



## Review

## Considering young people's motives for interactive media use

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## ABSTRACT

Young people's increasing use of interactive media has led to assertions about possible consequences for education. Rather than following assertions, we argue for theory-driven empirical research as a basis for education renewal. First, we review the existing empirical research, concluding that there is almost no theory-driven research available. Subsequently we discuss sensitizing concepts as a perspective for research on the relation between interactive media and youth culture. These concepts, derived from the literature, include insecurity, reflexivity, affinity spaces and shape-shifting portfolio people. With this perspective we examine social and cultural functions of interactive media within contemporary Western youth culture. This examination leads to questions for education and a subsequent plan for future research, with a focus on diversity among students and the development of local cultures. This entails studying both the motives as well as the actual use of interactive media, which should be the concern of educational practices.

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## 1. Introduction

Western countries and large parts of Asia are witnessing a generation of young people who have spent their entire lives surrounded by Internet, games and mobile phones (Ito et al., 2008). During the last decade, interactive media, consisting of games and Internet applications, have become tools for information and communication that are used daily by the so-called 'Netgeneration' (Tapscott, 1998). This development has led to many assertions about the enormous effect of interactive media on youth (cf. Prensky, 2006; Veen & Jacobs, 2005). For instance, it is believed that the members of the Netgeneration are fast and impatient, live at 'twitcheed' (Prensky, 1998), get bored easily, and have a short attention span. Social interaction for them means being always online and connected; networking is their lifestyle. When it comes to learning they do not want to read books, they want to learn by doing, in a similar way as in videogames. They only want to work towards clear goals, preferably while multi-tasking. They do their homework, while at the same time chatting with friends, watching television and surfing the net (Prensky, 2006). Several authors have argued that consequently, children will develop a different attitude towards communication patterns (Veen & Jacobs, 2005) and as a result will use information in a different manner or even will learn in a different way.

However, this characterization of the Netgeneration is for the larger part the result of generalizations based on professional opinions and literature studies rather than being a differentiated description founded on empirical evidence (Bennett, Maton, & Kervin, 2008; Schulmeister, 2008). The arrival of a new generation, as suggested in the terms 'Netgeneration' (Tapscott, 1998), 'Generation Einstein' (Boschma & Groen, 2006), 'Millennials' (Howe & Strauss, 2000), 'Webgeneration' (Hartmann, 2003) or 'Digital natives' (Prensky, 2001), has inspired participants in the Netgeneration debate to connect interactive media use directly to consequences for education. Along with the generalized characterization of youth, strong statements are made which call for a radical departure in education from the old and an embracing of the new (Bisschop Boele, 2005; cf. Oblinger & Oblinger, 2005).

The Netgeneration debate has two limitations. First, the debate presumes homogeneity among all contemporary youth, as is implied by the 'generation' terminology. Second, the debate typifies youth on the basis of interactive media use, rather than on the motives for this use. This approach bears the risk of considering interactive media as a goal in itself, instead of seeing its contribution to the ways people relate to each other and to sources of information and communication.

In order to add value to the Netgeneration debate, it is important to study the ways interactive media function in young people's activities from the perspective of a changing society. This perspective allows describing possible consequences of societal tendencies for young people's everyday life; it allows describing interactive media as part of young people's behavior and systems of values and beliefs. The functions of interactive media in everyday life are considered here as the motives for types of interactive media use among youth. Studying these motives asks for a sociological understanding of culture, specifically contemporary youth culture. Youth culture can be defined as the particular way of life of young people in which they express certain meanings and values (Brake, 1985; Frith, 1984). Understanding this particular way of life in relation to interactive media leads to a contextualization of the intensive use of interactive media among youth.

The central question to this article is: what motivates contemporary youth in Western societies to use interactive media? In response to the central question, this study first presents a review of available empirical research on the relation between contemporary youth culture, interactive media and learning. The results of this review lead to a framework starting from the sociological notion of late modernity. This notion helps to understand both youth culture and interactive media as part of contemporary everyday life. We describe late modernity in relation to contemporary youth by means of four concepts: insecurity, reflexivity, affinity spaces and shape-shifting portfolio people. These concepts are derived from literature on modernity and game-based learning and will be described below. On the basis of these descriptions of youth culture, we are able to formulate more specific questions that are relevant for educational practice. These questions raise an awareness of differences in culture between groups of people, and as such allow a differentiated description of contemporary youth, rather than an assertion of homogeneity. Moreover, these questions are concerned, not with the use of interactive media as such, but their function in the daily life of youth. It is this latter insight that should become the basis for educational practice to think about ways of adjusting to contemporary youth.

The outcome of this article is a set of questions for further research on youth culture, interactive media use and possible consequences for education. Informed by these research questions, we are currently pursuing an empirical investigation including both large-scale quantitative (Van den Beemt, Akkerman, & Simons, 2009, 2010) and in-depth qualitative research of media use and meaning.

## 2. Review of research on interactive media use

### 2.1. Interactive media and the Netgeneration

Following the intense use of interactive media by today's youth, a growing amount of research explores the application of games and social software in education as a means of triggering young people to learn (cf. De Bakker, Sloep & Jochems, 2007; cf. Kafai, 2006; Margaryan & Littlejohn, 2008; cf. Sandford, Ulicsak, Faser & Rudd, 2006). But this push of interactive media towards education and the strong statements about youth do not rely on a thorough understanding of current youth culture.

**Table 1**  
Summary of 11 studies.

Study	Main research approach	Data collection	Results in relation to Net generation, media use or consequence for education
Cameron (2005)	Quantitative	Survey (N = 210)	So-called 'digital natives': have mainly basic ICT-skills, prefer real life contact in learning situations, are not really multi-tasking, prefer scanning information above deep-reading, see technology not as a negative force in society
Kelly et al. (2006)	Qualitative	Focus group interview (N = 16)	Study on how girls use online tools for developing their feminine identity
Sefton-Green (2006)	Qualitative	Literature study	Description of current youth culture theory. Mention of the necessity of empirical data. Analysis of debate on media based learning versus traditional schooling
Skiba and Barton (2006)	Qualitative	Literature study	Present possible consequences for education based on the characteristics of the Net generation as described by Tapscott, Prensky and Oblinger and Oblinger
Duimel and De Haan (2007)	Quantitative	Survey (N = 1561)	Present overview of actual use, skills and possession of ICT by teenagers and how this use is perceived by parents
Annetta (2008)	Qualitative	Case study	Discussion of games in educational context. Starting point is Net generation and 21st century skills
Baki et al. (2008)	Qualitative	Focus group interview (N = 6)	Because young people like to play games, parents and educators should take this kind of entertainment serious
Felini (2008)	Qualitative	Action-research	Games are useful for education because many young people in Italy play games
Ito et al. (2008)	Quantitative	Survey (N = 1138)	Provides overview of studies on ICT use and youth culture
Kutteroff and Behrens (2008)	Quantitative	Survey (N = 1208)	Present broad spectrum of youth activities and young people's attitude towards ICT
Margaryan and Littlejohn (2008)	Quantitative	Survey (N = 160)	Discusses the skills assertion of the Net generation. Most students have only basic ICT-skills

