Teens @ Culture: The Online Communications of Dutch High School Teenagers on Popular and Highbrow Culture

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Abstract

Teenagers' interest in highbrow culture like classical music, museums and plays is somewhat low, but this group's extensive Internet use may heighten this interest and increase their cultural participation online. In contrast to previous research, we examined teenagers' online involvement in both popular and highbrow culture. An investigation among 892 high school teenagers indicated that explanations from the fields of cultural participation and media use account for differences in online cultural involvement. Teenagers with parents who are more highly educated and culturally active, and those with culturally interested friend are in turn more interested in culture, and communicate online more about both highbrow and popular culture. In addition to interest and socialization, there appears to be a minor mobilization effect of Internet use, as those with better digital skills and spending more time online engage more in online cultural communications.

Keywords

Teenagers, cultural participation, highbrow culture, popular culture, online communication, Internet, socialization, digital skills

Introduction

Cultural participation increasingly takes place online and not only in places such as museums, theatres and concert halls. The soaring availability of online cultural activities offers new ways to get involved, which may be especially relevant for teenagers who participate little in offline cultural activities but use media

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extensively (Livingstone and Haddon, 2009). In the online activities of this group, popular culture is omnipresent; they listen to and share music and video clips with their friends, watch films and upload self-created content (boyd, 2008; Hargittai and Walejko, 2008). Highbrow culture is also incrementally available online, with classical music, plays and museum collections accessible on the Internet.[1] However, the extent to which teenagers participate in these online highbrow cultural activities is as yet unknown.

Teenagers' cultural participation used to be particularly determined by the main socialization institutions, the family and school, as cultural participation derives from an interest in culture that is developed by socialization in early life (Bourdieu, 1984; Ganzeboom, 1989). This transmission of cultural values, especially regarding highbrow culture, was previously almost exclusively visible among the higher-educated. In the 'mobile youth culture' (Castells et al., 2007) or online youth culture, traditional patterns of influence have changed. In particular, social media allows teenagers to consume and produce online content and communicate with their social network without being bound to physical locations or time (Hargittai and Walejko, 2008; Jenkins, 2006). '[…] these new technologies move young people away from the sphere of influence of traditional socialization structures, such as the home, educational system, and broadcast media, while providing an ever-widening range of socializing and identification options' (Castells et al., 2007: 141).

In this study, teenagers' online highbrow and popular cultural participation is investigated by reflecting on the changes in cultural socialization and the increased influence of youth culture. In order to reduce the complexity of the multifaceted concept of online cultural participation, we focused on one of the most popular online activities among teenagers: teenagers' online communication. The other two user roles that have been distinguished in research on children's online risks and opportunities, information searching activities (content) and their creation of new online content (conduct) have been left out of consideration (Hasebrink et al., 2009). By looking at the extent to which teenagers communicate online about cultural topics, we investigated how the differences in online communication about highbrow and lowbrow culture can be explained.

The question addressed in this study is: To what extent do teenagers communicate online about highbrow and popular culture, and how can differences in online cultural communication be explained?

To answer this question, we used a large-scale survey concerning the offline and online cultural participation of Dutch high school teenagers. We specifically focused on receptive cultural activities which include teenagers' visits to and online discussions about, for instance, museums, pop concerts and cabaret. The Netherlands is an interesting case to investigate for two reasons. First, it is one of the leading countries in terms of Internet diffusion, with 98 per cent of its 15- to 25-year-olds online in 2008 and 100 per cent of those aged 12–15 (CBS, 2014). The widespread use of the Internet means that cultural institutions can potentially reach almost all teenagers. Second, increasing the extent of cultural participation has been a particular issue in Dutch education policy, and resulted in the introduction of special cultural courses in schools and the availability of significant funds for cultural institutions to digitize material and make it publicly accessible. Nevertheless, Dutch youngsters appear to

be more negative about highbrow cultural activities than their European counterparts (Van Eijck and Knulst, 2005).

Cultural and Media Socialization

Parents as Socializers

Parents play a key role in their children's cultural and media socialization. They promote personal development of their children, perform socializing activities to encourage certain kinds of behaviour and are role models whose behaviour is consciously and unconsciously imitated (Bandura and Walters, 1963; Notten and Kraaykamp, 2009). Cultural socialization is especially influential in the long term if one is familiarized with certain behaviour at a young age (Ganzeboom, 1989; Nagel, 2010). Consequently, teenagers who have more culturally active parents are likely to be more culturally active themselves. This socialization may not only influence teenagers' offline cultural participation, but is also expected to be visible in their online cultural activities.

