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Deconstructing the Net Generation Thesis

*Rolf Schulmeister**

Abstract

Several American and Canadian authors have stated that children born after 1980 have a common relationship to digital media and have labeled them net generation or digital natives. They have characterized the so-called digital natives with a number of attributes that constitute a generation. This paper tries to deconstruct the net generation thesis by sketching a sequence of arguments used to deconstruct the digital natives thesis and by explaining the structure of the discourse. This paper is aiming at the methodology of argumentation, trying to abstract the logical hierarchy and sequence of thoughts that led to a refutation of the net generation hypothesis. An extensive study of more than 70 empirical surveys, including two surveys by the author, has been published elsewhere.

Keywords: Net Generation; digital natives; surveys; studies; media use

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Deconstructing the Net Generation Metaphor

A recent study of the Kaiser Family Foundation (Rideout *et al.*, 2010) reported a huge increase in media use with young people between 8 and 18 years old:

Over the past five years, young people have increased the amount of time they spend consuming media by an hour and seventeen minutes daily, from 6:21 to 7:38 – almost the amount of time most adults spend at work each day, except that young people use media seven days a week instead of five. [...] Use of every type of media has increased over the past 10 years, with the exception of reading. In just the past five years, the increases range from 24 minutes a day for video games, to 27 minutes a day for computers, 38 minutes for TV content, and 47 minutes a day for music and other audio.

Is this increase in media use an indication of a “net generation”, a future labour force of digital natives?

In 1997 Don Tapscott described those born after 1978 as the ‘net generation’, in 1999 Horst Opaschowski dubbed them the ‘generation @’, and in 2000 Neil Howe and William Strauss coined the term ‘millennials’ to refer to those born in 1982 and thus graduating from high school in the United States at the turn of the millennium. Prensky (2001a; 2001b) made a rhetorically effective entry into generational debate by coining the term “digital natives”. At the same time the successor to generation X was baptised generation Y.

What meaning did these authors ascribe to the net generation? Comparatively harmless attributes, for one thing, such as net geners are conversant with computers, they are optimistic souls, communicative, fond of computer games. But also some less harmless seeming assertions, not empirically documented, can be found, e.g., net geners prefer group work, learning by doing, inductive learning, explorative learning, they prefer illustrated learning materials, interactivity, performance-orientated work; and even some psychological attributes they are emotionally open, tend to be visual learners, welcome diversity, are cursed by short attention spans, are multitaskers and have multiple personalities. Tapscott even believes that the net generation is more intelligent than previous generations. Opaschowski maintains that

generation @ is in the throes of a short-term concentration culture. Howe & Strauss assert that millennials are characterised by three diseases: asthma, ADHD and adiposis. Prensky even alleges that “it is very likely that our students’ brains have physically changed”. There is no definition of net generation, even not a common description of the characteristics that are supposed to make up the net generation. But the authors are united in their belief that there exists a net generation.

Buckingham (2008) criticises the digital native assumption as wishful thinking that

undoubtedly has its pleasures, but it is important to address some of the fundamental limitations of these arguments. The technologically determinist stance adopted by these authors means that there are many issues and phenomena that they are bound to ignore. They tend to neglect the fundamental continuities and interdependencies between new media and ‘old’ media (such as television) – continuities that exist at the level of form and content, as well as in terms of economics. A longer historical view clearly shows that old and new technologies often come to coexist: particularly in the area of media, the advent of a new technology may change the functions or uses of old technologies, but it rarely completely displaces them. On average, member of the ‘net generation’ in fact spend more of their time watching television than they do on the Internet; and of course there are many members of the ‘television generation’ who spend much of their working and leisure time online (p. 14).

He acknowledges that some “technologically empowered ‘cyberkids’ of the popular imagination may indeed exist, but even if they do, they are in a minority and they are untypical of young people as a whole.” And he has observed that “Recent studies suggest that most young people’s everyday uses of the Internet are characterized not by spectacular forms of innovation and creativity, but by relatively mundane forms of communication and information retrieval”.

The assumption of a net generation builds upon assertions about empirical facts and relations, most of which have not been achieved in a systematic and methodical way. The initial assumption is that extensive media use is the basic trait of the digital natives. But is extensive media use alone a sufficient criterion? In order to evaluate the allegations that media use is a sufficient condition for the existence of the net generation,

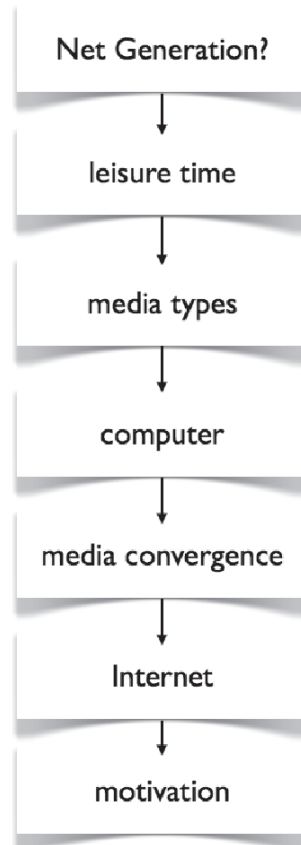
I have drawn upon more than seventy international empirical studies of media use, some of which are long-term surveys, some have been repeated more than ten years with slight variations. That study¹ was published as a 168 pages long paper discussing empirical data about media use, multivariate profiles of users and students, and normative concepts of generation, socialisation and learning. It turned out that the criterion “media use” alone is not sufficient proof of the existence of a net generation but rather that a thorough investigation of the personal and individual motives of media use are essential in the context of such an analysis in order to judge if media use produces a new generation that is able to throw over board schooling, university education, and labour. I tried to deconstruct the assumption that the extensive use of new media signifies the rise of millennials or the emergence of a new type of students who demand a new form of education.

This essay does not intend to repeat the mentioned analysis. It cannot understandably substitute the detailed descriptions, figures, and arguments of the study. I intend instead in this paper to explain the structure of the discourse and the sequence of arguments used to deconstruct the digital natives metaphor and the generational topic. In other words, this essay is more methodological in character on the background of the full information, trying to abstract the logical hierarchy and sequence of thoughts that led to a refutation of the net generation hypothesis. The logic is illustrated in Figure 1.

The logic of deconstructing the net generation hypothesis first investigates how youth spent their leisure time and then which role media play in their life, and thirdly which importance digital media, especially the computer and the Internet, have for them. In this context, the developing media convergence is important to observe. Finally, I try

¹ A complete list of these 70 international surveys and panel studies is available in a 168 pages German version of the essay “Gibt es eine ‘Net Generation?’” Hamburg 2009 (http://www.zhw.uni-hamburg.de/uploads/schulmeister_net-generation_v3.pdf). The study includes a review of the books of Tapscott, Howe & Strauss, Opaschowski and others, and a thorough critique of Prensky’s essay. Moreover it contains references to a recent discourse about the generation concept in history and social science. These aspects cannot be repeated here.

Figure 1. Logic of deconstructing the net generation



to understand the motives and interests of the youth in interacting with media. Throughout the deconstruction process, nearly at every step, we shall encounter the necessity to recognize that there is no unified mass of human beings with common characteristics but diverse groups of people with diverse motives, interests and history. Moreover, at some steps during this process we are bound to acknowledge that there are social gaps, cultural gaps, achievement gaps and other digital divides that we have to care about.