At the same time we see a growing body of literature on the use of ICT. The first landmark in this respect is a collection of studies on the Netgeneration and learning presented by *Oblinger and Oblinger (2005)*. Their book provides a framework to pose questions about learning and the use of ICT. However, one could wonder whether the fundamental idea behind the book, namely the undisputed existence of the Net generation, is correct. The notion that this generation has “unprecedented levels of skills with information technology” and “that they take technology for granted, that they want more of it in their classes, that postsecondary institutions aren't responding fast enough to meet their needs” (*Oblinger & Oblinger 2005, p. 7.5*) appears to contradict findings from a large-scale US-survey discussed elsewhere in the book (*Bullen, 2008*). One of the survey's findings states that students have basic text editing skills and can use email and surf the Internet with ease but “moving beyond basic activities is problematic. It appears they do not recognize the enhanced functionality of the applications they own and use” (*Oblinger & Oblinger 2005, p. 7.7*).

## 2.2. Method of inquiry

In order to discuss existing empirical data on the use of interactive media and their meaning in young people's lives, we applied searches on the ERIC, Education Abstracts and Web of Science databases. We stopped the search on 16 March 2009, and any study published after this date was not included in the review. The following keywords were used for a Boolean search: “youth culture”, “net generation” or “netgeneration” or “millennials” or “digital natives”, “video games” or “videogames” or “games” or “interactive media” and “learning” or “education”. Peer reviewed journal articles and book chapters were included. This search resulted in twelve articles. After reading the articles, five of them were left out of the analysis because they did not discuss the Net generation nor the consequences of interactive media use for education. Applying the so-called snowball method of checking references in the remaining seven articles did not result in any extra references relevant to our aim. Four documents, published as a book or on the Internet, were included as well. In total eleven texts were included in the review (*Table 1*).

## 2.3. Use and non-use of interactive media

The large-scale surveys on youth and ICT give a good overview of use and skills of interactive media (*Duimel & De Haan, 2007; Kutteroff & Behrens, 2008*). However, the meaning of these media in the user's lives remains unclear. Noteworthy is that some of these studies are only meant to describe large trends in social actions rather than to investigate the motives behind them. In addition to the use of interactive media, *Duimel and De Haan (2007)* and *Kutteroff and Behrens (2008)* both provide insight into the non-use of these media as well. In the Netherlands 7% of 13–18-year olds do not search websites for information, and 12% do not use MSN (<http://www.msn.com>) for contacting friends (*Duimel & De Haan, 2007*). E-mail is being used less than once a week by 18% of youth in the Netherlands, while other Internet activities show a higher percentage of non-use (*Duimel & De Haan, 2007*). *Kutteroff and Behrens (2008)*, after presenting similar results for German youth between

thirteen and nineteen, draw the conclusion that young people see radio or television as a more trustworthy news source than the internet. The results of these studies incline towards a differentiation of contemporary youth in groups based on interactive media use, rather than assuming a generation with uniform user characteristics.

#### 2.4. Interactive media skills

Two surveys among university students with a focus on ICT-skills in relation to learning (Cameron, 2005; Margaryan & Littlejohn, 2008) support the inclination of a differentiation based on user patterns. They suggest that students use a limited range of technologies for both learning and socialization. Students make limited, recreational use of social technologies such as networking sites. Furthermore, the results point to a “low level of use of and familiarity with collaborative knowledge creation tools, virtual worlds, personal web publishing, and other emergent social technologies” (Margaryan & Littlejohn, 2008, p. 1). Neither study found evidence to support the claims regarding students adopting radically different patterns of knowledge creation and sharing, as suggested by some previous studies. Similar results can be found in Ito et al. (2008), a collection of US-based studies on the development of popular culture in exchange with interactive media, which concludes that there is no homogeneous group, but rather a differentiation in subcultures based on interactive media.

#### 2.5. Meaning and identity

The available qualitative studies often take the characterization of the Netgeneration (such as described in the introduction) as starting point rather than discussing it. At the same time these studies testify to the intricate relationship between identity development and interactive media (Kelly, Pomerantz & Currie, 2006). This indicates that these media are meaningful tools in organizing and directing youth's cognitive, social and emotional life, rather than being ends in themselves (Baki, Leng, Ali, Mahmud & Gani, 2008). It appears that more studies are needed in order to theorize how interactive media are meaningful to young people's lives.

#### 2.6. Today's youth and interactive media

From this review of empirical studies, we can conclude that contemporary youth in the studied (mainly Western) countries makes intensive use of interactive media, although young people appear to have intermediate media skills. The available results show a description of young people as differentiated in groups regarding interactive media use and skills, rather than as one homogeneous generation.

Our database search shows that only a small number of empirical studies on interactive media use by young people are available. As Table 1 shows, half of the studies applied large-scale quantitative surveys, with a focus on interactive media use and skills, while in three studies a qualitative investigation was conducted. Of these studies, only one made a connection with the meaning of interactive media for young people and a description of subcultures based on interactive media use (Ito et al., 2008). Furthermore, only one study investigated the use of interactive media among non-Western youth (Baki et al., 2008). The other studies investigated a number of Western countries. The remainder of this article will also focus on Western youth.

With these studies a first step is taken into describing young people's use of interactive media. The results ask for more research that investigates not only interactive media use, but the user's motives for interactive media use in the context of identity and youth culture developments as well. Furthermore, while most of the research discussed here is descriptive, we argue for empirical research driven by theory in general and sociological theory in particular. A sociological perspective allows us to turn our attention to the *motives* of interactive media use, rather than perceiving interactive media use as an end in itself. As we will reason later, these motives should be the main concern of educational practices.

### 3. A sociological perspective to understand youth culture

It is obvious that youth culture in a certain era differs from its predecessors. Each youth culture is a reflection of the societal constellation of its time (Frith, 1984): hippies, punks, yuppies, skaters, and ravers, to name but a few. However, it appears that contemporary youth culture develops itself in a different way from before: where socializing institutions such as school, parents and the local community used to be directing sources, youth culture increasingly appears to evolve with and through interactive media and outside of school (Gee, 2004; Ito et al., 2008). It is in this context that we discuss contemporary youth culture as a reflection of late modernity. The expressions of youth culture itself, such as style of clothing, values or music preferences will not be discussed here. Rather, we focus on the developmental process and characteristics of youth culture in relation to interactive media. In this way we provide a contextualized understanding of the social and the cultural implications of contemporary modernity on youth. With this contextualized understanding it is possible to pose specific questions as a foundation for further research that intends to connect education to changing students.