Cultural socialization within families used to be stratified by parents' social background. As stated by status attainment theory, the higher-educated have traditionally participated and socialized their children more in highbrow culture, with the goal being to build cultural capital and distinguish the family from others who are less well educated (Bourdieu, 1984; Ganzeboom, 1989). Indeed, involvement in cultural activities was regarded as part of a 'classical ideal of civilization (*Bildungsideal*)' (Van Eijck and Knulst, 2005: 513). In addition, as formulated by the information theory, the higher-educated have better cognitive skills and cultural competencies (Ganzeboom, 1989), which enables them to derive more pleasure from participation in highbrow cultural activities, than their lower-educated counterparts. This stratification is also visible in media socialization and media use. Children of higher-educated parents are more often confronted with and more often encouraged to use complex media like literacy reading and watching informational television programmes (Kraaykamp, 2003; Notten and Kraaykamp, 2009). Parents influence their children's media use through their own behaviour and by encouraging participation in certain media activities. Since especially higher-educated parents themselves more often use complex media and promote its use, their children may be more likely to participate in and discuss highbrow cultural content.

Higher-educated parents not just promote teenagers' highbrow cultural activities. Indeed, Peterson (1992, 1997) has shown that the higher-educated participate more in both highbrow and popular culture than their lower-educated counterparts. This notion of the cultural omnivore has been predominantly investigated among adults. However, in an explorative study, Van Wel et al. (2008) identified the notion of the 'cultural omnivore' in their research on youth cultural participation. In line with this notion and the cultural and media socialization referred to above, we expected that higher-educated and more culturally active parents promote the online participation of teenagers in both popular and highbrow culture:

> H1: Teenagers with higher-educated and more culturally active parents are more likely to participate online in popular and highbrow culture than teenagers with lower-educated and less culturally active parents.

Cultural and Media Socialization at School

Along with parental cultural socialization, schools in the Netherlands have a specifically defined role in transmitting cultural values to their students. As part of the curriculum, students participate in the arts course CKV (Cultural Artistic Education)—introduced in 1999 to encourage the cultural involvement of teenagers by compelling them to visit—for instance, plays, museums and concerts (Nagel et al., 2010). Although hoping to have long-term effects, research has indicated that the course only has a short-term influence in terms of heightened cultural participation of students during their high school years (Nagel et al., 2010). In addition to the CKV course, several schools differentiate themselves by paying special attention to culture in their curriculum and cooperating with cultural institutions. This extra attention is not specifically related to the level of education of the schools, and is therefore interesting to investigate. Indeed, Kröner et al. (2013) did not find differences in teenagers' receptive highbrow cultural participation among different school tracks and suggest the need of further investigation of the possible influence of schools' cultural profiles on teenagers' cultural activities.

Besides promoting offline and online cultural participation through the attention paid to culture, schools may also have a role as media socializers. As educators, teachers may encourage teenagers to utilize applications other than those they would normally use. Teachers at Dutch high schools increasingly use information and communications technology (ICT) in their classes, and the quality and level of ICT facilities has improved (Kennisnet, 2011). However, even though ICT use at schools has become a common practice, there are still differences in the type of facilities, the degree of ICT experience and policies and agreements at the management level (Kennisnet, 2011; Plantinga and De Heer, 2009). In particular, schools that promote a clear vision and ICT use among teachers and students may encourage the latter to use more and different ICT applications. This might in turn stimulate their students' online cultural participation.

> H2: Students at schools with a more active cultural curriculum and better ICT facilities communicate online more about highbrow and popular culture than those at schools with a less active cultural curriculum and fewer ICT facilities.

Peers and Youth Culture

Popular cultural activities like going to the cinema and pop festivals are part of young people's interests and youth culture, while visits to museums and classical music are often not viewed as appealing. The growing importance of youth culture may be a sign of the changed cultural socialization of youngsters, as this culture and peer groups have become increasingly important in the formation and shaping of teenagers' interests and identity, partly at the cost of parents' influence (Baym, 2010).

