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**Wired whizzes or techno-slaves?
Young people and their emergent
communication technologies**

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Today's youth are different from any generation before them. They are exposed to digital technology in virtually all facets of their day-to-day existence ... A communications revolution is shaping a generation and its world. (Tapscott, 1998a)

Although by no means in equal measure or with equal access, it is hard to imagine many young people experiencing life without computers, mobile telephones and the internet. Certainly in the world's richer countries, teens are all purported to be 'connected,' 'wired,' 'networked' or 'online.' Reflecting the common representation of teens as being somehow innately media-savvy and media-dependent, today's teens have been branded the 'net generation' or 'N-Gen,' and as 'cyberkids.'

In this chapter we want to examine the reality behind these labels by examining the place of emergent technologies in the lives of young people. In doing so, we review and synthesize some of the key research in this area, highlighting the principal topics and potential issues of interest for future study. Although much has been published in the popular media, until fairly recently relatively little had been written from a more scholarly perspective. The overview we offer here is based on a wide range of academic research dispersed through a variety of disciplines including geography, sociology, psychology, education, com-

munication and media studies. Studies reviewed also include surveys and quantitative data analysis, ethnographies, interviews, observations, content analyses and focus groups. In addition, we have chosen to supplement this scholarly work by including background information from so-called ‘webmetrics’ (i.e., surveys of internet users and usership patterns) provided by independent research organizations or commercial analysts between 2000 and 2002.^[2] Any webmetrics data needs to be contextualized within its for-profit, non-peer-reviewed status; nonetheless, given the ever-changing landscape of technology, these user surveys are useful in pointing to emergent conditions of use and other potential trends. (For the sake of clarity, we have listed these various citations as a series of ‘weblinks’ to be found on the following webpage: <<http://faculty.washington.edu/thurlow/teen-webmetrics>>.)

We focus our review specifically on digital communication technologies which allow for interpersonal interactions, rather than on those classified as mass media. This allows us to review some of the many ways that technologies such as the internet and mobile telephones are influencing and are influenced by teens’ self-identity, relationships, social practices, family, schools, language and peer social groups. The first section of our chapter reviews the literature about the use patterns and demographics of young people who are using emergent technologies. This section also includes the reported effects of specific communication technologies, focusing on examples of computer mediated communication such as emailing, instant messaging, online gaming, and online chat. We then briefly consider the mediation of social interaction by mobile telephony (e.g., text messaging or SMS ‘short messaging services’). In the final section of the chapter we take a broad look at some of the key issues related to young people and technology use, cutting thematically across all types of emergent media.

The demographic reality of the ‘net generation’

Can’t understand what teenagers are talking about? You’re not alone. ...the Queen’s English makes way for a new kind of slanguage... (Appleyard, 2001)

Young and free but tied to the mobile. (Bryden-Brown, 2001)

As an example of a popular, nonacademic writer in this area, Tapscott (1998b) has suggested that the cultural life of the ‘net generation’ exhibits what he sees as certain key qualities, including:

- strong independence and autonomy;

- emotional and intellectual openness;
- greater social inclusion with technology;
- free expression and strong views;
- investigative interest in technology; and
- sensitivity to corporate interest.

Like much that is currently being written about the interplay between young people and new technologies of communication, however, Tapscott's observations are unfortunately somewhat impressionistic and oversimplistic—as such they are not unlike the kinds of media representations cited earlier. Not only do they present an overly homogenous, US-centric characterization of 'youth culture,' but they also fall into the trap of uncritical (or technologically deterministic) claims about the power of the internet to *necessarily* engender curiosity and an acceptance of diversity. Like a lot of writing about new media, this type of commentary also tends to avoid reflecting on the influence teens are having on technology. Additionally, although Tapscott's description may fit some young people, not all of them are eager users of technology nor do all teens have access to technology that the above description portrays. By contrast, research such as that by Livingstone (1998), Buckingham (1998, 2000), Holloway and Valentine (2001), and, in the United States, the Pew Research Foundation mark precisely the kind of ethnographically rich, demographically nuanced contributions which are now being made by scholars looking to understand where and how young people's communicative and other social practices are being reorganized by the emergence of technologies such as the internet.