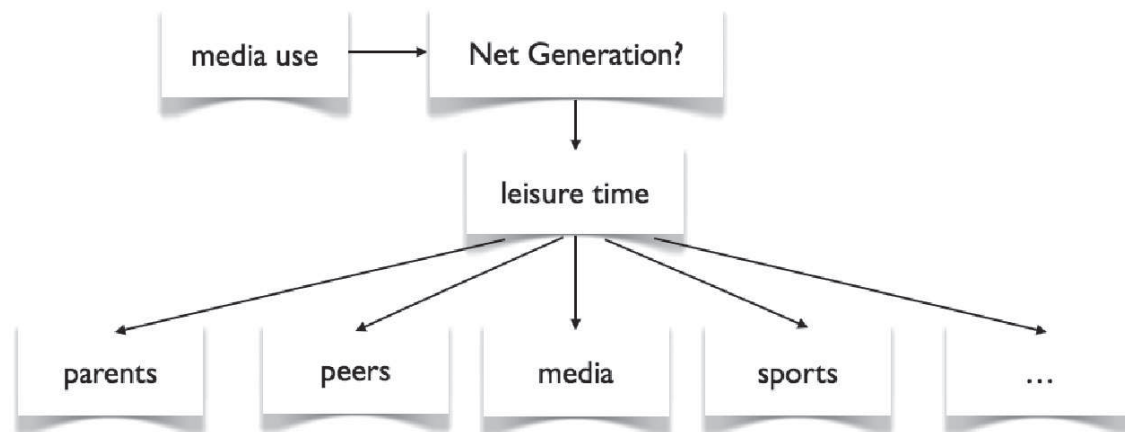
Step 1

Leisure Time

Media usage has to be regarded as one occupation within the whole spectrum of leisure activities of the youth. If you do not view media usage within the total context of leisure activities the relative importance and value of the media for the youth might be overestimated. Thus the

first step to deconstruct the net generation hypothesis is to investigate the ways children and youth spent their leisure time and determine the significance of media within this time frame:

Figure 2. Step 1: Media usa in the leisure time of the net generation



There are sufficient reliable data suggesting that media use is not the top priority in spending one's leisure time. Leisure activities beyond media are in fact more important for children and youth: 51,6% are members of an association, of these are 65,3% in a sports club (Wahler, 2004, p. 116) and the time spent for sports is enormous (*ibid.*, p. 122). In surveys that register leisure activities the highest ranking item very often is "Be together with friends" (JIM, 2009; KidsVerbraucherAnalyse, 2008) as it appears in Table 1².

Regardless of slight differences in the ranking, most studies that ask for media activities within the context of leisure time, list "meeting friends" as a dominant occupation of youth. Watching TV still ranks before all other media items. Parents and peers have an important role, membership in sports clubs rank even higher than using a computer.

² All tables and figures in this essay have been translated into English and/or redrawn to ensure an optimal printing quality. The JIM survey unfortunately does not have a statistics that incorporates media use in leisure activities. I include it here, because it covers the age range of teens and shows that non-media leisure activities play an important role with the youth. Media data in JIM are differentiated according to daily, once a week, boys and girls, education level (see p. 16ff.).

Table 1. Time Spent with Media and Selected Non-media Activities in a Typical Day (KIM 2008, p. 9; JIM 2009, p. 10; Kaiser Family Foundation – Roberts *et al.*, 2005, p. 38)

Rank	KIM 2008 6- to 13-year-olds	JIM 2009* 12- to 19-years-olds	Kaiser Family Foundation 2005 8- to 18-year-olds	
1	School home work	Meeting friends	Watching TV	3:04
2	Watching TV	Sports	Hanging out with parents	2:17
3	Meeting friends	Resting	Hanging out with friends**	2:16
4	Play outside	Family	Listening to music	1:44
5	Play in home	Playing music	Exercising, sports, etc.	1:25
6	Family/Parents	Painting, handicrafts	Watching movies/videos	1:11
7	Sports	Visiting sports events	Using a computer	1:02
8	Listening to music	Shopping	Pursuing hobbies, clubs, etc.	1:00
9	Computer	Party	Talking on the telephone**	0:53
10	Telephone	Disco	Doing homework**	0:50
11	Resting	Visiting library	Playing video games	0:40
12	Painting, handicrafts	Writing letters, cards	Reading	0:43
13	Reading books	Going to church	Working at a job**	0:35
14	Gaming		Doing chores	0:32
15	Radio			
16	Video			
17	Audio books			

* *only non-media activities*

** *Asked only of 7th- to 12th-graders were surveyed*

Leisure time activities comprise much more than playing around with digital media. Since the invention of mp3, in surveys asking for music heard via cellphone, iPod or other mp3 players, listening to music ranges on top of the list. Most studies ask how often a certain activity is taking place daily or within a week. Only few register the exact amount of time in hours and minutes.

The importance of peers has been confirmed by a study of Synovate (2007) surveying 18-24 year old teenagers: “The research shows that for today’s youth, friends are THE most important thing – more than family, career or education: 58% of respondents agreed with the statement ‘my friends are the most important thing in my life’”.

An indication of the subjective value of a certain activity may be won by asking how much pocket money youth are spending for that activity. In a survey by Tully (2004) the kids spent more pocket money for Audio CDs and Magazines, then for the cell phone and for cinema, concert and theatre. While for girls the phone is more important, gaming and Internet are more important for boys. Treumann *et al.*

Table 2. Pocket money spending (ranks according to Tully 2004)

Products/Services	Total N = 2064	Girls N = 1068	Boys N = 963
CD, magazines, books	1	1	1
Cell phone	2	2	4
Cinema, theatre, concert	3	3	2
Clothes, shoes	4	4	5
Computer games	5	7	3
Car, motor cycle, bus	6	6	7
School	7	5	8
PC, Internet	8	10	6
Travel	9	8	9
Memberships	10	11	10
Food	11	9	11
Rent, accommodation	12	12	12

(2007, p. 116) report, that there is “hardly a willingness to spend money for computer and Internet”.

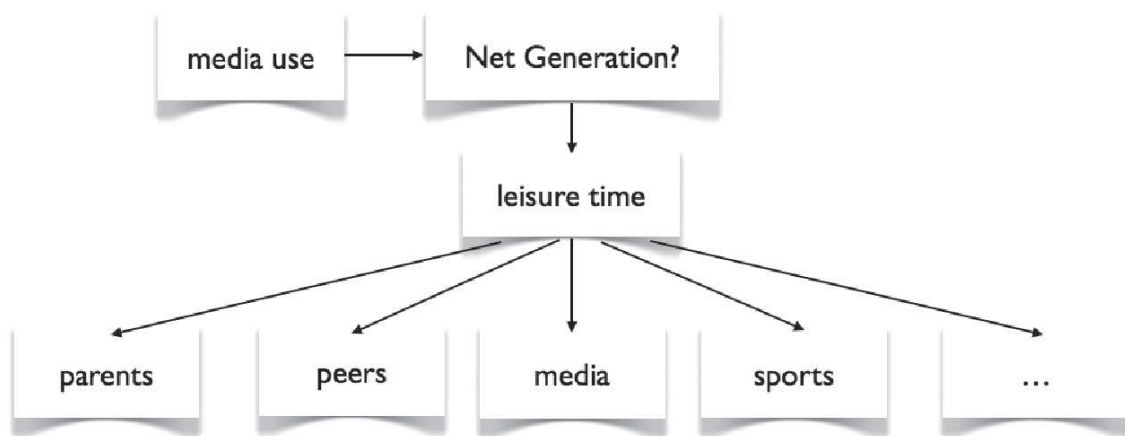
The first step of the analysis showed that media use is integrated in other means of spending leisure time. Their primary aim is to win friends. Focusing just on media or computer use, may result in missing the relevant connection of media use and socialisation.

Step 2

The Ensemble of Media Types

The second step of deconstruction focuses on media use, separated or extracted from the context of leisure time. This step initially takes into account all media that play a role in the everyday activities of children and youth in order to differentiate at a later stage the different types of media used.