The influence of peers and youth culture may have become more prominent with the growing use of new communication technologies which have increased teenagers' opportunities to express themselves and communicate with their social networks (boyd, 2008; Castells et al., 2007). Online interaction is predominantly with their peers, and they mainly communicate about their interests and daily life activities

(Awan and Gauntlett, 2013; Gross, 2004; Valkenburg and Peter, 2007). Hence, an interest in culture is likely to be reflected in teenagers' online communication. This expectation is supported by the notions that teenagers are likely to have friends with similar interests (cf. McPherson et al., 2001; Nagel et al., 2011), and that they communicate online about these interests with their peers (Gross, 2004). Accordingly, teenagers who are culturally interested themselves and have culturally interested friends are expected to communicate online more about culture than teenagers with fewer cultural interests and friends who are less culturally interested. These interests and the influence of peer interests are not restricted to popular cultural forms that are part of the youth culture. Indeed, as teenagers discuss their own and their peers' interests, those with an enthusiasm for highbrow culture and those with peers who have the same passions are expected to communicate more about highbrow culture online.

Not only the cultural interest of their social network, but also teenagers' Internet use and digital skills are likely to influence their online communication about culture. Although teenagers spend a significant part of their time online and have been described as 'the net generation' or as 'digital savvy' (Tapscott, 1998), there are clear differences in their use of the Internet and their ability to use online applications (Hargittai, 2002; Westlund and Bjur, 2014). Boys, older children and the higher-educated are more skilled than girls, younger children and those with a lower level of education (Hargittai and Shafer, 2006; Sonck et al., 2012). A higher level of digital skills and spending more time online results in fewer problems in using communication tools, finding and evaluating information online and using the Internet for a wider variety of purposes (Gui and Argentin, 2011; Sonck et al., 2012). Similar to findings from the political domain (cf. Hargittai and Shaw, 2013), it is therefore expected that spending more time online and possessing a higher level of digital skills results in more time being spent on online cultural activities and, as a result, more communication about culture.

> H3: Teenagers with culturally active friends communicate online more about popular and highbrow culture than those with less culturally active friends.

> H4: Teenagers who are more interested in offline cultural activities are more likely to communicate online about popular and highbrow culture.

> H5: Teenagers with better digital skills and those spending more time online communicate online more about popular and highbrow culture than those with fewer digital skills and those spending less time online.

Design and Sample Description

To answer the research questions and test the hypotheses, the 'ICT at Schools' 2008 survey was used. This large-scale survey was the fifth act of data collection as part of the 'Youth and Culture' research project of the Netherlands Institute of Social Research and VU University Amsterdam. The questionnaires used have changed over time, but each act of data collection is based on previous waves (Nagel, 2006). The main aim of the 2008 wave was to provide insight into teenagers' media use and their offline and online cultural participation (Schols et al., 2011).

The ICTS 2008 survey contains information of 1592 high school teenagers, aged 12–18, from 32 different high schools. Teachers filled out questionnaires about the

ICT use and cultural activities of the schools which were located in both smaller and larger communities throughout the Netherlands. The selected schools were intended to reflect the circumstances of Dutch teenagers in secondary education (Prins and Konijn, 2008). Using a stratification method, 196 classes were selected according to their educational level (low: VMBO, middle: HAVO and high: VWO). A total of 167 classes participated and half of their students were asked to take part in the survey (response rate of 85 per cent). Since the decision to also survey the teachers was made late in the process, only 67 of these professionals participated and information from several schools is therefore lacking (Prins and Konijn, 2008). A further explanation of the procedure follows in the method section.

Construction of Instruments

Online Communication about Popular and Highbrow Culture

The teenage participants indicated the frequency of their online communication about popular cultural topics (10 items) and highbrow cultural topics (7 items) on a three-point scale (1 = never, 2 = sometimes, 3 = often). Teenagers communicate online particularly about popular culture, especially about music (31.0 per cent often, 35.8 per cent sometimes), TV shows (21.9 per cent often, 45.4 per cent sometimes) and films (10.84 per cent often, 52.03 per cent sometimes). Highbrow cultural topics are discussed by fewer teenagers and less frequently. While 20.65 per cent of the participants sometimes communicates online about books and/or writers (and 2.37 per cent often), art (1.4 per cent often, 12.3 per cent sometimes) and ballet (2.4 per cent often, 11.6 per cent sometimes) are discussed by very few teenagers and much less often. In total, 83 per cent of the surveyed teenagers indicated that they have discussed one or more popular cultural topics online.[2] A variable was created measuring the number of popular cultural topics that teenagers discussed online (Cronbach's α = .83) (see Table 1). Since only 39 per cent of the respondents communicated about highbrow cultural topics online—and most of them about only one subject—a dichotomous variable was created measuring whether teenagers communicate about highbrow cultural activities (0 = discuss no highbrow cultural topics, 1 = discuss one or more highbrow cultural topics) (Cronbach's α = .81).