The media rich and the media poor

The use of new technologies of communication such as the internet/web and mobile telephony continues to be the privilege of only a very small number of young people worldwide. Surveys by commercial internet providers find that as little as 10 percent of the world's population is actually online (Weblinks 1, 11 & 12). Although global patterns of technological inequalities are surely changing (Weblink 7), these newer technologies of communication principally remain the privilege of rich countries. Within these countries, it is also the wealthy and more educated who invariably continue to have greatest access to emergent technologies. So, although the popular image is one of all teens with cellular phones in their pockets, it is important to remember that the place of communication technologies in young people's lives is always relative. Notwithstanding this, and however polarized and unequal the distribution of internet and mobile

phone technologies are, technologies such as the internet are unquestionably significant in the lives of those young people who do have access.

In the countries with strong online and computer infrastructure, teenagers are a significant force. In Europe, teenagers are believed to account for at least 12 percent of the total online population (Weblink 3). In the United Kingdom, for example, 75 percent of all 7- to 16-year-olds are internet users (Weblink 4). This number is similar to that in the United States, where teens also have a level of access to computer technologies which is higher than that of the average adult. Families with children are likely to be those with home computers, and teens increasingly have opportunities to access digital technologies at school and through community organizations. Figures supplied by commercial sources also show how rapidly young people's internet use is growing in many other countries around the world (e.g., Italy, Austria, Canada, Taiwan, South Korea).¹³ In spite of increasing access, even in more 'internetted' countries like the United States, Canada and the Netherlands, not every adolescent can use or *wants* to use the technology available (Weblink 5). In their British ethnographic study, for example, Holloway and Valentine (2001) came across a number of teens who dis-identified with technology and were far less engaged than others in computer-related lessons. Not all young people are 'wired' nor are they necessarily attracted to technology just because it is 'new.'

Young people, then, can be divided into the 'ICT haves' and the 'ICT have-nots' (referring to 'information and communication technology')—or at least varying degrees of access and, thereby, varying technological literacies. Technological literacies, or so-called new literacies, include not only the ability to produce and understand texts but also the ability to use technology for social interaction, social practice, meaning negotiation, and the acquisition of skills and knowledge (Bruce, 2004). (The term 'technological fluency' is also used in a similar way, to include not only what people know about technology but what they can do with technologies so that they can adapt to change and organize their use of technology effectively.) Within countries where there is high internet penetration, technological access and literacies are again still influenced heavily by socioeconomic-related status; young people with parents who have professional, educated backgrounds are simply more likely to use the internet and therefore more likely to socialize their children into usage.

Ethnicity and race too play a factor in the access and use of technology. For example, surveys (e.g., Weblink 6) indicate that, within the United States, ethnic background is still a strong indicator of access, with 25 percent of young Latino people never having gone online, compared with 6 percent of young White and 13 percent of young Black people. Similarly, where 80 percent of White teens have internet access at home, the figures are noticeably smaller for young Black (66 percent) and Latino (55 percent) people. US internet users also

show a marked difference between urban and rural internet use; whereas two-thirds of urban and suburban Americans are online, only half of rural Americans are online (Bell *et al.*, 2004). Certainly, more work is needed in this area to address the particular and persistent challenges faced by technologically marginalized young people such as these.

The digital sex divide in adolescence

Early research about gendered computer use presents a well-documented concern about unequal participation and interest in ICT by men/boys and women/girls—and especially with regard to computer technology (see, for example, Morahan-Martin, 1998). Most typically, writers were agreed on the existence of a digital sex divide by which males dominated internet use. For example, Chen's (1987) study of sex differences in the use and attitude toward computers demonstrated that at that time boys were more likely to have taken a computer programming course, even though there were no differences between male and female students who had taken courses for more general applications. Boys also held more favorable attitudes toward computers relating to general interest and perceived skill. More recently, however, Subrahmanyam *et al.* (2001) have shown that, although more boys than girls report using computers in school, no such gender differences appear outside of school.

In the same vein, a report by the organization Kids.net contradicts the assumption that the internet is the preserve of the adolescent boy; in Britain, at least, as many 7- to 16-year-old girls as boys in the same age range use the internet (Weblink 4). Figures for the US adult population likewise show that the traditional divide between male and female internet/web users has been closing (Weblinks 2 and 9). Indeed, some of the most dramatic growth in internet usage has been found among young girls between the ages of 12 and 17 (Weblink 2). With young people in the United Kingdom, this has apparently been the case for some time (Weblink 10). Patterns of use do of course vary, and although boys remain more likely to use the web for entertainment and downloading software, girls typically orient to interactive spaces on the internet such as online chat and instant messaging.