Figure 3. Step 2: different types of media used by children and youth



The latest study of the Kaiser Family Foundation (Rideout *et al.*, 2010) found that 8-18 year-olds devote an average of 7 hours and 38 minutes (7:38) to using entertainment media across a typical day (more than 53 hours a week). And because they spend so much of that time ‘media multitasking’ (using more than one medium at a time), they actually manage to pack a total of 10 hours and 45 minutes (10:45) worth of media content into those 7 1/2 hours.

Interacting with a computer thus accounts for little more than 13% of the total media exposure, whereas TV and music cover more than

Table 3. Media use (Kaiser Family Foundation – Rideout *et al.*, 2010)

Among all 8- to 18-year-olds, average amount of time spent with each medium in a typical day:	2009
TV content	4:29
Music/audio	2:31
Computer	1:29
Video games	1:13
Print	:38
Movies	:25
TOTAL MEDIA EXPOSURE	10:45
Multitasking proportion	29 %
TOTAL MEDIA USE	7:38

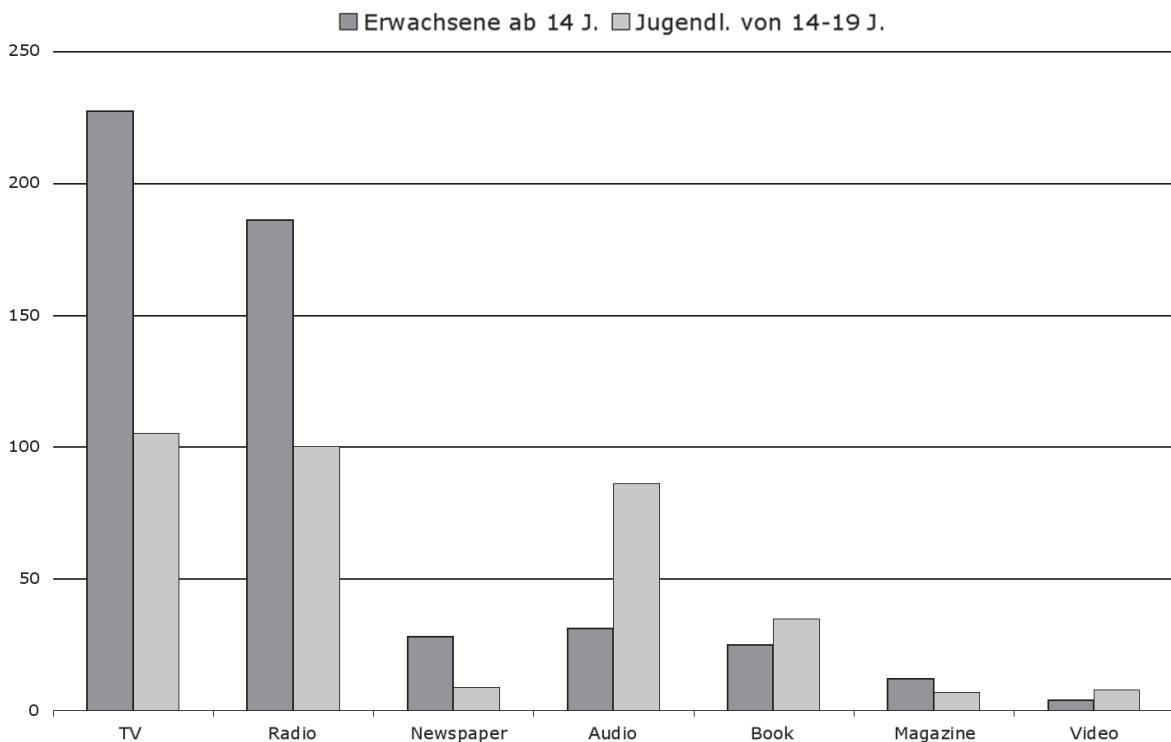
65% of media use. The total amount of media use has increased since the previous Kaiser Family Foundation studies of 1999 and 2004, mostly responsible to parallel or synchronous streams of media that the Kaiser Family Foundation calls multitasking³.

The long-term media study that is conducted since 1998 by German public TV institutions ARD and ZDF is interesting because it compares all users from 14 years on with users 14- to 19-year-old as shown in Figure 4.

Adults watch more TV and listen more frequent radio than teenagers, but teenagers use the Internet longer than adults and listen much longer to music. The duration of media use per day is in both cases extremely high. It is astonishing how the time devoted to peers,

³ Multitasking, a term from computer science, not from psychology, in the context of media use is not really multitasking: I prefer to call it task-switching (Rubinstein, Meyer, & Evans, 2001), similar to shifting of attention (Shomstein & Yantis, 2006), meaning that normally sequential actions or media streams are running parallel. Real multitasking is not possible because the brain processes actions sequentially. Task-switching in short intervals impedes concentration and may be dangerous in the long run as a number of psychological investigations have shown (e.g., Ophir, Nass, & Wagner, 2009).

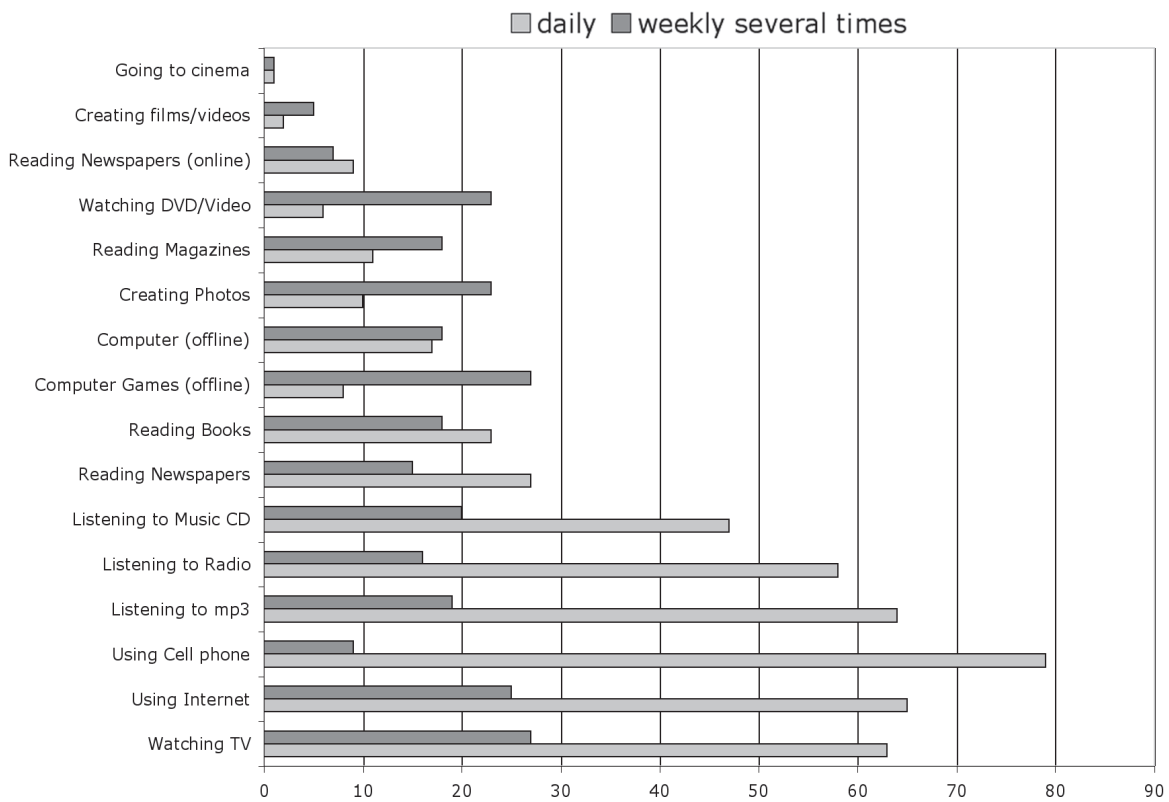
Figure 4. ARD/ZDF Online Studies 10 Years



parents and sports, as we saw in the previous step, not forgetting school attendance and homework, could be compatible with such extensive media use. But is the mere extent of media use a constituent for a net generation?