Educational Level of Parents

The educational level of the parents was based on the highest education level of the mother or father as reported by each respondent. So, if one of the parents was more highly educated than the other, the level of that parent was taken as the indicator of the parents' overall education level. A variable was created with three levels (1 = low, 2 = middle, 3 = high).

Cultural Interest

To assess cultural interest, we used questions measuring the offline cultural participation of teenagers, their parents and their peers. For 12 different offline, receptive, cultural activities, teenagers indicated on a five-point scale (ranging from 1 = (almost)

Table 1. Description of the Variables

	Range	M	SD	n
Online communication about popular culture	0–10	4.22	2.95	886
Online communication about highbrow culture	0–1	0.39	0.49	886
Gender [a]	0–1	0.54	0.50	886
Age	12–18	14.86	1.44	886
Education level	1–3	Low = 24.3%; middle = 44.7%; high = 31.0%		886
Education level parents	1–3	Low = 21.6%; middle = 33.6%; high = 44.8%		886
Cultural participation parents	0–9	3.94	2.56	886
Cultural participation peers	0–12	7.75	2.87	886
Cultural participation teenagers	0–12	4.77	2.87	886
Time spent online	0–8	2.61	1.82	886
Digital skills	0–6	4.40	1.27	886
Culture at schools (Index 1)[b]	0–23	15.01	4.72	543
ICT at schools (Index 2)[c]	0–18	9.26	4.24	561

Source: ICT at Schools 2008 (ICTS, 2008).
Notes: [a] Reference category is 'male'.
        [b] 21 schools.
        [c] 22 schools.

never to 5 = approximately once a month) their participation in/attendance at events including the cinema, pop/rock festivals, museums and classical music concerts (Cronbach's $\alpha = 0.80$). Since the frequency of participation was low, it was decided to count the number of different cultural activities that teenagers participated in. The offline cultural participation of their parents was measured similarly, with respondents being asked about how often their parents got involved in nine different cultural activities (Cronbach's $\alpha = 0.80$). A variable was created measuring the number of different activities that parents took part in. For the cultural participation of their peers, teenagers were asked how many of their friends participated in 12 different cultural activities on a four-point scale (ranging from 1 = none to 4 = nearly all friends) (Cronbach's $\alpha = 0.81$). Similar to the cultural participation of friends and parents, a variable was created measuring the number of different activities that their friends participated in.

Internet Use and Digital Skills

The time that the teenagers spent online was measured by the average number of hours they spend on the Internet per day. To reduce the influence of outliers, the maximum number of online hours was set at eight, which meant re-coding values for

51 respondents. This is in line with the assumption that teenagers spend a certain number of hours offline, for instance, during the day at school and at night when they are sleeping.

To measure digital skills, respondents were asked whether or not they could perform certain computer and Internet activities. These activities were based on the three types of digital skills identified by Steyaert (2002): instrumental skills (operational skills, or the capacity to work with hardware and software), structural skills (the capacity to search and process information on the computer and on the Internet) and strategic skills (the use of information to achieve certain goals). We investigated the influence of the instrumental skills because teenagers apply these in their online cultural participation and communication. Furthermore, the instrumental scale has an acceptable reliability (Cronbach's $\alpha = 0.63$), while the other two scales do not.[3] The items were added together to form an index reflecting the number of these skills that the teenagers were able to perform.

ICT and Culture at Schools

Teachers were questioned on the extent to which schools pay attention to ICT and culture. These questions related to the presence of ICT equipment and infrastructure at schools, the use of these facilities for education and whether schools developed policies around ICT use for educational reasons (Cronbach's $\alpha = 0.61$). The questions regarding culture related to the specific attention paid to culture within and outside the curriculum, cooperation with and visits to cultural partners (e.g., libraries, theatres) and the opportunities for teachers to organize cultural activities (Cronbach's $\alpha = 0.87$). As the decision to gather information about schools by distributing questionnaires among teachers was taken at a later stage in the preparation of the fieldwork, data was collected from just 22 of the 36 schools (543 students) approached. The two indices were constructed by adding up the scores on the different questions.