#### 4. Late modernity

Modernization refers to processes in which society goes through social changes that transform the lives of individuals. The concept of 'modernity' in turn, describes the results of modernization in a certain era. Although the modernization process is characterized by gradual change and a certain direction, there are always different tendencies with different dynamics affecting one another (Van den Brink, 2007). For example, family life inclines to an increase in quality time spent with one's spouses, as well as with close relatives and friends. At the same time the work-domain asks for extra-hours and high efforts in career development (Breedveld et al., 2006). These two tendencies are also reflected in attempts to engage with others by means of social software, such as Facebook, LinkedIn or Twitter, each with their own demanding rhythm (<http://www.facebook.com>; <http://www.linkedin.com>; <http://www.twitter.com>). The results of these tendencies therefore are often ambivalent. Ambivalence, together with complexity, is a characteristic aspect of our current, late modern way of living (Beck, Giddens, & Lash, 1994; Cieslik & Pollock, 2002). This can be seen in an increasing pluriformity within life domains such as education, family, work, leisure activities or healthcare. Although a certain normative consensus within each domain exists, conflicts of interest can arise between domains (Van den Brink, 2007), making it very difficult to give meaning to one's life in a coherent manner. It gets even more complex when expectation standards in each domain rise. We have to be successful as a parent, as a friend and as a colleague, all simultaneously (Breedveld et al., 2006).

Van den Brink (2007) and Elchardus and Glorieux (2002) argue that with a growing focus on consumption, an extension of education and an increasing range of career opportunities, we live in a world with abundance of choice and an increasing pluriformity. Nonetheless, this pluriformity is connected to tradition. Behind the freedom of choice, society is still quite organized. People have a want for change, individual freedom of choice and personal development. At the same time, they strive for continuity and tradition and are in need of a frame of reference.

The traditional forces are usually explained by the classical modernization thesis. This thesis describes the development of societies from traditional to modern (Cieslik & Pollock, 2002). The classical modernization process resulted in a social order characterized by rationalization and the elimination of personal preferences and reflexivity (Van den Brink, 2007). In this social order worldview (*Weltanschauung*), social status and gender heavily defined the environmental framework for social relations and participation and the framework for taste, identity and a way of giving meaning to the world (Elchardus & Glorieux, 2002). This guiding framework resulted in security and a clear view on, for instance, education- and work-opportunities. Subsequently, local communities and family saw to it that people would stay within the confinements of their social environment.

However, even in classical modernity a person's social activities took place in several domains. But in contrast with late modernity, the norms within these various domains followed from tradition. The domains a person would engage in shared norms and values as a result of a guiding framework. For example, people attended a specific school and a sports club based on a particular religion or worldview (Van den Brink, 2007). The current disappearance of this guiding framework results in a multitude of possible domains to engage in. These domains reach all aspects of social life such as consumption, education, career opportunities or leisure. While the diversity in domains increases, their coherence diminishes.

But where does this disappearance of guidance come from? What causes the retreat of social structures (Lash, 1994)? In the last two decades of the twentieth century, many social scientists saw the emergence of a new force in society (Beck et al., 1994). This force lets rationality disappear and negotiation and influence replace power and authority. Traditional, strong collective forms of solidarity are undermined and are being replaced by individual forms of responsibility (Van den Brink, 2007). This means that one's actions, taste and the way one gives meaning to the world are no longer seen as exclusively influenced by ideology, social status or gender. Contemporary sociologists found educational level, media usage and social capital to be important descriptors as well (Elchardus & Glorieux, 2002).

The resulting combination of descriptors leads to a field of force of restricting tradition and liberating plurality. The co-existence of these forces means that modernization consists of a realignment of fracture paths with their origins in the past, rather than a sequence of breaking points (Elchardus & Glorieux, 2002). Fracture paths are frayed and follow more or less the course of time, similar to grains in rocks. They provide a gradual fading in and out of ideas and interpretations. If this were the case, would it be possible to pose questions about the consequences of the modernization process? How do young people deal with the tension between tradition and freedom of choice? Do they use interactive media as a way out of this tension? Hence, what effects could late modernity have on the way people learn? In this article, these questions will not be answered directly. Instead, they will be examined by relating the characteristics of late modernity to youth culture and the functions of interactive media within this culture. In order to do so, we introduce the sociological concepts of social space and cultural space.

All social action is structured in spaces, around objects and in time (Berger & Luckmann, 1966). Where during the pre-internet era social action took place in physical spaces, today it takes place in both physical and virtual spaces (Van den Boomen, 2000). The whole of a person's patterns of social relations and forms of participation, can be called *social space* (Elchardus & Glorieux, 2002). A person's social space is dynamic and its boundaries change during one's life span (Bourdieu, 1984). For instance, a 4-year-old child engages in a social space confined by home, kindergarten, buddies from school and the sports club. A student's social space on the other hand might consist of the university campus, ski-camp in the mountains, a favorite bar, Second Life and an occasional visit to the parent's house.

An essential part of social action is communication with others. By means of communication people discuss, evaluate and judge one another, their actions and the objects in their social spaces. Hence through social action intersubjective reality is



established, by means of which people give meaning to the world around them (Berger & Luckmann, 1966). We call these patterns of values, ideas, taste and identity *cultural space* (cf. Elchardus & Glorieux, 2002). Whereas the notion of social space directs our attention to the social and material aspects of human actions, cultural space directs our attention to the more symbolical aspects of human actions. The question is whether and how young people use interactive media as part of their actions for shaping and maintaining their social and cultural space. This question points to respectively the social function and the cultural function of interactive media. We consider both the social and cultural functions as basic motives for interactive media use.

We now turn to the way in which the development of both social and cultural space of youth is influenced by societal tendencies. We discuss the specific influence of late modernity by means of four sensitizing concepts.

## 5. Youth culture and interactive media: four sensitizing concepts

As we discussed above, world-view, gender and social class, next to educational level, media use and social capital, are seen as strong descriptors of a person's behavior and its perception. This large number of descriptors combined with a growing diversity of domains results in a complex tissue of factors influencing people's social activities and values and beliefs. Youth culture in late modernity, in our view, reflects this development. It consists of a mix of renewal with lines trading back to tradition. The main question that typifies contemporary youth culture is: how to deal with the increasing freedom of choice and opportunities in late modern society without losing connection with tradition and security? In what follows we describe youth culture in late modernity in more detail by discussing the following concepts: insecurity, reflexivity, affinity spaces, and shape-shifting portfolio people. Insecurity and reflexivity are key concepts in late modernity theory (Beck et al., 1994; Giddens, 1993). Affinity spaces and shape-shifting portfolio people (Gee, 2004) connect late modernity to present-day media use. As Blumer (1954) argues, these kinds of concepts do not provide prescriptions but are sensitizing in nature since they suggest what to look for and where to look (cf. Bowen, 2006). This means that in late modern society all social action reflects these four concepts, but that differences between individuals may appear. In order to understand how youth culture develops and what the function of interactive media is in this development, we "give the sense of the concept[s] by the use of a few apt illustrations" (Blumer, 1954, p. 5). We point to questions that are important for education by means of examples from literature and current research. These examples describe how contemporary youth seem to use the social and cultural functions of interactive media to find a way in, and give meaning to their social environment. Important parts of young people's environment are education and learning. In this context it is important to note that we refer here to education as an institutionalized form of learning, and refer to learning when also considering learning outside of educational institutions. Discussing sensitizing concepts by means of illustrations, we specify questions for education and doubts about the existence of a homogeneous Netgeneration.