JIM (2009) published a rather similar ranking of media use for 12- to 18-year-olds including cell phones and differentiating between TV and video, radio and mp3, music CDs/cassettes, and audio books as well as Internet and computer offline or gaming: Internet is already second in the ranking right after TV that still remains on top, but if we built group categories from related items surely all different activities concerned with music together will range on top (see Figure 5).

Concerning the second step of deconstruction, in which we extracted media use from the context of leisure activities, we may note that the classical (passive) media like TV and music rank highest in most empirical surveys, followed by cell phones and computers. But teenagers today still are reading books and magazines, and some data show that

Figure 5. Media use in leisure time in percent (JIM, 2009)

reading is rising with age. The high rank of music may be ascribed to the fact that mobile players enable to hear music whenever one wants. While mobility enables to hear music anywhere, I believe it is more time sovereignty that is the motive for ubiquitous music enjoyment. Computer and Internet increased very much in the last decade but they did not replace but complement other media.

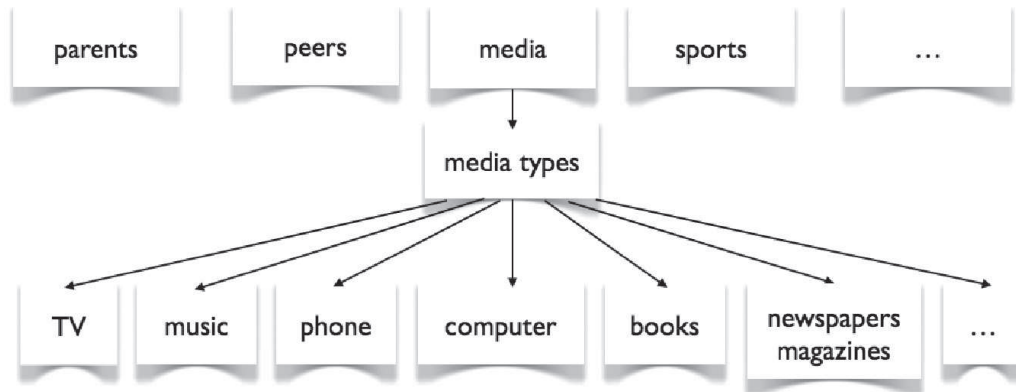
It results in a possible distortion of data if not all media types are taken into regard. Percentages for using certain media types vary according to the number of types observed. Some surveys did not recognize the rise of mp3 in-time, some others did not care about books, newspapers and youth magazines. Then of course the amount of time assigned to other media varies much.

Focusing on media use alone, we recognise that the classical media like TV and movie (video) have high priority. The important role of music in the lives of the teenagers is new, thanks to the iPod and its mp3-relatives.

Step 3

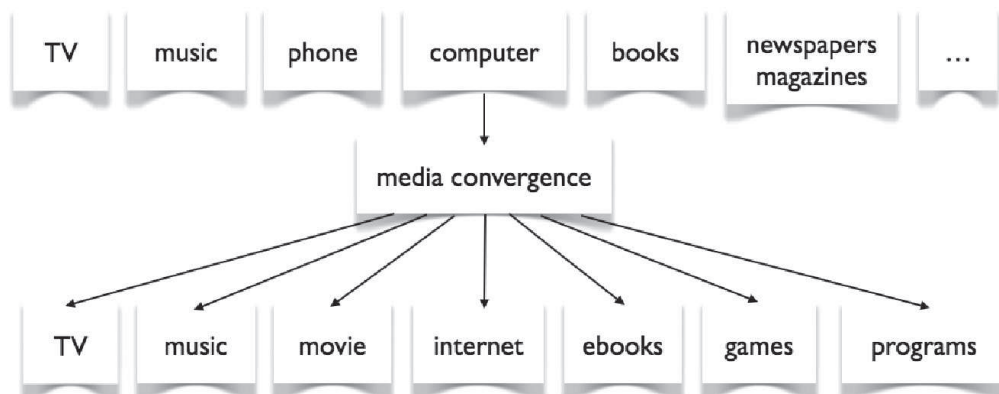
Computer and Internet and Media Convergence

Figure 6. Step 3: Use of computer and the Internet by children and youth



The third step in the deconstruction process continues the analysis of media use by focusing on computer and Internet. While doing this, we first have to acknowledge that computers are used offline and online and that computer and Internet are not mono-media but comprise an enormous amount of different activities, functions, and services. The frequency of use as well as the duration of use have constantly increased (ARD/ZDF Online 10 Years, p. 10). The top users are the 14- to 29-year-olds. Most surveys do not differentiate between different activities, functions and services. Thus the data are in most cases rather global and not precise, especially because via computer and Internet the classical analog media are available in digital form, which has been called media convergence. The following media can be accessed by the computer and the Internet:

Figure 7. Media that can be accessed through the computer and the Internet



If we analyse computer and Internet use according to different functions we recognise that music and movie are integral components of the media ensemble. Traditional analog media are reappearing as digital media on the computer. Since convergence of media is a relatively new phenomenon, detailed studies of media convergence in the digital platform have so far not been thoroughly covered by surveys. The few studies that provide some data are the latest survey from the Kaiser Family Foundation (Rideout *et al.*, 2010) and a former study by CapGemini (Buvat, Mehra, & Braunschvig, 2007).

The Kaiser Family Foundation study (Rideout *et al.*, 2010) delivers detailed data (minutes) of conversion media for television and cell phones as it can be seen in Table 4.

The study differentiates between Live TV, that still occupies the major part of TV watching time, and DVDs, Time-shifted TV, TV online, iPod, and cell phone. The focus is on TV and music. Other media like communication, telephony or reading have not been analysed in this depth.

JIM (2008, p. 49) contains an extensive list of categories, among them Internet telephony, Internet TV, Internet Radio, Podcasting, Weblogs etc. Viewed in this high degree of differentiation the data yield an image of teens and their major motives: First comes communication, then follows seeking information about schools, clubs, and sports, and third Entertainment. Homework is not a relevant item.

Table 4. Media conversion data (Kaiser Family Foundation – Rideout *et al.*, 2010)

2010	TV	Music
Live TV	2:39	
DVD	0:32	
Time-shifted TV	0:22	
Online/Computer	0:24	0:32
iPod	0:16	0:41
Cell phone	0:15	0:17
Radio		0:32
Audio CD		0:17

It will be important in future to look at computer use in this differentiated manner because the availability and the use of media converted from analog to digital format will be made easier and will continue to grow. The study by Buvat, Mehra, & Braunschvig (2007) summarises the change in user behaviour thus:

The average time spent by 15-24 year olds in the UK on TV viewing on the TV set has declined by nearly 1.5 hours over 2001–2006, compared to an increase of 11 minutes for other age groups for the same period. However, this does not mean that the younger generation is abandoning traditional media; in fact, they are increasingly relying on services that let them access content whenever they want (see Figure 9), such as Personal Video Recorders (PVRs) and Web TV. Consider, for example, that nearly 38% of the youth in the UK now consumes TV content on a PC compared to 24% of all individuals. The same is true for radio, with 40% of 18-26 year olds listening to radio online compared with a 25% average for Internet users in the US in 2006.