Control Variables

The analysis was controlled for the gender, age and education level of the teenage participants. Education was divided into three levels (low, middle and high), corresponding to the Dutch school system (VMBO, HAVO and VWO). Comparing the sample to the population shows that the lower-educated are somewhat underrepresented.

Data Analysis

A difficulty with the ICTS 2008 survey data is the relatively high number of missing values. An exploration of these values indicated that they are at random. Accordingly, as there were no patterns or significant correlations found among the missing values, it was decided to proceed with listwise deletion in order to produce comparable models. This is a suitable strategy for values that are missing at random (Allison, 2009). A disadvantage of the technique is the loss of power in the analyses. However, due to this loss, any differences that are found to be significant can be interpreted

with great confidence. Listwise deletion left us with 892 respondents. We also had information about their schools for 547 of them. Stata version 12 was used to analyze the data.

Findings

Differences between Schools

We first investigated whether the attention paid to culture in schools and their ICT infrastructure and usage led to differences between them in the extent to which teenagers communicate online about culture. A multilevel linear regression analysis (Hox, 2010) indicated that the differences within the schools were greater than those between them (low intraclass correlation of $\rho = 0.03$). Furthermore, the minor differences between the schools were explained by the demographics of the teenagers, and not by school characteristics. Adding the demographics to the multilevel model indicated that such a model does not significantly differ from a linear regression model, χ^2 (1, $N = 886$) = 1.56, $p = 0.11$. This means that there are no differences in online communication about culture left for the school-level variables to explain. From these findings, it appears that the teenagers' online communication about culture is not affected by whether they attend schools that promote culture and ICT use more. This means that Hypothesis 2 cannot be confirmed. Since the school-level variables do not explain differences in the online communication of teenagers, they were not included in further analyses.

Analyzing Online Communication about Popular and Highbrow Culture

The dependent variable of online communication about popular culture was constructed by counting the number of popular cultural topics that teenagers discussed online. It therefore followed a Poisson distribution. Since the dependent variables revealed additional variance, a negative binomial regression model is most suitable for analyzing the differences between online cultural communications about popular culture.[4] For the binary dependent variable of online communication about highbrow culture, a logistic regression model was calculated by comparing the teenagers who communicate online about highbrow culture with those who do not. In our analyses, we used robust variance estimation to control for the clustering of respondents within schools. This method produced consistent standard errors for the clustered data by allowing observations to be correlated within the schools, but treated observations among different schools as independent (see Rogers, 1993).

What Influences Online Communication on Highbrow and Popular Culture?

Online communication about popular culture is much more prevalent among teenagers than online communication about highbrow culture (see Table 2). They especially discuss topics related to music (31.0 per cent often, 35.8 per cent sometimes), but rarely art (1.4 per cent often, 12.3 per cent sometimes). Discussions of highbrow

Table 2. Negative Binomial Regression Analysis with Robust Standard Errors (Controlling for Clustering) of Online Communication about Popular Culture,[a] and Logistic Regression Analysis of Online Communication about Highbrow Culture[b]

	Online Communication about Popular Culture[a]	Online Communication about Highbrow Culture[b]
Female (ref. is male)	1.168**	2.651**
Age	1.036	0.965
Education level		
VMBO (ref.)		
HAVO	0.947	1.334
VWO	0.922	1.537*
Education level parents		
Low (ref.)		
Middle	1.041	1.166
High	0.925	1.086
Cultural participation parents	1.027	1.078
Cultural participation peers	1.052**	1.146**
Cultural participation teenagers	1.077**	1.228**
Digital skills	1.068**	1.077
Time spent online (in hours)	1.052**	1.148**
Intercept	0.643	0.019

Source: ICT at Schools 2008 (ICTS, 2008).
Notes: * $p < 0.05$, ** $p < 0.01$.
[a] Presented are Incidence Rate Ratios. Example of interpretation: If a teenager spends one more hour online, holding other variables on the model constant, his rate for online communication on popular culture would be expected to increase by a factor of 1.052.
[b] For online communication on highbrow culture, the odds ratios are presented. Example of interpretation: If a teenager spends one more hour online, holding other variables on the model constant, the odds of communicating online about highbrow culture (versus not communicating about highbrow culture) increase by a factor of 1.150.

and popular cultural topics are, however, strongly related; teenagers who communicate online more about highbrow culture are often also the ones who communicate more about popular culture ($r = 0.55$, $p < 0.01$).