### 5.1. Insecurity/ontological security

In the process of modernization, tradition and authority loose their influence. This gives people a broad range of unexpected possibilities in defining their social and cultural space. Prerequisite is an active attitude of people to make choices and to give meaning to their life. However, an active attitude without any frame of reference leads to *insecurity* (Cieslik & Pollock, 2002; Giddens, 1993). As a result of insecurity, people start to look for mutual trust and ontological security. Where in traditional society the family functioned as a main source of ontological security, in late modern society experts, next-door friends and online communities have taken over this role (Poster, 2006). Contemporary youth appear to be looking beyond traditional references for giving meaning to the world. They do so, in different degrees, online. For instance, they join specific networks, such as game clans, or peer-directed online networks, such as Facebook. This however indicates a large diversity among youth. Every youngster might play a game once in a while, but because of the complexity and time efforts involved, only specific groups form game clans or become active uploaders to a Youtube channel (cf. Bennett et al., 2008).

The shift in sources for maintaining ontological security can also be found in weblogs and Internet forums where young people search and discuss opinions and experiences rather than look for factual information (De Haan & Van 't Hof, 2006). This search for opinions is in line with the organization of authentic experiences in education, as is increasingly favoured by several authors (cf. Volman, 2007; cf. Roth & Lee, 2007).

By searching for opinions and experiences, young people are actively working on formation of their beliefs and values. However, in late modernity belief systems are created from a diversity of experiences in a multitude of rather incoherent domains. By result these systems are no longer straightforward. Could this mean that education also has a task in providing some ontological security, for instance by encouraging students to develop their own learning goals? Or are there other options available to help young people create ontological security? According to Gee (2004) it becomes important for education in late modernity to introduce students to the identity and culture of the professions or knowledge domains for which they are educated. This symbolic frame of reference, also called epistemic frame (Shaffer, 2006; Shaffer & Gee, 2005), could help students wonder about what it means exactly to become and to be a professional, for instance a journalist. What does a journalist do? What does his social network look like? Where does he get his job satisfaction and how can he keep his knowledgeable up to date? Today, students themselves look for answers to these questions on Internet forums. However, they do so with the risk of finding only partial or wrong information on the basis of a particular opinion. Are epistemic

frames valuable structures for education in learning students how to gather knowledge about professions and associated participation, skills, knowledge and attitudes?

Though late modernity comes along with engagements in a multitude of less coherent domains, people, similar as in early modernity, maintain to search for securities by means of creating local cultures (Hermans & Hermans-Konopka, 2009). As interactive media are intensively used to connect to others, and more importantly, to create social groups and boundaries hereof, it is important to study how these local cultures are created. Also, the different types of media seem to allow for different ways of social organization.

If we acknowledge the role of interactive media in the shaping of local cultures, it is to be expected that the application of interactive media in education, as a goal in itself, does not have any additional value (cf. Buckingham, 2008). Instead, before applying interactive media in education, we need to know how various types of media enable facilitation of ontological security. In what ways and by means of what interactive media do students participate in social networks beyond the borders of their traditional social space, as our examples incline? In what ways and by means of what interactive media do they develop their cultural space by looking for other's opinions, values and beliefs? In light of these research questions it is also important to study whether there are differences among students in using specific interactive media for the social and cultural function of ontological security.

## 5.2. Reflexivity

The search for ontological security requires a reflexive attitude (Beck et al., 1994). A reflexive attitude entails an active judgement of options, possible meanings and perspectives. The principle of *reflexivity* is known as the Thomas theorem: "If men define situations as real, they are real in their consequences" (Thomas, 1928, p. 2). It means that people examine their own and others' practices and try to give meaning to them. Their subsequent social actions are based on these interpretations. As a result of an endless stream of incoming information, modern social life asks people for a constant examination of their social practices (Giddens, 1993). This requires an active reflection about all options: what is good and what is bad in particular situations? What is wise to do and what is not? What does something or someone mean to me? Do I want to become a lifelong member of a football club, with a commitment in both bad and good times? Or do I want to play the trendiest sport of the moment, just for fun? With a growing diversity in domains and a dynamically changing social and cultural space, a person's identity becomes less stable and more fluctuating and fragmented (Hermans, 2006). The challenge in our network-society is to create a coherent narrative about one's identity. Nowadays friends and the Internet are sources that appear to guide our reflexivity. Profile sites such as Facebook let people play with and narrate their identities, while games give the opportunity to reflect on models of the world, power or Newtonian physics (Gee, 2008).

Which evaluative criteria are part of a reflexive attitude in late modernity can be understood from Frith's discussion of how listeners judge music. Following Bourdieu (1984), Frith (1991) distinguishes between three discourses through which critical judgments about music are made. First, the art discourse that refers to the transcendental aspects of cultural experience. Culture in this discourse rises above the ordinary. Second is the folk discourse, which refers to integration. Cultural experience in this context is about a sense of place and belonging. The third discourse is called pop, and refers to fun and routinized pleasures. Frith argues that these three discourses are not separated but rather work together in shaping taste patterns (Frith, 1991). Siongers and Stevens (2002) argue that these criteria for judgment of music can be extended to other cultural domains as well. The art discourse in their terms is about quality and seriousness. The folk discourse is about authenticity and the pop discourse is about fun. Following this line of reasoning, it appears that young people apply these discourses as part of their reflexive attitude in developing meaning and identity. Striving for seriousness and quality can, for instance, be found on web forums with game reviews such as Gamerankings or Gamespot (<http://www.gamerankings.com>; <http://www.gamespot.com>). In the endless stream of new game productions only the ones with good reviews survive. Review sites function as guides in the reflexive definition of quality. Young people today appear to have a sharp sense for things being unauthentic (Boschma & Groen, 2006; cf. Shaffer, 2006). Commercial reality TV shows, in which reality is created rather than discovered, are ruthlessly called 'creality' (Wijnberg, 2007). Next to quality and authenticity, every experience or product appears to be in need of a fun factor. One could relate 'fun' in this sense to commitment. Games, sports, websites or music do not ask for a long-term commitment and are interesting as long as they are fun (cf. Elchardus & Glorieux, 2002). From these examples it can be concluded that although the framework of discourses on art, folk and pop remains, it is applied in a very goal-oriented manner. For instance, while fun in itself is not goal-oriented, the reflexive search for things being fun indeed is. In this way the framework adds to young people's goal-oriented and practical attitudes (cf. Rubens, De Jong, & Prozee, 2006).