Despite this preliminary evidence of the closing gender divide, the Center for Women and Information Technology <<http://www.umbc.edu/cwit/>> warns that women 'are still seriously under-represented as developers of IT, and they are often not well served as IT users.' Girls are entering science, math, engineering and technology careers at a much lower rate than boys of their age. What is more, in countries beyond North America and Europe, men are still the dominant users of the internet (Weblink 2).

The internet and young people's cyberculture

Teenagers and children constitute one of the fastest growing internet populations, with 77 million under 18s expected online globally by 2005. They also constitute the most important user population, with their adoption of the internet essential to ensuring its future (Weblink 13). As one of the most well-known US-based surveys of its kind, a Pew report on the Internet and American Life (2001) shows how the internet is increasingly important in children's lives, so much so that time spent with television in young people's lives is increasingly being replaced by time spent on the internet. By contrast, the telephone (terrestrial and mobile) appears to be holding its own. The telephone continues to be young Americans' main tool for communicating with friends. Research in the United Kingdom which has centered on young people's communication experiences also shows how predominant the telephone is in the lives of young people—often more so for girls than for boys (Thurlow, 2001b). Likewise, Gross *et al.* (2002) comment on the continued use of the telephone by young US people as a means of sustaining friendships—perhaps augmented by more recent trends toward mobile telephony (discussed below). Once again, age seems to affect use patterns; for example, one large survey (Weblink 14) found that 56 percent of US 18- to 19-year-olds still prefer the telephone over the internet. Interestingly, another commercial survey of five thousand US 6- to 11-year-olds (Weblink 15) also indicates that children who use the internet are also more likely to use other media such as television, magazines and movies. Possibly confounding some adult expectations, these younger children were also found to be more likely to read books for leisure and to play more sports. Whether such patterns of consumption hold for teenagers is not clear; what these findings do reveal, however, is the extent and variability of young people's media use more generally, and the complex interplay of existing and emergent technologies.

Emailing and instant messaging

Email and instant messaging are perhaps the most common forms of online interpersonal communication. Surveys (e.g., Weblink 14) show not only that the internet has become a key communication tool for young people in the US, but how some 81 percent of 12- to 17-year-olds use it for emailing friends and relatives, whereas 70 percent use it for instant messaging. These statistics are even higher for older teenagers (18–19) at 91 percent and 83 percent respectively.

Just like adults, young people often use the internet to build meaningful new relationships, as well as to extend existing social networks (Parks & Floyd, 1996; see also Thurlow *et al.*, 2004 for a review of the literature). Young people use the internet most often for interpersonal communication and social contact, with some studies suggesting that girls in particular made strong use of this form of communication (Subrahmanyam *et al.*, 2001). In another study of teens and families online, teens identified possibilities for ‘verbal intimacy and egalitarian relationships’ through cyberdating, even though it is more often employed for “fleeting”, “fun” relationships that hold little consequence in the “real” lives of the teens who engage in them’ (Clark, 1998: 180). Gross *et al.* (2002) also talk about how the young people in their study were involved both in traditional means of social interaction and also spent time online; furthermore, time spent online was also often spent with offline friends. Emergent technologies such as instant-messaging are evidently not replacing but enhancing social interaction. (For a similar argument about mobile phones and text-messaging, see Thurlow, 2003.)

When young people do go online, their time is typically spent in social discourse rather than information research or ‘surfing’ (Weblink 16). Although email remains popular (especially among girls and young women), more synchronous forms of chat and online discussion are usually preferred, in which group or personal interaction is possible in real time, with or without levels of anonymity. The widely cited study of young people’s online activities by the Pew Internet and American Life project (2001) specifically examined the use of instant messaging by a representative sample of 754 young people in the United States between the ages of 12 and 17. What is striking about this study is just how essential this particular ‘technology-within-a-technology’ has become to young people’s social lives. Only 10 percent of those surveyed reported feeling that their use of the internet had had a negative impact on their friendships.