Similar to the socialization of offline cultural participation, it was expected that parents would influence their children's online cultural involvement. Indeed, the correlations identified show a very strong association between parents' offline and teenagers' online cultural participation (see Appendix 1).[5] However, in the regression analysis, parents' cultural participation has no significant effect on teenagers' online communication about popular and highbrow culture. Furthermore, we did not find differences between teenagers with higher-educated and with lower-educated parents. The findings contradict Hypothesis 1. However, although these findings appear to show that traditional explanations regarding parents' cultural lifestyles and statuses do not apply to teenagers' online cultural behaviour, a further exploration shows that the expectations formulated in Hypothesis 1 cannot be

completely disregarded. Instead of a direct influence, parents' cultural participation and education level indirectly influence teenagers' online cultural communication. An additional negative binomial regression analysis on teenagers' offline cultural participation shows that teenagers with higher-educated and culturally active parents are more culturally active offline (results can be provided upon request). Since teenagers who are culturally active offline also communicate more about both highbrow and popular culture, confirming Hypothesis 4, we can conclude that higher-educated and culturally active parents socialize their children culturally. This cultural socialization indirectly promotes teenagers' online cultural activities.[6]

Along with the cultural socialization by parents and schools, it was expected that peers and the online or mobile youth culture would be particularly influential for teenagers' online cultural participation. Our results confirm the expectation formulated in Hypothesis 3: The offline cultural participation of peers is positively related to teenagers' online communication. These findings imply that because individuals' online and offline social networks largely overlap (Hampton and Wellman, 2003; Haythornthwaite and Wellman, 2002), teenagers may communicate online, especially with friends, about their shared interests. Indeed, teenagers with more culturally active friends not only discuss popular cultural activities, but are also more likely to communicate online about highbrow cultural activities.

Furthermore, teenagers' media use is also positively related to their online communication about culture. Teenagers with better digital skills and those spending more time online are more culturally active online. Teenagers who spend more time online communicate about more popular cultural topics and are more likely to communicate about highbrow culture. Spending more time online may increase the time spent on different activities, including communication on cultural topics. Teenagers with more digital skills communicate about more popular cultural topics online. However, there is no difference in the likelihood of communicating about highbrow culture between teenagers with more and fewer digital skills. Teenagers with fewer skills do not differ from their counterparts with more of these digital skills in terms of their likelihood of communicating about topics like museums, classical music and ballet. Consequently, our expectation about the positive relationship between Internet use and digital skills (Hypothesis 5) can only be confirmed for online communication about popular culture.

The significant effects of internet use and digital skills remain after controlling for the offline cultural participation of teenagers, their parents and their peers, signifying an independent influence of the media-related variables. The effect of Internet use is even somewhat stronger when controlling for the offline cultural participation of parents, teenagers and the educational level of parents than in an analysis without these three variables. This latter finding is caused by the negative correlation between Internet use, educational level of parents and the offline cultural participation of parents and peers. Teenagers with higher-educated parents, with more culturally active parents and with more culturally active peers spend less time online. The independent influence of digital skills and Internet use may indicate a mobilization effect of Internet use and digital skills regarding online cultural participation, as spending more time online and having better digital skills is positively related to the online cultural involvement of teenagers, independently of their participation in culture. Another plausible explanation is that online communication about

culture provides an alternative to teenagers who are unable to participate offline in cultural activities or who have an offline social network that is not interested in culture. However, further research is needed before it can be concluded that the Internet can attract new audiences or provide an alternative for adolescents who are culturally interested.

Furthermore, in addition to the formulated expectations, the results indicate that girls communicate online about more popular cultural topics and are also more likely to communicate about highbrow cultural topics than boys. This corresponds with previous findings that girls in general communicate online more than boys, and that girls are more culturally interested than boys (Schols et al., 2011; Van Wel et al., 2008).

Conclusion

In this article, we examined the extent to which teenagers' online cultural participation is explained by cultural socialization of parents and schools and by the influence of peers and teenagers' use of new media. In contrast to previous research, the focus was not only on popular cultural topics that are a part of youth culture, but also on how teenagers communicate online about highbrow culture.