For education, so we believe, an awareness of the broad spectrum of options to reflect on everyday life is required. Could this mean a decline in authority of teachers and the educational system? We do not think so, but rather expect that relevant authority for teachers can be found in assuring quality, authenticity and fun, in relation to the aforementioned epistemic frames. As Shaffer and Gee (2005) argue, it is in authentic situations that students are taken seriously as reflective agents and become engaged in thinking about their future career. A study in the Netherlands among 203 Vocational Education and Training (VET) students showed that actively preparing students for their in-company apprenticeship resulted in a more pro-active attitude towards supervisors and the job itself (Meijers & Kuijpers, 2007). Involving students in authentic professional situations was found to enhance their reflexive attitude.

We want to stress that accounting for reflexivity within education asks for an open mind or broad worldview (Diepstraten, 2006). However, as noted by Bruner (1990), this open-mindedness goes together with accountability:

“I take open-mindedness to be a willingness to construe knowledge and values from multiple perspectives without loss of commitment to one’s own values. . . . It demands that we be conscious of how we come to our knowledge and as conscious as we can be about the values that lead us to our perspectives. It asks that we be accountable for how and what we know” (p. 30).

The result of reflexive practices within education can create a great variation in opinions and ideas between individual students, for instance, in the meaning of professional practice or knowledge domains.

When watching interactive practices of youth, it seems they use all their experiences, both local and global, to reflexively create ontological security. Weblogs are in this context an example of narrative reflection. But YouTube videos can have this function as well, for instance when events are criticized in a parody (<http://www.youtube.com>). By sharing and responding to other’s reflections, these applications are an important mechanism of defining collective values and beliefs. In a different way, those games and applications where players have the role of constructor or producer of the (game) world, appear to let students learn and develop their reflexivity (cf. Shaffer, 2006; cf. Huisman & Marckmann, 2005). By means of media production young people are forced to look at themselves. Furthermore, responses from audiences make students aware of others’ responses (Weber & Mitchell, 2008).

This suggests that different types of interactive media have particular reflexive functions in the establishment of social and cultural spaces. It is worthwhile investigating further how these media can be relevant as such in education? Should education apply YouTube videos in group discussions, or producer games in science class? What kind of media do youth prefer in light of this function? This also means taking into account different forms of interaction and reflexivity, as well as individual differences amongst youth.

### 5.3. Affinity spaces

We have reasoned so far that youth, due to high dynamics and cross-border connections in their social and cultural space, search for ontological security and connect more reflexively to others and to content. It may appear as if a reflexive attitude is the only way for youth to prevent its social and cultural spaces becoming chaotic and unstructured.

How do young people organize and give direction to their social and cultural spaces? Contemporary youth culture no longer has the form of a counter-culture (Cieslik & Pollock, 2002) based on consumption, such as hippies or punks. Instead of standing up against their parents or society, young people today are focused on actively creating their own ontological security (Cieslik & Pollock, 2002; Giddens, 1993). They do this mainly by means of both consumption and production. This is reflected in the high activity in downloading, remixing and uploading personal digital content such as photographs, music, videos and games. These activities allow young people to participate in specific social environments. It can be said that this participation is informed by *affinity* with either peers or content (Ito et al., 2008). For instance, people play games because it is a way of connecting to their friends. Others might get involved in making online videos to show others about their hobbies (Weber & Mitchell, 2008). In this process, young people’s social and cultural space gets its shape by temporary alliances and individual meaning.

Youtube, Myspace, Facebook or Hyves, are examples of the (virtual) spaces where groups of young people meet, find information and where they discuss and judge each other’s efforts in giving meaning to the world (<http://www.youtube.com>; <http://www.myspace.com>; <http://www.facebook.com>; <http://www.hyves.nl>). Because of the limited preservability of these shared interest groups, Gee (2004) calls them *affinity spaces*. An important aspect of these affinity spaces is the fact that they are not institutionalized. Affinity spaces therefore reflect the tendency that personal networks take over functions from public communities (Van den Boomen, 2000). By result, these networks become important (mediated) sources for ontological security (cf. Van den Boomen, 2000). They fit into a reflexive attitude that lets people flip from one interesting topic to the next. A good example can be found in Internet forums where anorexia patients (shortly termed “Ana”) and bulimia patients (“Mia”) help each other in making sense of their identity (Giles, 2006). These affinity spaces have literally a limited preservability because hosting providers often close down the forums as a result of controversial content or purposes. The shared interest here consists of life as Ana or Mia. A similar kind of interest can be found on forums run by Moroccan youth in the Netherlands (Brouwer & Wijma, 2006) or websites that enable girls to develop their feminine identity (Kelly et al., 2006). Discussions on these forums deal with a shared cultural background and what it means to be a Moroccan in the Netherlands. These examples show rather strong identity ties between the visitors of the forums. Instant messaging on the other hand shows the importance of weak ties (Granovetter, 1973) as well. Many young people today have over 100 ‘friends’ on their instant messaging contact-list (Duimel & De Haan, 2007; Van den Beemt et al., 2010), but on a regular basis they chat with less than twenty of them.

The sum of affinity spaces and face-to-face networks implies different levels of scale, formality and closeness, and different kinds of social networks. Together these networks form the social embedding of the individual (Van den Boomen, 2000), as such defining an individual’s social space. This social space is changing in terms of decreasing the number of real world outlets where one becomes part of a community (Williams, 2006) and an increasing use of weak ties (Diepstraten, 2006). However, educational systems rely on long-term trajectories and a subsequent commitment. Could it be that weak ties and a limited preservability conflict with these long-term trajectories?



Many (young) people gather together on forums for a specific goal, be it their next holiday, comparing digital camera's before buying one or debating about religion and politics. With a goal-oriented and practical attitude (Rubens et al., 2006), it might be the case that young people easily switch brands or leave forums. Affinity spaces appear to be important for networking and developing opinions. They add to a vision on what is important for one's portfolio. This resembles characteristics of present-day students who favor informal and constructivist learning (Diepstraten, 2006). By grouping themselves in affinity spaces, young people form their reflexivity. Should education acknowledge affinity spaces as part of the epistemic frame, while taking into account diversity among students? By allowing peer learning, affinity spaces make the authority of an educator no longer obvious, but nonetheless important (cf. Ito et al., 2008).

Social and cultural spaces are increasingly defined around affinities. This development can be seen in the intensive use of social software or online games. Therefore, affinity spaces should not be set aside as something students deal with outside school hours. Instead, we argue that an exploration of how education can connect to the affinity spaces that students engage in is necessary. This exploration should result in ways to deal with the diversity of questions and opinions that different students are facing in their social and cultural spaces.

