab*. Valby: Borgen/Medier.

Duranti, A. (1997) *Linguistic Anthropology*. Cambridge: Cambridge University Press.

Edwards, D. (1997) *Discourse and Cognition*. London: Sage.

Erstad, Ola (2003) 'Electracy as Empowerment: Student Activities in Learning Environments Using Technology', *Young* 1(1): 11–28.

Facer, K. (2002) *What Do We Mean by the Digital Divide? Exploring the Roles of Access, Relevance and Resource Networks*, BECTa; at: www.becta.org.uk/research (accessed 22 November 2004).

Facer, K., J. Furlong, R. Furlong and R. Sutherland (2003) *Screenplay: Children and Computing in the Home*. London: Routledge/Falmer Press.

Fromme, J. (2003) 'Computer Games as a Part of Children's Culture', *Game Studies* 3(1); at: www.gamestudies.org/0301/fromme/ (accessed 20 January 2004).

Garvey, C. (1984) *Children's Talk*. London: Fontana.

Gee, J.P. (2003) *What Video Games Have to Teach us about Learning and Literacy*. New York: Palgrave Macmillan.

Goffman, E. (1981) *Forms of Talk*. Oxford: Blackwell.

Goffman, E. (1986) *Frame Analysis: An Essay on the Organization of Experience*. Boston, MA: Northeastern University Press.

Goodwin, C. (1987) 'Forgetfulness as an Interactive Resource', *Social Psychology Quarterly* 50(2): 115–30.

Hammersley, M. and P. Atkinson (1995) *Ethnography: Principles in Practice*. London: Routledge.

Hess, F.M. and D.L. Leal (2001) 'A Shrinking "Digital Divide"? The Provision of Classroom Computers across Urban School Systems', *Social Science Quarterly* 82(4): 765–78.

Holloway, S.L. and G. Valentine (2000) *Children's Geographies: Playing, Living, Learning*. London: Routledge.

Holloway, S.L. and G. Valentine (2002) *Cyberkids: Children in the Information Age*. London: Routledge.

Hutchby, I. and R. Wooffitt (1998) *Conversation Analysis: Principles, Practices and Applications*. Oxford: Polity Press.

ITU (2003) *Digital kompetanse*. Oslo: Utdanningsvitenskaplig fakultet; at: odin.dep.no/archive/ufdvedlegg/01/04/Pnota042.pdf (accessed 23 February 2004).

ITU (2005) *Digital skole hver dag: om helhetlig utvikling av digital kompetanse i grunnopplæringen* [Digital School Every Day]. Oslo: Det utdanningsvitenskaplige fakultet.

Kendon, A. (1992) 'The Negotiating of Context in Face-to-Face Interaction', in A. Duranti and C. Goodwin (eds) *Rethinking Context: Language as an Interactive Phenomenon*, pp. 323–34. Cambridge: Cambridge University Press.

Kløvstad, V. and T. Krisitansen (2004) *Skolens digitale tilstand 2003*. Oslo: ITU.

Kress, G.R. (2003) *Literacy in the New Media Age*. London: Routledge.

Latour, B. (1999) *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, MA: Harvard University Press.

Lievrouw, L. and S. Livingstone (2002) *The Handbook of New Media: Social Shaping and Consequences of ICTs*. London: Sage.

Livingstone, S.M. (2002) *Young People and New Media: Childhood and the Changing Media Environment*. London: Sage.

Manovich, L. (2001) *The Language of New Media*. London: MIT Press.

Mead, M. (1970) *Culture and Commitment: A Study of the Generation Gap*. London: Bodley Head.

Mehan, H. (1979) *Learning Lessons: Social Organization in the Classroom*. Cambridge, MA: Harvard University Press.

Miller, D. and D. Slater (2000) *The Internet: An Ethnographic Approach*. Oxford and New York: Berg.

Ministry of Industry, Employment and Communication (2005) *From an IT Policy for Society to a Policy for the Information Society*, Stockholm; at: www.regeringen.se/sb/d/108/a/51789 (accessed 10 November 2005).

MMI (2003) *Resultater fra SAFT-barneundersøkelsen*. Oslo: SAFT (Safety, Awareness, Facts and Tools); at: www.saftonline.org (accessed 12 February 2004).

Murdock, G. (2002) *Rethinking Communication Exclusion: Tackling the Digital Divide*, BECTa; at: www.becta.org.uk/research (accessed 22 November 2004).

Myndigheten för skolutveckling (The Swedish National Agency for School Improvement) (2005) *Strategi för IT i skolan* [Strategy for IT in the School], Stockholm; at: www.skolutveckling.se/it_i_skolan/ (accessed 10 November 2005).

Närvänen, A.-L. and E. Näsman (2004) 'Childhood as Generation or Life Phase?', *Young* 12(1): 71–91.

Orellana, M.F., L. Dorner and L. Pulido (2003) 'Accessing Assets: Immigrant Youth's Work as Family Translators or "Para-Phrasers"', *Social Problems* 50(4): 505–24.

Papert, S. (1996) *The Connected Family: Bridging the Digital Generation Gap*. Atlanta, GA: Longstreet Press.

Poster, M. (1995) *The Second Media Age*. Cambridge: Polity Press.

Potter, J. (1996) *Representing Reality: Discourse, Rhetoric and Social Construction*. London: Sage.

Prensky, M. (2001) *Digital Game-Based Learning*. New York: McGraw-Hill.

Sacks, H. (1972) 'On the Analyzability of Stories by Children', in D. Hymes and J.J. Gumperz (eds) *Directions in Sociolinguistics: The Ethnography of Communication*, pp. 325–45. New York: Holt Rinehart and Winston.

Tapscott, D. (1998) *Growing up Digital the Rise of the Net Generation*. New York: McGraw-Hill.

Turkle, S. (1996) *Life on the Screen: Identity in the Age of the Internet*. London: Wiedenfeld and Nicolson.

Tyner, K.R. (1998) *Literacy in a Digital World: Teaching and Learning in the Age of Information*. London: Lawrence Erlbaum.

Wagner, G.G., R.A. Pischner and J.P. Haisken-DeNew (2002) 'The Changing Digital Divide in Germany', in B. Wellman and C. Haytornthwaite (eds) *The Internet in Everyday Life*, pp. 164–85. Oxford: Blackwell.

Vered, K.O. (1998) 'Blue Group Boys Play *Incredible Machine*, Girls Play Hopscotch: Social Discourse and Gendered Play at the Computer', in J. Sefton-Green (ed.) *Digital Diversion: Youth Culture in the Age of Multimedia*, pp. 43–61. London: UCL Press.

Zelizer, V.A. (1985) *Pricing the Priceless Child: The Changing Social Value of Children*. New York: Basic Books.

Appendix: Transcript conventions

Symbol	Meaning
?	Interrogative intonation
↑	Raising intonation
(0.5)	Pause 0.5 seconds
(.)	Short pause, less than 0.2 seconds
:	Prolongation of preceding vowel
no	Stressed word
°no°	Quiet speech
(( ))	Commands made by the researcher
'word'	Citations ('impersonates' other speakers)
xxx	Inaudible utterance
[	Simultaneous utterances
[	