Step 4

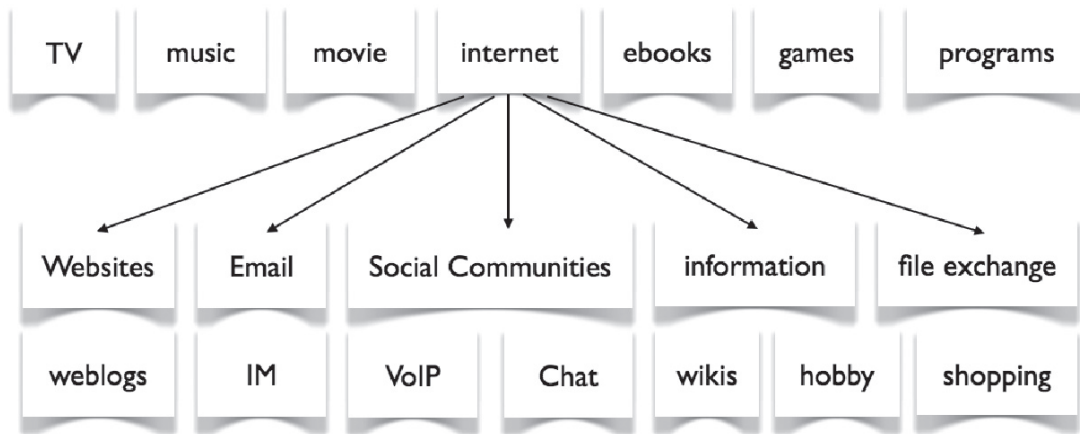
Diversity of Functions and Services within the Internet

The fourth step of deconstructing the media use hypothesis we should observe how the computer is used while being offline (see Figure 8). Focusing on the computer (offline) might yield a number of activities like writing, painting, calculating programming, collecting photos, composing music, hearing music, using a calendar, an almanac, gaming etc. Unfortunately I did not find studies covering this topic. Instead we are looking in this section for surveys that differentiate between several activities executed with a computer focus on online activities in the Internet. I already touched the diversity of functions and services in the Internet by looking at the conversion of media. In this section I shall extend this search independently of the conversion aspect.

A study by KidsVerbraucheranalyse (2008) investigated the Internet activities of youth for different functions: Communication 60,7%, Information 58,8%, Media storage 38,2%, Web 2.0 30,9%, Gaming 19,2%, Software download 10,4%, and Online shopping 4,4%.

A survey of Pew Internet & American Life (Lenhart, Madden, & Hitlin 2005) yielded a rather similar ranking of different functions for

Figure 8. Step 4: The different functions and services in the Internet



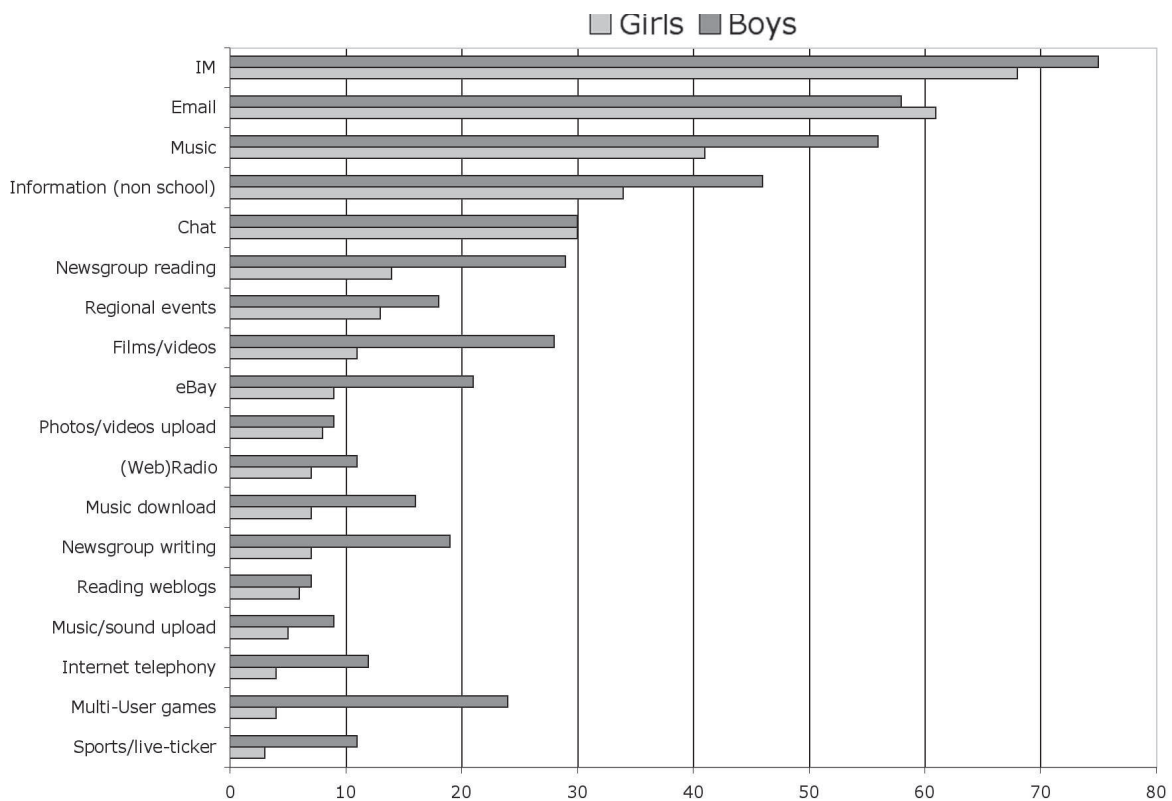
12- to 17-year-olds. Communication methods like Email, IM, Chat, Social Communities are dominant, information seeking is the next important function, followed by gaming and shopping:

Table 5. Online activities of youth (Lenhart, Madden, & Hitlin 2005)

Online Activities of 12- to 17-year-olds	%
Send or read email	89
Go to websites about movies, TV shows, music groups, or sports stars you are interested in	84
Play online games	81
Go online to get news or information about current events	76
Send or receive instant messages	75
Go online to get information about a college, university, or other school you are thinking about attending	57
Look for news or information about politics and the presidential campaign	55
Buy things online, such as books, clothing, or music	43
Send or receive text messages using a cell phone	38
Look for health, dieting, or physical fitness information online	31
Look for information about a job online	30
Look for religious or spiritual information online	26
Look for information about a health topic that's hard to talk about, like drug use, sexual health, or depression	22

In JIM (2007) data on diverse Internet activities were collected:

Figure 9. Internet activities of youth (JIM, 2007)



IM, eMail, chat and Internet-telephony are communication functions. Communication constitutes the major purpose of going online. Newsgroups and weblogs add a community component to the communication functions. Videos, web radio, music and music download is another group of functionalities that serves entertainment purposes.

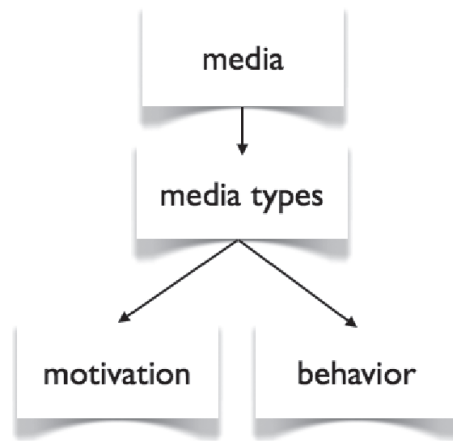
The dominant activity performed on a computer serves to communicate with different methods. The information search is primarily used for entertainment and events, including sports and club membership, and then for information about colleges, jobs, health, religion etc. Gaming and shopping are additional purposes to access the Internet. The occupation of the youth with computer and Internet is rather diverse, but the intentions and motivations behind are rather traditional: Communication with peers, social contact, and entertainment. The media are different, but the motives are the same their parents had when they were young.