Online chatrooms

Chatrooms, or chat forums, offer young people an additional online discussion space where group members exchange synchronous conversational messages. Unlike instant messaging, however, these social spaces are usually more public and therefore open to participants outside teens’ usual or immediate friendship network. Most of the studies of internet-mediated language come from the study of more publicly available conversational environments such as these. One study of online chatroom discourse found that teens had altered the written text register to adapt to the visual aspects of computer-mediated communication by using numbers, color and text style (Greenfield & Subrahmanyam,

2003). By adapting language in this way, teens are able to keep conversational coherence with many chatters and maintain an ongoing text stream. Another study which focused on teenagers found that British girls were very competent at managing the technology and went on to comment on the ways in which these young people's linguistic innovation appear to be altering literacy as we know it (Merchant, 2001). (We return to this issue of language change and technology later in the chapter.)

Web publishing, websites and blogging

In other online contexts, teenagers can also be seen as coproducers of the web, creating and maintaining texts for their peers and others.¹⁴ These texts can be included as part of a website established by a commercial or not-for-profit site (e.g., poetry and young people's 'zine' sites—i.e., electronic magazines). Again, sex differences do occur, and researchers have found that adolescent girls usually outnumber boys as producers of online 'zines' (Knobel & Lankshear, 2004). Teens can also produce unique, stand-alone content for the web—some of which, like blogs ('web logs'), allow for more dialogical, interactive opportunities. (As an example of a dedicated blog space for young people, see <<http://teenblogs.studentcenter.org/>>.) As with some of the newest aspects of online communication, research into web logs is still evolving. There is, as yet, little research which considers how young people are making use of blog technology. An exception here is Grimes' (2003) study, which revealed teens creating blogs as diary-style testimonials referring to the details of their everyday life, daily troubles, thoughts and emotions, even consumer talk, with listings of favorite brands, and television and movie critiques. As an extension of the kinds of autobiographical and cathartic storytelling of personal homepages (see, for example, Chandler, 1998), blogs are likely to be an increasingly popular interactional and identificational resource for teens.

Online gaming

Many teens (especially boys) communicate through, and about, networked games which allow for social interaction and communication with other players. Indeed, even non-networked games should not be overlooked as powerful influencers on young people's communication; these games might not always provide opportunities for synchronous interactivity, but they can provide a great deal of social capital (*cf* Putnam, 2000) for other conversations by young people.

Researchers have been examining how these games are influencing teens and what social influences derive from networked gaming platforms or computer games. For example, Gee (2003) lists more than 30 ideas of what he says can be gained through gaming, some of which are relevant to teens; for example, he considers how gamers develop a sense of identity, make meaning of their experiences, and how they select rolemodels. As something of a contrast, Ho and Lee (2001) found that boys who use computers mainly for playing games are less socially and physically active than those who use computers to do homework, 'surf' the internet, and communicate with others. The same study found patterns of computer usage were not as related to social and activity factors for girls. Research on the impact of these games on teens in both offline and online communication is rapidly growing as the popularity of video games also grows.

Other uses of internet technology by young people

In terms of chat, email and instant messaging, the internet is evidently an important interactional tool for young people. It should not be forgotten, however, that they are incorporating emergent technologies into their lives in other ways too. In particular, low-interactive uses (i.e., those which focus on information and documentation such as databases and encyclopedias) of the internet have also become a very attractive learning and lifestyle resource for young people (Weblink 3). Although the less communicative technologies of the internet are not the focus of this chapter, we do think it is worth making brief reference to them, because, like online gaming, these educational, entertainment and e-commerce sites can also become the content of teen's offline interactions.

Along with the Pew Report's (2001) earlier survey, figures elsewhere (Weblink 14) confirm that young people in the United States rely on the internet for educational purposes, often using the web to help them complete homework and access news and current events. According to Subrahmanyam *et al.* (2001), parents generally value computers as an educational resource. In fact, parents often consider the lack of computers an educational and vocational disadvantage (Holloway & Valentine, 2001). In fact, other studies suggest that the internet has become *the* medium of choice for young people in doing their research and homework (compared, say, to newspapers, magazines, television or radio), even though few use it for noninteractive entertainment, still preferring to watch television or listen to the radio (La Ferle *et al.*, 2000). However, this may be changing with the increasing popularity of personal portable digital audio products such as MP3 players, mini-disc devices, *iPods* and similar players which can be used to play downloaded music from internet sites. As well as using the

internet to pursue topics directly relating to their school or college work, young people also use the internet to access health information, especially on sensitive topics. For example, a survey by the US-based Kaiser Family Foundation (Weblink 6) shows how young people are increasingly using the web for healthcare information. A similar, New York-based study has also found that half the young people sampled had used the internet to access information on topics such as sexually transmitted diseases, diet and fitness, and sexual behaviors (Borzekowski & Rickert, 2001). These authors suggest that easy access at home or at school, together with confidentiality and individualized advice, makes the internet a very suitable resource for young people seeking this type of information.