#### 5.4. Shape-shifting portfolio people

People's social and cultural spaces change over time, along with changes in reflexivity and affinities. In response to the sociological tendencies described above, it has been stressed that people in late modernity can be seen as *shape-shifting portfolio people*. Shape-shifting portfolio people:

are people who see themselves in entrepreneurial terms. That is, they see themselves as free agents in charge of their own selves as if those selves were projects of business. They believe they must manage their own risky trajectories through building up a variety of skills, experiences and achievements in terms of which they can define themselves as successful now and worthy of more success later (Gee, 2004, p. 105).

Shape-shifting portfolio people act in a flexible way when chances appear. They value experience above credentials, combine different strategies and explore every opportunity. It appears that this description fits those students who have an exploring flexible attitude towards, for instance, interactive media (Rutgers, 2007). The result of this flexibility appears to be that young people develop a portfolio filled with experiences, opinions and identities. By filling their life-portfolio on the go, in situated actions full of contingency, young people develop their course of life in terms of 'reversible transitions' (Du Bois-Reymond, as cited in Cieslik & Pollock, 2002). In this way they become shape-shifters who reflexively define ontological security by using affinity spaces.

Diepstraten (2006) shows that an important aspect of students who create their own shape-shifting biography, is a line of outer-school activities parallel to the school-trajectory. This enforces Gee's (2004) statement of the importance of learning experiences outside school. Could this mean that education should be aware of the life biography portfolios of her students? Does it indicate that knowledge, skills and attitude, and hence career opportunities increasingly are being formed by a combination of school-credentials and outer-school experiences? If we accept the diversity in biography portfolios, it is of importance for education to be informed about the role of interactive media in making transparent and maintaining these life narratives.

Similar as with the other sensitizing concepts mentioned, we can expect a variety in the extent and form of shape shifting among students. However, for all students counts that although their life biography is still influenced by traditional descriptors such as their parents' social position, people have more flexibility compared to earlier modern times. Interactive media seem to play important roles in allowing shape-shifters to look beyond traditional borders.

Still, there will be a portion of students that cannot be defined as shape-shifting portfolio people. If educational practice intends to think in terms of ontological security, reflexivity, affinity spaces, and shape shifters, how can the more traditional students be reached? Who are these students? Is it relevant to engage them in interactive media and shape-shifting? Answering this question implies an investigation of the available applications while taking into account the diversity in shape-shifting characteristics among students.

## 6. Conclusion and discussion

Contemporary Western society can be characterized by a field of force consisting of liberating plurality on the one hand, and a search for traditional securities on the other. This field of force goes together with the simultaneous processes of globalization and localization (Hermans & Hermans-Konopka, 2009). These processes lead to personal solutions and a variety of local cultures. Accordingly, different types of media are being used in shaping life trajectories and affinity spaces.

In this article we stated that the Netgeneration debate, despite its value, has two limitations. Firstly, the debate presumes homogeneity among all contemporary youth. Secondly, the debate's focus is on the use of interactive media rather than the underlying motives. The review of existing research on interactive media use showed that instead of one homogeneous generation, there are subgroups to be found. Furthermore our review showed that the meaning and motives for media use are not studied well, nor are identity issues.

In response to these limitations, we tried to describe young people's interactive media use in the context of a sociological description of contemporary Western youth culture. With this description we investigated social and cultural functions of

interactive media use. We have perceived these functions as the basic motives for interactive media use. Results of this investigation are important questions that we claim should be posed first, when aiming to connect educational practices to its changing students.

Youth culture in late modernity has been discussed while taking into account the ongoing traditional characteristics of society. By this account we were able to stress that societies still reflect earlier times, and thereby are not as radically different as is suggested in the Netgeneration debate. Our sociological description was framed by four sensitizing concepts. For each concept we discussed what questions for education emerge from observing the change in youth culture. The illustrations provided should be seen as suggestions for further research rather than suggestions to be realized.

Should education provide ontological security for students? If this is to be true, how can security be accomplished? Shaffer (2006) provides a possible solution in the form of epistemic frames. It would be worthwhile to investigate the notion of epistemic frames in the context of education, while looking at the potential role of different types of media in the creation of these frames.

The concept of reflexivity led us to conclude that education requires an awareness of the broad spectrum of opinions, meanings and perspectives in everyday life. Contemporary reflexivity can lead to a great variation between individual students. Acknowledging this variation in education means accepting ambiguity in the meaning students give to, for example, particular knowledge domains or professional practices. An important question is how educational practices, particularly in mass education, can create enough space for this variety.

The concept of affinity spaces showed us the conflict between on the one hand weak ties and a limited preservability, and on the other hand the long-term trajectories in education. Affinities appear to be important structures and directions for social and cultural spaces. They add to a vision about what is important for one's portfolio. In line with authentic forms of education, we should investigate whether and how teachers can connect affinity spaces of students to the particular epistemic frames (e.g. certain domains) in education.

The concept of shape-shifting portfolio people showed us how young people actively fill their life-portfolio with all kinds of experiences. What does this development mean for education? Does it mean that career opportunities are being formed by a combination of school-credentials and outer-school experiences? And what is the potential role of interactive media in developing the life portfolios of students? Furthermore, not all students will be shape-shifters. How should education approach the more traditional students?

The four sensitizing concepts provide a perspective on the use of interactive media among contemporary students. The specific constellation of these concepts influences a person's social behavior and systems of values and beliefs. We distinguished social space and cultural space as areas of participation where people develop and maintain respectively their social relations and symbolic aspects of everyday life.

From an educational research perspective, it is important to know how students shape their social and cultural space around a diversity of affinities. How do students fill their portfolio? What social relations and patterns result from their interactive media use? What values and beliefs do they develop by means of interactive media? In obtaining this knowledge, it is important to clarify the function of each medium for shaping social and cultural spaces.

Taken together, for each interactive medium, the research question is: what is its social function and what is its cultural function? Only by answering these questions education can fully value the functional application of interactive media, while taking into account the diversity among users. The answer to these questions is important in creating reflexive, authentic and collaborative learning environments contributing to ontological securities and showing future directions. Investigating these questions is likely to reveal a heterogeneity (in contrast to the presupposed homogeneity) of contemporary youth in its ways of searching for ontological security, being reflexive, and engaging in affinity spaces.

We want to close with emphasizing that we should empirically substantiate the social and cultural function of interactive media, before starting educational renewal. We should, for example, not put lots of effort in using games in education, if it is only for making learning more fun. This would be a too superficial account of what drives students. We should first investigate what functions games have in terms of the maintenance and development of the social and cultural space of youth. Moreover, research in this context should take into account the differences between groups of young people, rather than approaching them as one dominant group. The four sensitizing concepts, together with social and cultural space, provide a useful conceptual framework for this research. Answering the research questions should comprise both in-depth and broad investigations, for instance by means of interviews and surveys. Following the call for empirical evidence rather than assertions (Bennett et al., 2008), we have started this investigation in the Netherlands (Van den Beemt et al., 2010).