Step 5

Motivation and Behaviour

In deconstructing media use, one of the most important arguments is that doing something similar does not mean that the actors share the same intention. Therefore it is necessary in a fifth step to deconstruct the motives for computer and Internet use by uncovering observable behaviour or asking subjects for their intention:

Figure 10. Step 5: Motivation for using computer and the Internet



To find out more about interests and motivation certain types of questions are used: it is asked how often a certain Website is frequented. comScore Media Metrix uses tracking on popular websites to win exact empirical data about website visits which generates a list of data that “show the kinds of sites where unusually large proportions of college students make up the traffic” (Jones, 2002). The Canadian Media Awareness Network (2005, p. 17) has asked the students what they would do on a computer in case they had to bridge one or two hours (see next section). The answers show that the main interests are with communication and music. It is very obvious that modern media serve the same interests and follow the same motivations that ever ruled youth in this life span of socialisation: their main motive is communication with peers, their next important interest is passing time with TV, music, movie and other types of entertainment.

Extensive use of media is not, as one may be inclined to believe, a “really big discontinuity” or “singularity” as Prensky calls it, but a fairly normal phenomenon as Susan Herring (2008) out of a perspective of socialisation says:

Young people’s experiences necessarily lack a historical, comparative perspective. A consequence of this is that technology use in and of itself does not seem exotic to them; rather, it is ordinary, even banal. Young people use new technologies for social ends that are much the same as for earlier generations using old technologies (p. 77).

Step 6

Age – A Socialisation Perspective

A very helpful sixth step of deconstructing the net generation hypothesis is to split the youth sample into age groups. It is necessary to take into account that the children and youth about whom we talk today still have a development process ahead of them. And we know from experience that interests, preferences, motives and behaviour will change. Attributing certain characteristics to a generation today and forecasting a future labour force as if those girls and boys will go unchanged into industry is not legitimate. An essential argument against the assumption that there exists a net generation is that children and youth develop and change habits, interests and values. A developmental perspective is not part of the repertoire of the digital natives metaphor.

There are a number of studies that differentiate their sample according to age. It is, however, not possible to infer from differences in media use between teenagers and adults that these differences signify a development, because older age-groups begin at a different starting point, i.e., they will not be interested in some of the newer developments and they will use others with a different motivation. Differences in age may be interpreted as a life cycle effect or as a cohort effect.

There are to my knowledge only two empirical surveys that study the same sample at different points in time: one is the study of Barthelmes & Sander (2001), interviewing a small sample of 22 youth between 13 and 20 years in 1992, 1994, and 1998. The other is by Klingler (2008) who questions two samples of the KIM survey (1998;

2002) of 12- to 19-year-olds again after a period of ten years. Some recent re-analyses of the ARD/ZDF Online-Study (e.g., Feierabend & Kutteroff, 2008) also report data for different age-groups, but – if I am informed correctly – not for the same sample. Confronting, however the user motives of 14- to 19-year-olds with those of 60-year-olds does not make sense to me (van Eimeren & Frees, 2009, p. 339).

It may be possible, however, to assume that there is an age process effective if the age groups within one sample are not far apart. The ARD/ZDF Online study (2009) (<http://www.ard.de/-/id=54990/xk67hx/index.html>) represents its data concerning media use in leisure time in different age groups (I focus only on the first three age groups because of the above mentioned methodical consideration).

Table 6. Media use in leisure time (ARD/ZDF Online, 2009)

Media	10-13 years/%	14-19 years/%	20-29 years/%
Reading Newspapers	24,0	39,9	60,8
Reading Magazines	27,4	26,2	21,5
Reading Books	59,6	45,3	37,6
TV	87,9	78,7	80,0
Radio	64,2	69,7	76,7
Music (discs, mp3, cassettes)	63,7	72,9	62,9
Video/DVD	12,9	18,3	18,5
Cinema	0,1	0,3	0,8
Theatre	0,6	0,3	0,6
Sports, Fitness	76,3	69,0	47,6
Disco, Entertainment	3,0	14,1	18,8
Handicraft/Animals etc.	n.s.	n.s.	n.s.
Computer	71,1	80,8	80,6

It probably needs more differentiated samples like this to conclude that there is an age process at work. But it seems as if for instance some other categories like newspaper reading, listening to radio, and watching videos increase with age while reading magazines, watching TV, and, unfortunately, engaging in sports and fitness decrease.

There are only few changes in the activities using a computer offline, but there are major changes regarding the activities in the Internet, some

of which did not occur ten years ago (e.g., searching for information for a job, ICQ or MSN), some had only a small part in 1998 (e.g., Email, music, movies). Klingler (2008) thus can study the hypothesis that media use and use motives change with age in age-groups.

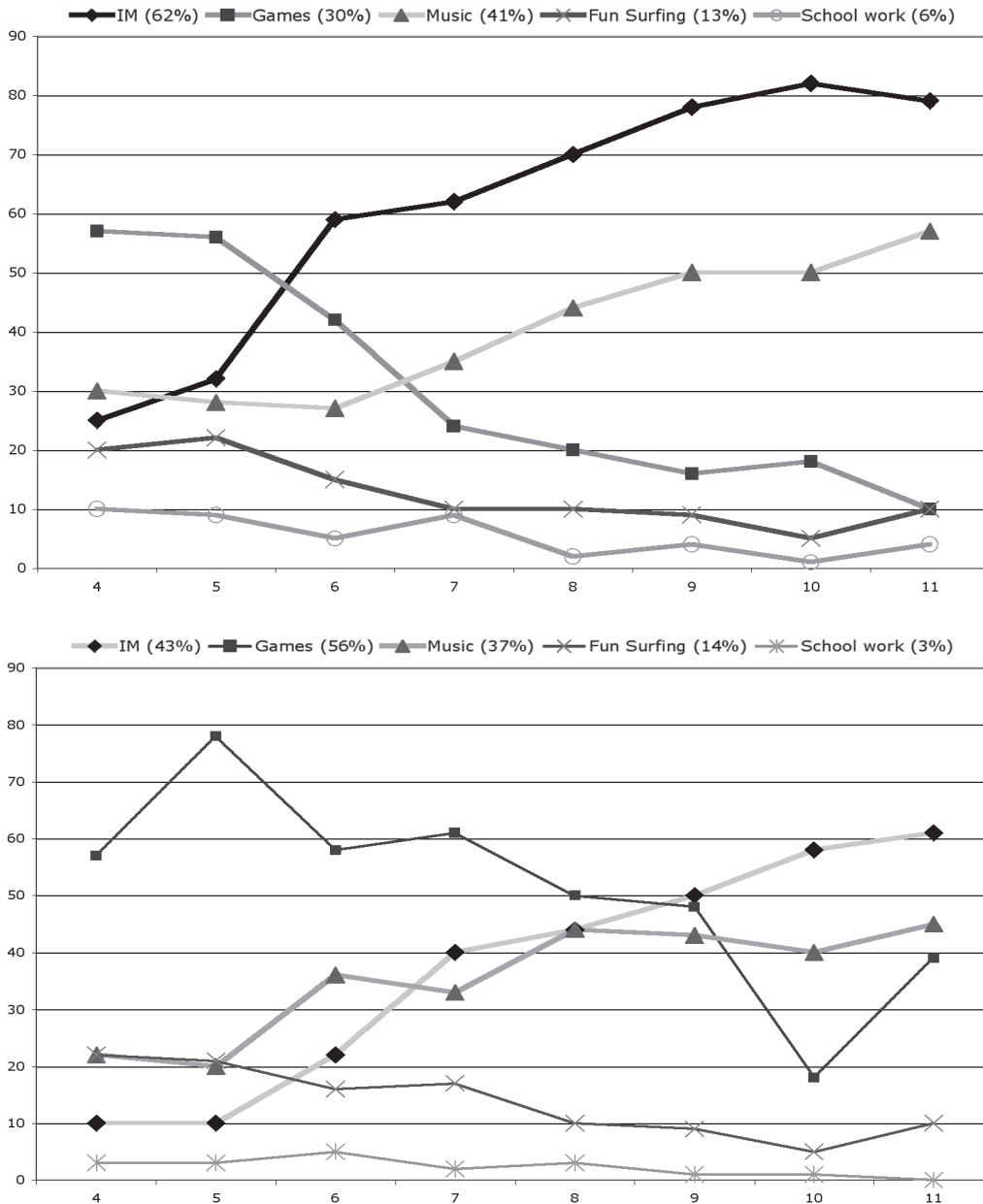
Both the technical process and the age development are mirrored in this table: computer and Internet use enter the picture only after 2000 and are then readily adopted by the youth. Other changes in media use probably may be accounted to age effects: watching TV slightly decreases in both age groups whereas reading newspapers increases. Music, unfortunately, was not asked for. Studies that split their sample in different age groups may at least indicate that a development of user preferences took place. The survey of the Deutsches Jugendinstitut thus can conclude that saturation effects might explain the decrease of certain media use with age (Tully, 2004, p. 174).