Although television continues to be very popular among teenagers, the increasing use of affiliated program websites also allows for online dialogue through fan websites and their related bulletin board or chat services. Again, these sites offer themselves as a powerful source of social capital for young people. In fact, as more use is made of the connection between different forms of technologies, increasing levels of convergence will continue to affect the way young people, like adults, use new technologies and interact online. A good example of this is the way that television networks are likely to continue producing more of their shows as convergent media productions (making use of other media to increase their appeal). Soap operas have made use of convergent technologies to involve the audience and offer them opportunities to interact more closely with the show. Viewers can go online to add their comments to message boards on the direction of the plot or on particular issues covered in the show. Global formats of reality television game shows also use these convergent technologies to maximize their audience participation and reach. Research by McKay and Rintel (2001) suggests that online forums offer a site for the creation of various forms of community through which viewers gain access not only to the shows' producers and to selected celebrities, but also to each other. In fact, McKay and Rintel found that many of these chat forums were still operating months after the actual program had finished.

In terms of use of other forms of computer-mediated communication (CMC), especially as it becomes more normalized (Wellman *et al.*, 2001), researchers may want to look further at how these and other emergent forms of technology have become embedded in the cultural practices of everyday life. Questions arise around what teens now expect from the websites which advertise television, films, sports teams, and pop culture, as far as online interaction with the show content and other fans. Although academic research will inevitably take up some of the issues created by the wider discourses of hype and hysteria to which the popular media is so attached, a more fruitful line may well be

to investigate young people's responses to the changing cultural realities and practices produced by new technologies with which they find themselves living.

Mobile phones and text-messaging

Hell is other people talking webspeak on mobile phones. (Humphrys, 2000)

No discussion about new communication technologies would be complete without some mention of mobile (or cellular) telephones. According to commercial figures (Weblink 17), as many as 50 percent of British 7- to 16-year-olds own a mobile phone—a figure which rises dramatically to 82 percent for 14- to 16-year-olds. It is clear that, for a range of economic and cultural reasons (e.g., relative costs of internet access), different technologies of communication compete for young people's attention. In the United States, for example, where instant messaging is so popular, only 25 percent of the 7,000 young people surveyed in one national survey reported using mobile phones (Weblink 14). (In 2004, cellular phone companies in the United States offered teens the opportunity to add instant messaging to their cellular phones, rather than text messages. It remains to be seen whether this will be popular as a mode of communication for young people.)

Although studies such as that of Leung and Wei (2000) report that mobility and immediate access are important factors in mobile phone use, it seems that young people use mobiles for more complex social reasons. The technology that provides mobility also provides a sense of independence, giving them a sense of control over their lives and independence from their families, while at the same time providing their parents with the assurance (albeit perhaps illusory) of contact and immediate access. Mobile phones can help (re-)organize adolescent social life to the extent that young consumers may even choose their provider on the basis of the choice of their social group on the understanding that calls among the group will be cheaper.

However practical a means of parents staying in touch with their children, and however integral a part of young people's social lives, mobile phones are unquestionably also a fashion accessory in themselves (see Kasesniemi & Rautianen, 2002). Owning a mobile phone can be something of a status symbol, not least thanks to careful marketing to this group. Options such as fancy covers, customized ring tones, downloadable text messages, and icons have become part of the appeal of mobile phone culture—and to younger consumers in particular (Leung & Wei, 2000). In the United Kingdom, practical evidence of this is to be found in another survey (Weblink 13) which reported that almost a quarter of all young British mobile phone users were on their third handset,

whereas 46 percent had changed their handset cover and 45 percent had changed their ring tone.