As expected, popular culture is more often the subject of teenagers' online conversations than highbrow culture. However, a significant proportion of teenagers in this study indicated that they have communicated online about at least one highbrow cultural topic. The differences in their online communication about culture are mainly explained by their own and their peers' offline cultural participation and their Internet use and digital skills. Peers are influential when it comes to teenagers' online communication about both popular and highbrow culture. Since teenagers communicate online mainly with their offline network, their online communication largely reflects the shared interests of teenagers and peers. Furthermore, spending more time online may lead to being confronted with greater numbers of different cultural topics and activities, resulting in more online communication about these topics. Higher levels of digital skills are positively related to online communication about highbrow and popular culture. Digital skills appear to be a precondition for online communication about both popular and highbrow culture (cf. Gui and Argentin, 2011). From this latter finding, one may conclude that online cultural participation is stratified along more different dimensions than offline cultural participation, as digitally savvy teenagers participate more in online communication about popular and highbrow culture.

In explaining differences in online cultural participation, peers, Internet use and their digital skills appear more important than the more traditional ways of cultural socialization by parents and schools. We found that parents have an indirect influence on their teenage children's online cultural participation via their offline cultural participation. In line with information theory and status attainment theory, teenagers with higher-educated and culturally active parents participate more in cultural activities offline (Ganzeboom, 1989; Nagel, 2010). In contrast to what was expected, we did not identify a socialization effect of schools. We did not find that the attention that schools pay to culture and their ICT infrastructure and use

had an influence on teenagers' online cultural communication. This finding does not necessarily mean that schools have no influence on teenagers' cultural interests and ICT use. The attention paid to culture at schools may increase the overall cultural involvement of teenagers, due to the mandatory participation in the CKV cultural course (Nagel et al., 2010). The absence of the effect of attention paid to ICT use and infrastructure by schools could be explained by teenagers' rather limited ICT use at school compared to the hours they spend online in their leisure time (Kennisnet, 2011).

The positive influence of Internet use and digital skills may indicate a mobilization effect of Internet use on teenagers' cultural involvement. New media offer new possibilities for presenting culture and exchanging online cultural content. Indeed, we found a positive relationship between Internet use and online cultural participation of teenagers. However, more research is needed before the conclusion can be drawn that spending more time online and better digital skills promote online cultural participation. We measured offline cultural involvement and not interest in highbrow and popular culture. The new opportunities for cultural participation on the Internet may attract teenagers who are already interested but do not have the opportunities to participate.

Furthermore, from the available data, it is not possible to provide more insight into the content of the online conversations about culture, how they take place and with whom. For instance, are teenagers merely mentioning cultural topics online or are they involved in lively and substantive debates on cultural experiences and preferences? Their conversations about culture may have a negative connotation, for instance, with respect to their boredom or dislike of a museum visit with their parents or school. Moreover, do the new online opportunities also lead to more communication about culture with people outside teenagers' offline networks? Since music, films and TV shows are part of their youth culture, it would be particularly interesting to investigate the motives and Internet use of teenagers interested in highbrow culture and examine whether the online world provides an opportunity for culturally interested teenagers without a culturally interested network to share their interests with others. In addition, the distinction between highbrow and popular culture is especially visible in the different participation levels—teenagers communicate more about popular cultural topics than about highbrow cultural topics. It is interesting to investigate the extent to which teenagers themselves distinguish highbrow from popular culture, especially since certain groups participate more in all types of culture. Moreover, previous studies have found a gender gap in cultural participation, with girls participating more in all cultural activities (Van Wel et al., 2008). In online communication, this gender divide is possibly even more prominent because girls tend to use online communication applications more than boys (Schols et al., 2011).

The data was not gathered for the purpose of this study, and therefore some limitations have to be remarked. First, the questions regarding online and offline cultural participation do not have a specific time frame in the question. Although this makes it unclear whether teenagers discussed the different cultural topics or participated in cultural activities, for instance, in the previous month or year, our findings are similar to other Dutch, nationally representative surveys. Although we could not compare all items, because some items are different or not included the

surveys, we found similar percentages on visits to museum, plays, classical music and monuments as a nationally representative survey of 2007, asking respondents' participation in the 12 months prior to the survey (Van den Broek, De Haan and Huysmans, 2009). For the online cultural participation, there is no national or international comparable information. The benefit of the ICTS 2008 survey is that it measures cultural participation of teenagers and their social network in an extensive manner, providing insight in both offline and online cultural participation and teenagers' communication about both popular and highbrow cultural topics.