Table 7. Media use of three samples after ten years (Klingler, 2008, p. 630)

Media	born in 1985/86		born in 1989/90		born 1995/96
	12/13 years old in 1998	18/19 years old in 2004	12/13 years old in 2002	18/19 years old in 2008	12/13 years old in 2008
TV	97	85	95	86	91
Radio	79	81	82	75	69
Newspaper	38	62	39	60	22
Magazines	51	35	40	30	33
Books	49	36	49	39	51
Computer	48	78	62	90	82
Internet	4	60	36	87	72

A study of the Media Awareness Network (2005, p. 17) has asked pupils from the 4th to the 11th class what they would do on the computer if they had just one or two hours to bridge. The answers illustrate clearly that the major interests of the youth are communication and music:

Figure 11. Computer activities from 4th to 11th class (above girls, down boys) (Media Awareness Network, 2005)



During the development from the 4th to the 11th class the interest in gaming decreases, with girls stronger than with boys, while communication and music increase:

The typical Grade 4 student, if given an hour or two to use the Net, prefers to play online games, but gaming is soon superseded by talking to friends. By Grade 6, girls prefer instant messaging over any other online activity; by Grade

8, boys' interest in gaming is matched by their interest in instant messaging. From Grade 9 on, instant messaging is the preferred online activity for both girls (80-83 percent) and boys (54-61 per-cent), and about 80 percent of kids instant message and listen to music on a daily basis (Media Awareness Network, 2005, pp. 6-7).

If we distinguish age-groups and functions, then our data draw a rather traditional picture concordant with our knowledge about the socialisation of children and youth. It is a development that starts with playing and ends in communication. Especially in these developmental changes, Susan Herring (2008) views a strong argument against any assumption of technological determinism. She assumes that the known forces of socialisation are more powerful: "technological determinism is problematic in that it glosses over contextual factors and social motivations that shape human behavior. Peer groups and social relations are arguably more influential during use than at any other life stage, and young people use and think about technology differently according to their cultural, economic, and family contexts" (p. 76).

Youth have to prove themselves in the world and within their environment, they test themselves "just as young people always have done" (Palfrey & Gasser, 2008, p. 22): "To be sure, the Internet doesn't change the notion of identity altogether. Nor are all of its effects new or unfamiliar to us. In some ways the nature of identity in the Internet age resembles what it was in the agrarian past. Personal identity is much the same now as it was then" (20).

There is nothing unusual in this picture of activities. The fact that today other media than in former times come into play does not justify to mystify a whole generation as different. On the contrary, the children growing up with these media regard them as normal companions of their daily life, as the generations before regarded the TV set, the telephone or the radio. The major interests for which the media are used, are not the media themselves or their content, but the aim to assist the identity development by communicating with peers and to cultivate friendships. Information, entertainment and play, in groups or alone, are a useful tool for social negotiations, for acquiring rules and norms and for the cognitive and emotional coping with tasks and problems.

Step 7

Differential Profiles of Users

A seventh perspective on youth that may serve to deconstruct the generational hypothesis is to focus on the diversity of people. People have different social background, different habits, different interests, motivation and values. Why should people of an age cohort constitute a “generation” only because they grew up with new media? Multivariate methods (factor and cluster analysis) always yield subgroups that differ highly according to media use, user motives, and competencies and thus clearly demonstrate that there is no generation with common interests, attitudes, and competencies. These methods result in diverse user profiles that prove that there is not uniform generation. Such analyses have been done by UK Children Go Online (Livingstone, Bober, & Helsper, 2004), with data of the ARD/ZDF long term study by Oehmichen & Schröter (Lenhart *et al.*, 2007), by Pew Internet and American Life (2007), by Treumann *et al.* (2007), and by Kohlert, Schlickum, & Brübach (2008). I’ll describe here only two of them, Treumann *et al.* and Kohlert *et al.* Other examples of studies on media use that generated group characteristics of users by means of factor analysis or cluster analysis as well as the methodological aspects of these methods are discussed in Schulmeister (2009).

The study by Treumann *et al.* (2007) is probably the methodically most sophisticated study of individual differences in students. Selecting 1.662 youth out of their large sample of 3.271 youth and analysing them yielded seven cluster, whose profiles were described with a factor analysis:

Table 8. User typology of Treumann *et al.* (2007)

Cluster	%	Attribute
Education oriented	20,4	cleverly engaged
Having no profile	20,3	uncritically naive
Communicative orientation	19,1	inexperienced integrated
Consumer orientation	17,4	pragmatic hedonists
Allrounder	12	versatile avantgardist
Deprived	7,8	inconspicuous single
Designer	3,1	creative action

The typology has been constructed on the basis of all media and not just computer and Internet use. Consequently, the different user types are characterised by their use of various media: “The cluster analysis of our data shows that generalising media use of youth is in no way appropriate. Even when young users in public debates often are regarded as forerunners in using new media, in view of competence and qualification we have to differentiate between various user groups” (p. 217).

The web-survey “recruiting the next generation” (rng-study) was organised by the international architecture company DEGW. A battery of Internet variables was developed by the author (RS). 2.089 university students from Austria, Germany, and Switzerland answered the survey with respect to their lifestyle, preferences for their work environment, and also for their Internet habits (Kohlert, Schlickum, & Brübach, 2008). The rng-study ascertained lifestyle factors using a factor and a cluster analysis. A total of 111 variables were included in the study’s factor analysis. These variables were made up of six groups, which were not all related to the Internet: the choice of TV-stations (14 items), reading preferences (19 items), music preferences (17 items), hobbies (20 items), ownership of communication devices (9 items), and lastly, use of communication, Internet and online media (32 items). I mention this because the relevant computer- and Internet-based variables in this segment of the study emerged nearly entirely in one factor in the factor analysis. This means that in a survey which reviews also variables other than lifestyle, culture and daily routine, there obviously is a clear contrast in the participants’ perception of computer and Internet-based variables. The four factors reported in Table 9 were extracted.