Research on the questions raised in this article requires insights from sociological, educational and media studies. With this article, we have made a first attempt to link these three scientific fields. As we hope to have pointed out education, and educational science can no longer set aside what happens in outer-school context. By means of the dialogue between disciplines, education can understand and find ways to connect to the daily lives of young people, and take into account how they think, communicate and learn.

## References

- Annetta, L. (2008). Video Games in Education: Why They Should Be Used and How They Are Being Used. *Theory Into Practice*, 47(3), 229–239.
- Baki, R., Leng, E., Ali, W., Mahmud, R., & Hamzah, M. (2008). The perspective of six Malaysian students on playing video games: Beneficial or detrimental? *US-China Education Review*, 5(11) (Serial No. 48)

- Beck, U., Giddens, A., & Lash, S. (1994). *Reflexive modernization. Politics, tradition and aesthetics in the modern social order*. Oxford: Blackwell.
- Bennett, S., Maton, K., & Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *British Journal of Educational Technology*, doi:10.1111/j.14678535.2007.00793.x
- Berger, J., & Luckmann, G. (1966). *The social construction of reality*. Middlesex: Penguin.
- Bisschop Boele, E. (2005). *Leren van jongeren: Een kritische blik. [Learning from young people: A critical view]*. Retrieved November 11, 2007 from <http://www.scienceguide.nl/article.asp?articleid=100449>
- Blumer, H. (1954). What is wrong with social theory. *American Sociological Review*, 19, 3–10.
- Boschma, J., & Groen, I. (2006). *De Einstein Generatie. [Generation Einstein]*. Amsterdam: Prentice-Hall.
- Bourdieu, P. (1984). *Distinction. A social critique of the judgement of taste*. London: Routledge.
- Bowen, G. (2006). Grounded theory and sensitizing concepts. *International Journal of Qualitative Methods*, 5(3), 1–9.
- Brake, M. (1985). *Comparative youth culture*. London: Routledge & Kegan Paul.
- Breedveld, K., Van den Broek, A., De Haan, J., Harms, L., Huysmans, F., & Van Ingen, E. (2006). *De tijd als spiegel: Hoe Nederlanders hun tijd besteden. [Time as mirror: How the Dutch spend their time]*. Den Haag: SCP.
- Brouwer, L., & Wijma, S. (2006). De zin en onzin van forumdiscussies op Marokkaanse websites. [Sense and non-sense of forum discussions on maroccan websites]. In J. de Haan, & C. van 't Hof (Eds.), *Jaarboek ICT en samenleving 2006: De digitale generatie* (pp. 109–141). Amsterdam: Boom.
- Bruner, J. (1990). *Acts of meaning*. Cambridge: Harvard University Press.
- Buckingham, D. (Ed.). (2008). *Youth, identity, and digital media*. Cambridge: MIT Press.
- Bullen, M. (2008). *Contradictions in Oblinger & Oblinger*. Retrieved April 3, 2009 from <http://netgennonsense.blogspot.com/2008/04/contradictions-in-oblinger-oblinger.html>
- Cameron, D. (2005, December). The Net Generation goes to university? In *Paper presented to the Journalism Education Association conference*.
- Cieslik, M., & Pollock, G. (Eds.). (2002). *Young people in risk society: The restructuring of youth identities and transitions in late modernity*. Aldershot: Ashgate.
- De Bakker, G., Sloep, P., & Jochems, W. (2007). Students and instant messaging: Survey on current use and demands for higher education. *ALT-J*, 15(2), 143–153.
- De Haan, J., & Van 't Hof, C. (Eds.). (2006). *Jaarboek ICT en Samenleving 2006: De digitale generatie. [Yearbook ICT and society 2006: The digital generation]*. Amsterdam: Boom.
- Diepstraten, I. (2006). *De Nieuwe Leerder. [The new learner]*. Doctoral dissertation. University of Leiden, the Netherlands.
- Duimel, M., & De Haan, J. (2007). *Nieuwe links in het gezin. [New links in the family]*. Den Haag: SCP.
- Elchardus, M., & Glorieux, I. (Eds.). (2002). *De symbolische samenleving. [The symbolic society]*. Tiel: Lannoo.
- Felini, D. (2008, March). Media education and video games: An action-research project with adolescents in an out-of-school educational context. In *Paper presented at youth, learning and the media, international conference* Zheijang, China.
- Frith, S. (1984). *The sociology of youth*. Lancashire: Causeway.
- Frith, S. (1991). The good, the bad, and the indifferent: Defending popular culture from the populists. *Diacritics*, 21, 102–115.
- Gee, J. P. (2004). *Situated language and learning: A critique of traditional schooling*. New York: Routledge.
- Gee, J. P. (2008). *What video games have to teach us about learning and literacy, revised and updated*. Basingstoke: Palgrave Macmillan.
- Giddens, A. (1993). *The consequences of modernity*. Cambridge: Polity Press.
- Giles, D. (2006). Constructing identities in cyberspace: The case of eating disorders. *British Journal of Social Psychology*, 45, 463–477.
- Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360–1361.
- Hartmann, M. (2003). *The web generation? The (de)construction of users, morals and consumption*. Retrieved January 15, 2009, from [http://www.lse.ac.uk/collections/EMTEL/reports/hartmann\\_2003\\_emtel.pdf](http://www.lse.ac.uk/collections/EMTEL/reports/hartmann_2003_emtel.pdf)
- Hermans, H. (2006). *Dialogue in misverstand. [Dialogue and misunderstanding]*. Soest: Nelissen.
- Hermans, H., & Hermans-Konopka, A. (2009). *Dialogical self theory*. Cambridge: Cambridge University Press.
- Howe, N., & Strauss, W. (2000). *Millennials rising: The next greatest generation*. New York: Vintage Books.
- Huisman, J. W., & Marckmann, H. (2005). I am what I play: Participation and reality as content. In J. Raessens, & J. Goldstein (Eds.), *Handbook of computer game studies* (pp. 389–404). Cambridge: The MIT Press.
- Ito, M., Horst, H., Bittanti, M., Boyd, D., Herr-Stephenson, B., Lange, et al. (2008). *Living and learning with new media: Summary of findings from the digital youth project*. Retrieved January 20, 2009, from <http://digitalyouth.ischool.berkeley.edu/report>
- Kafai, Y. (2006). Playing and making games for learning: Instructionist and constructionist perspectives for game studies. *Games and Culture*, 1(1), 36–40.
- Kelly, D., Pomerantz, S., & Currie, D. (2006). No boundaries? Girls' interactive, online learning about femininities. *Youth & Society*, 38, 3. doi:10.1177/0044118X05283482
- Kutteroff, A., & Behrens, P. (2008). *JIM 2008: Jugend, information, (multi-)media, Basisstudie zum Medienumgang 12-bis 19-Jähriger in Deutschland*. Retrieved January 20, 2009 from: <http://www.mpfs.de>.
- Lash, S. (1994). Reflexivity and its doubles: Structure, aesthetics, community. In U. Beck, A. Giddens, & S. Lash (Eds.), *Reflexive modernization. Politics, tradition and aesthetics in the modern social order* (pp. 110–173). Oxford: Blackwell.
- Margaryan, A., & Littlejohn, A. (2008). Are digital natives a myth or reality?: Students' use of technologies for learning. Retrieved January 25, 2009, from: [www.academy.gcal.ac.uk/anoush/documents/DigitalNativesMythOrRealityMargaryanAndLittlejohn-draft-111208.pdf](http://www.academy.gcal.ac.uk/anoush/documents/DigitalNativesMythOrRealityMargaryanAndLittlejohn-draft-111208.pdf)
- Meijers, F., & Kuijpers, M. (2007). *Vakbekwaam door simulaties? Een onderzoek naar simulaties in de mbo-opleiding 'Boekhoudkundig Medewerker'. [Competent through simulations? An examination of the VET-course 'Accountancy']*. Amersfoort: ECABO.
- Oblinger, D., & Oblinger, J. (Eds.). (2005). *Educating the Net generation*. Boulder, CO: Educause. Retrieved March 09, 2008, from <http://www.educause.edu/educatingthenetgen>
- Poster, M. (2006). *Information please, culture and politics in the age of digital machines*. Durham: Duke University Press.
- Prensky, M. (1998). *Twitch speed – Keeping up with young workers*. Retrieved February 7, 2008, from: <http://www.marcprensky.com/writing/Prensky%20Twitch%20Speed.html>
- Prensky, M. (2001, October). *Digital natives, digital immigrants. On the horizon*, No. 5 MCB University Press.
- Prensky, M. (2006). *Don't bother me mum. I'm learning*. St. Paul: Paragon House.
- Roth, W. M., & Lee, Y. J. (2007). "Vygotsky's neglected legacy": Cultural-historical activity theory. *Review of Educational Research*, 77(2), 186–232. doi:10.3102/0034654306298273
- Rubens, W., De Jong, Y., & Prozee, G. (2006). *Trendstudie Nieuwe vormen van onderwijs voor een nieuwe generatie studenten. [Trendstudy new forms of education for a new generation of students]*. Utrecht University: Expertisecentrum ICT in het onderwijs, IVLOS.
- Rutgers, A. (2007). *Bovenbouwers en kritisch internetgebruik: feiten en zes tips. [Students in the second half of secondary education and critical use of the internet: facts and six tips]*. Retrieved November 10, 2007 from <http://www.ictopschool.net/kennis/vraagstukken/0092/voortgang/kennis>
- Sandford, R., Ulicsak, M., Facer, K., & Rudd, T. (2006). *Teaching with games. Using commercial off-the-shelf computer games in formal education*. Retrieved September 17, 2007 from <http://www.futurelab.org.uk/research/>
- Schulmeister, R. (2008). *Gibt es eine Net generation? [Does a Net generation exist?]*. Retrieved January 25, 2009 from: [www.zhw.unihamburg.de/pdfs/Schulmeister\\_Netzgeneration.pdf](http://www.zhw.unihamburg.de/pdfs/Schulmeister_Netzgeneration.pdf)
- Sefton-Green, J. (2006). Youth, technology, and media cultures. *Review of Research in Education*, 30, 279. doi:10.3102/0091732X030001279 (chapter 8)
- Shaffer, D. W. (2006). *How computer games help children learn*. New York: Palgrave MacMillan.
- Shaffer, D. W., & Gee, J. P. (2005). *Before every child is left behind: How epistemic games can solve the coming crisis in education (WCER Working Paper No. 2005-7)*. University of Wisconsin-Madison, Wisconsin Center for Education Research. Retrieved September 17, 2007, from [http://www.wcer.wisc.edu/publications/workingpapers/WorkingPaper\\_No.2005.7.pdf](http://www.wcer.wisc.edu/publications/workingpapers/WorkingPaper_No.2005.7.pdf)