Second, although the different items were based on Steyaert (2002), only the items measuring instrumental skills show an acceptable reliability. Since 2008, the development of measurements of digital skills has continued. Future research may benefit from including these updated scales that show better reliability and consistency, and describe the required digital skills for current Internet use in a better way (cf. Hargittai and Hsieh, 2012; Van Deursen et al., 2012).

At the time of the data collection in 2008, nearly all teenagers had access to the Internet. Use of the internet and the opportunity to access it have increased in the meantime, especially with the introduction of new technologies like the smartphone and the tablet PC, and with the increased use of different social applications such as social networking sites. These developments support teenagers' social networks and increase their opportunities to communicate and the number of ways they can express themselves. Their online cultural participation and thereby also their communication about culture may have increased, especially with more opportunities to share the cultural content (e.g., posting or sharing videos and music online). From our research, it appears that the cultural interest and a culturally interested environment are important predictors of online cultural activities. Although those who spend more time online and have better digital skills communicate online more about culture, the cultural activity of their environment and whether teenagers themselves are interested in culture continues to be important. Therefore, we assume that even though we were unable to take the latest technological developments into account, the mechanisms found here can still be applied to today's teenagers.

Appendix 1: Sample Correlations (Pearson Correlations)

	Online communication popular culture	Online communication highbrow culture[a]	Educational level parents[b]	Cultural participation parents	Cultural participation teenagers	Cultural participation friends	Time online	Digital skills
Online communication popular culture								
Online communication highbrow culture[a]	0.55**							
Education level parents[b]	0.11**	0.17**						
Cultural participation parents	0.33**	0.27**	0.41**					
Cultural participation teenagers	0.46**	0.41**	0.32**	0.60**				
Cultural participation friends	0.37**	0.26**	0.21**	0.44**	0.49**			
Time online	0.09**	0.05	–0.10**	–0.14**	–0.09**	–0.16**		
Digital skills	0.11**	0.02	0.01	0.03	0.01	–0.05	0.27**	

Source: ICT at Schools 2008 (ICTS, 2008).
Notes: ** $p < 0.01$.
* $p < 0.05$.
[a] To calculate the Pearson correlations for highbrow culture, the count variable is used (and not the dichotomous variable). This count variable of online communication about highbrow culture measures the number of topics that respondents have discussed online.
[b] The correlations of educational level of the parents are spearman correlations.

Notes

1. For instance, Google Art, which enables virtual walks through museums. A well-known Dutch example is the Rijksmuseum, which made its online collection easily accessible through thematic ordering, online applications and a smartphone app.

2. We tested whether teenagers who have not discussed popular highbrow cultural activities are a specific selection compared to the group of teenagers who have discussed one or several popular highbrow activities. A Heckman selection was tested, which, in the first step, contained all of the independent variables, predicting whether or not teenagers communicate offline. In the second part of the model, the predictors of the offline cultural participation of teenagers and their friends, and teenagers' Internet use and digital skills were included to explain the extent to which teenagers communicate about culture online. The model was not significant, χ^2 (1, $N = 886$) = 1.08, $p = 0.30$, meaning that it was not necessary to control for any selections in the analyses.

3. We have included a sum score of the structural skills in the analyses, and found positive significant effects of structural skills on online communication about popular and highbrow culture. However, since the reliability of the scale was questionable (Cronbach's $\alpha = 0.34$), meaning that the results are difficult to interpret, it was decided to exclude structural skills from the analyses.

4. In a negative binomial regression model, over-dispersion is controlled for by adding an additional term to the Poisson distribution (see Beyerlein and Hipp, 2006).

5. The indicators for multicollinearity in regression analyses did not indicate multicollinearity (VIF was below 2 for the variables, and tolerance well above .4, see Allison, 1999).

6. To measure the indirect effects, a Structural Equation Model may be more suitable. More specifically for this data, a path model seems appropriate, because the offline and online cultural participation of teenagers, their peers and parents are measured by similar topics (cf. Kröner et al., 2012; Little et al., 2002). Moreover, the dependent variables consist of count data and therefore follow a Poisson distribution. A path model was calculated in which the nested structure of the data was controlled for by calculating robust error variances. The results of the path model are similar to the table with correlations and the outcomes of the negative binomial regression model (see Appendix 1). It was therefore decided to present the negative binomial regression models, as these control for the Poisson distribution of the dependent variables better.

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