The first factor combines nearly all the variables which I included in the survey about Internet use. The second factor comprises the variables which are related to cultural activities like museums, theatre, concerts, conventions, but also cooking, baking, reading cultural magazines, listening to music or playing music oneself. The third, which I would have called “acting in everyday life” included variables like functional activities in Internet like online-tickets, -banking, -shopping, search engines, subject-related databases, but also reading economics-oriented magazines and conservative newspapers, and also a lot of communication (emails, text messaging). I would call the fourth factor

Table 9. Multivariate user profiles (Kohlert, Schlickum, & Brübach, 2008)

Factors	N	Characteristics	Under Age 28
Virtual/technical orientation	306	Predominantly male, high proportion of design, engineering, math and natural sciences; this factor does not constitute the highest proportion of any field of study	14,7%
High cultural orientation	667	Predominantly female, high proportion of humanities, language, art and cultural studies, as well as education	29,2%
Reality orientation	557	Predominantly male, high proportion of economics, law, engineering, natural science and mathematics	27,5%
Sociable orientation	567	Predominantly female, higher proportion of economics and socialsciences (not the highest proportion in any field of study)	26,6%

the “lifestyle and entertainment factor,” since it includes variables like TV (soap operas, music videos, comedies, movies), shopping, reading fashion magazines, visiting bars and discos, eating out, etc.

This differentiation in the survey is especially notable since it prevents a one-sided focus on the computer and Internet by using variables other than Internet-variables. Furthermore, the role and meaning of Internet-media vary according to the orientation. When differentiating between younger and older participants in the survey (under 28 and over 28), it even became clear that the younger participants were in the minority in the virtual-technical orientation category: “The principal conclusion can be observed that there is no stereotype in the group of under-28-year-olds, that bizarre generation labeled ‘Generation Y’ by the media. Rather, there are various different

parallel types which are stronger or weaker depending on sex, age and field of study.” (Kohlert, Schlickum, & Brübach, 2008, p. 47). For these interests the computer and the Internet have an instrumental function like other media before (telephone, mail, radio, TV, disc player). Assigning the computer a role as agent, as behaviour shaping or determining actor, would be confounding the relations found.

Step 8

Digital Divide

One last argument that contributes to the deconstruction of a net generation is the fact that media use, competencies and motivation not only differ according to individual preferences, lifestyles etc, but that these may be influenced or restricted by variables stemming from social status, ethnicity, and gender. One example of data from the recent Kaiser Family Foundation (Rideout *et al.*, 2010) study:

Table 10. Media use and ethnic groups (Kaiser Family Foundation – Rideout *et al.*, 2010)

	White	Black	Hispanic
TV content	3:36	5:54	5:21
Music	1:48	2:42	2:52
Computers	1:17	1:24	1:49
Video games	0:56	1:25	1:35
Total media exposure	8:36	12:99	13:00
Total media use	6:22	9:44	9:14

The difference between “Total media exposure” and “Total media use” is that exposure adds parallel running media (e.g., computer and music) which the Kaiser Family Foundation erroneously calls multitasking (see Foehr, 2006). Black and Hispanic youth use more media, but get lower grades in school. The thesis that extensive media use makes smarter is not confirmed. More media use in this sample means more TV consumption, and that is a distraction from learning.

The differences are significant. Moderate and light users get better grades. This is even the case if only the reading habits are observed:

Table 11. Degree of media use and grades (Kaiser Family Foundation – Rideout *et al.*, 2010)

	Heavy Users	Moderate Users	Light Users
Good grades (A's and B's)	51 %	65 %	66 %
Fair/poor grades (C's or below)	47 %	31 %	23 %

“Young people who are heavy readers (those who spend an hour or more per day with print media) are substantially more likely to say they earn high grades than those who are light readers (those who report no print reading on a typical day): 72% of heavyreaders report high grades, compared to 60% of those in the lightreading group” (p. 31).

Palfrey and Gasser (2008) still assumed: “There are no hard data to suggest that Digital Natives are smarter than anyone who came before them. Neither is there any sign that kids are dumber, or in any way less promising, than previous generations of kids. Digital Natives are doing the same things their parents did with information, just in different ways.” But indeed, the Digital Natives are not only not smarter, they seem to be less smart than moderate and light users.

A number of studies hint that the widened access to computers and Internet (Hargittai & Hinnant, 2008; Zillien, 2006; Zillien & Hargittai, 2009) has not abolished the digital divide, indeed it has developed into a cultural, social and intellectual divide. This has been clearly expressed by Henry Jenkins (2006): “As long as the focus remains on access, reform remains focused on technologies; as soon as we begin to talk about participation, the emphasis shifts to cultural protocols and practices” (p. 23). A new gap is opening between those who have and those who have not, meaning the capital of education, that could also be described as the conflict between those who find a way to cope with this new world, and those who don't: “a new divide is opening up, one centred on the quality of use” (Livingstone, Bober, & Helsper, 2004).

Eszter Hargittai found that “education was positively associated with capital-enhancing online activities. These findings suggest that Internet access may not, in and of itself, level the playing field when it

comes to potential payoffs of being online. Rather, those from more privileged backgrounds may reap more of its benefits if they are more likely to use it in potentially beneficial ways [...]. Work examining differentiated Internet uses in other countries has found a similar relationship between socioeconomic status and usage” (Hargittai, 2010, p. 95). The “romantic” view of our youth that some authors demonstrate is criticised by Buckingham (2008) because

It is also bound to ignore the continuing ‘digital divide’ between the technology rich and the technology poor, both within and between societies. Technology enthusiasts are inclined to believe that this is a temporary phenomenon, and that the technology poor will eventually catch up, although this is obviously to assume that the early adopters will stay where they are. The possibility that the market might not provide equally for all, or indeed that technology might be used to exploit young people economically, does not enter the picture (14).

Step 9

No Transfer to Learning

It has been demanded by Tapscott or Prensky that youth need another education (whatever that is: the examples for new ways of learning that are to be found in Tapscott’s book or in Prensky’s essays are not really new, but show a deficit of knowledge about modern education and learning theories). If we, however, ask today’s students for their learning preferences and learning habits, we receive totally different answers. In recent years a number of surveys have tried to find out more about our students preferences with regard to media in learning:

- in large samples at American universities (e.g., Kvavik *et al.*, 2004; Kvavik, 2005; Kvavik & Caruso, 2005);
- in European surveys investigating the information retrieval and evaluation competences of students (Online Computer Library Center (OCLC), 2005; CIBER, 2007; Fink, 2008; Heinze, 2008);
- in recent surveys of larger samples of students from different universities using media in their studies (Paechter *et al.*, 2007; Kleimann, Özkilic, & Göcks, 2008; Nagler & Ebner, 2009; Schulmeister, 2010; Unger & Wroblewski, 2007).

It has been observed by these studies that:

- students do not make much use of eLearning environments;

- when asked what they prefer, students opt for a moderate use of eLearning;
- students ascribe their experience in using eLearning to their professors.

A transfer of competences acquired by using media to learning does not seem to take place or at least not in the expected amount and direction. The use of computers and other media for learning is unemotionally taken as a means to an end. Other opinions are marked by Buckingham (2008) as “relentlessly optimistic view” that ignores many of the down sides of these technologies – the un-democratic tendencies of many online ‘communities’, the limited nature of much so-called digital learning and the grinding tedium of much technologically-driven work. It also tends to romanticize young people, offering a wholly positive view of their critical intelligence and social responsibility that is deliberately at odds with that of many social commentators.

Conclusion

I restricted my attention in this article on deconstructing the variable media use, and I did not discuss the assumptions concerning the psychology of the so-called digital natives, like multitasking, diverse personalities, or short attention spans. More information regarding these aspects of socialisation today can be found in a long (German) version of a confutation of the metaphor of a net generation (Schulmeister, 2009).

Understanding the processes of socialisation seems to me a necessary prerequisite and basis in order to analyse behavioural developments, interests, and motives of children and youth. Arguing that some trends discovered in minority groups belong to a whole “generation” does not bear up against scientific truth. Generalising traits of some people to form a generation not being based on empirical data is not a correct method in social science. Trying to predict a new workforce only assumptions stemming from a minority and to talk teachers and industry into adapting to another future is ethically unsound. The net generation does not exist. The digital natives are either a myth or a rather small minority.

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