- Siongers, J., & Stevens, F. (2002). Esthetica voor gevorderden. Over smaken en mediavorkeuren. [Advanced aesthetics. About taste and media preferences]. In M. Elchardus, & I. Glorieux (Eds.), *De symbolische samenleving* (pp. 53–84). Tiel: Lannoo.
- Skiba, D., & Barton, A. (2006). Adapting your teaching to accommodate the net generation of learners. *OJIN: The Online Journal of Issues in Nursing*, Vol. 11, No. 2, Manuscript 4. Retrieved February 18, 2009, from [www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume112006/No2May06/tpc30.416076.aspx](http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume112006/No2May06/tpc30.416076.aspx).
- Tapscott, D. (1998). *Growing up digital: The rise of the net generation*. New York: McGraw Hill.
- Thomas, W. I. (1928). *The child in America*. New York: Alfred Knopf.
- Van den Beemt, A., Akkerman, S., & Simons, P. R. J. (2009, August). Patterns of interactive media usage among today's youth: Results of a survey. In *Paper presented at the JURE/EARLI conference* Amsterdam, The Netherlands.
- Van den Beemt, A., Akkerman, S., & Simons, P. R. J. (2010). The use of interactive media among today's youth: Results of a survey. *Computers in Human Behavior*, 26, 1158–1165. doi:10.1016/j.chb.2010.03.022
- Van den Boomen, M. (2000). *Leven op het net: De sociale betekenis van virtuele gemeenschappen*. [Living on the net: The social meaning of virtual communities]. Amsterdam: Instituut voor Publiek en Politiek.
- Van den Brink, G. (2007). *Moderniteit als opgave. Een antwoord aan relativisme en conservatisme*. [Modernity as assignment. A reply to relativism and conservatism]. Amsterdam: Sun.
- Veen, W., & Jacobs, F. (2005). *Leren van Jongeren*. [Learning for young people]. Utrecht: Stichting Surf.
- Volman, M. (2007). *Jongleren tussen traditie en toekomst: De rol van docenten in leergemeenschappen*. [Juggling between tradition and future: The role of teachers in learning communities]. Amsterdam: Onderwijscentrum VU1.
- Weber, S., & Mitchell, C. (2008). Imaging, keyboarding, and posting identities: Young people and new media technologies. In D. Buckingham (Ed.), *Youth, identity, and digital media* (pp. 25–47). Cambridge: The MIT press.
- Wijnberg, (2007). *Boeih! Het stille protest van de jeugd*. [Whatever! The silent protest of youth]. Amsterdam: Prometheus.
- Williams, D. (2006). Why game studies now? Gamers don't bowl alone. *Games and Culture*, 1(1), 13–16.