As with the internet, adult concerns about young people's mobile telephone use range from anxieties about health risks, theft, bullying messages (e.g., Weblink 19) and uncontrollable costs, to the popular, but exaggerated, idea that young people are completely reinventing, and thereby destroying, standard (English) language use (Thurlow, 2003). To be fair, there is little doubt that text-messaging for many young people is very popular; toward the end of 2001, for example, it was reported in the press that the number of text messages sent in Britain each month reached 1 billion (Teather, 2001).^[5] Text messaging via mobile phone provides an alternative method of communication which is often cheaper than a regular phone call. The brevity of these messages is part of their appeal as their seeming opacity to outsiders serves to reinforce the exclusiveness of shared social group membership. That the messages can be sent quietly and discretely is used to advantage especially by school and university students who want to stay in contact during classes or while in the library. Even the delay caused by the asynchronous nature of this type of messaging is not necessarily a disadvantage, with one young user commenting, 'If mum calls when I'm out drinking, I'll let it go and SMS her later' (Bryden-Brown, 2001).^[7]

Teens and emergent communication technologies

In addition to discussing the types of technologies teens use, we have considered some of the potential impacts on social interaction through using emergent communication technologies, how these technologies are becoming important social and cultural capital in the lives of teenagers, and how communication technologies may be competing with, or even supplanting, other media-related activities (e.g., television use and landline telephony). In the light of this overview, several thematic points, which cut across different media, can also be made. On the one hand, adults seem to believe that young people nowadays are imbued with a 'natural' media literacy, which is not available to them as adults, and which provides young people with 'new opportunities for creativity, for community and for self-fulfillment' (Buckingham, 2000: 41). On the other hand, however, adults also tend to see young people as passive victims of new (and old) media, which exploit their vulnerability, undermine their individuality and destroy their innocence (p. 41). Similarly, adults are often concerned about the perceived antisocial and/or isolating impacts of young people's internet use (Turow, 1999; Pew Report, 2001). Such polarized, essentialist arguments are well known and widely used in mass market newspapers and magazines. Buck-

ingham's (2000) critique of both the exaggerated optimism and the moral panic regarding new technology is therefore a relevant starting point.

As with so many debates about technological developments (see, for example, Standage, 1999; Kling, 1996), there are optimistic views and pessimistic views about the benefits of new ICTs; where the first tend to emphasize economic (e.g., employment) and educational possibilities through increased media literacy and awareness, the second are concerned that the same level of knowledge and use will result in dissolution of both intellect and social relations. It is interesting to note, for example, that poor school performance and increasing apathy in almost every successive generation of young people has been routinely blamed on their media consumption (Bonfadelli, 1993).

In terms of changing linguistic and communicative practices, our topic here brings together the two dominant 'hype and hysteria' myths in other ways too. As indicated by the newspaper article headlines included earlier, much popular attention is given to both 'teen-talk' and 'netlingo' (or 'webspeak') and both are all too often blamed for their supposedly negative impacts on standard or 'traditional' ways of communicating (Thurlow, 2001a). The same is also true of young people's use of mobile phones and text-messaging (or SMS), where they are understood to be—or rather *accused* of—reinventing the (English) language (Thurlow, 2003). Not only are such claims typically exaggerated and unfounded, but it is fair to say that new technologies of communication can also be empowering for young people as it becomes easier for them to communicate across traditional geographical and cultural boundaries, and as they explore and develop imaginative ways of making the technology work best for them.

Young people and notions of online risk

Teenagers do their talking online: Today's teens communicate more using the internet than they do face-to-face, causing some parents to worry. (Palfini, 2001)

Reports (Weblinks 8 & 12) point to a number of common concerns about young people online, and surveys have shown how many girls and young women are harassed online and the kind of unwanted attention faced by young women in chatrooms. Although patterns of online-to-offline participation vary from country to country, adults are often concerned about the dangers of young people being persuaded into offline encounters, but there is at least some evidence to suggest that young people are becoming increasingly aware of some of these online risks (Weblink 11). There are ethical issues too associated with the

possible exploitation of young people's blogs or websites being 'data-mined' for personal details by youth marketers (Grimes, 2003).

In the field of computer-mediated communication more generally (see Thurlow *et al.*, 2004), there has been some discussion about the possible negative impacts of internet use on individual well-being and existing social networks—especially among young people (e.g., Kraut *et al.*, 1998). Although CMC research has tended to treat with caution such simplistic generalizations—and especially any notion of 'internet addiction'—the idea that young people are somehow impoverished by their use of new technologies continues to hold popular sway.⁶ The main attraction of the internet for many people is clearly not access to information but access to social environments (see Spears *et al.*, 2001; Walther & Parks, 2002); this is especially the case with younger users (Bocca, 2000). As a psychologist and internet researcher, Suler (1998) offers a list of what he sees as some of the potentials of cyberspace for young people: identity (and sexual) exploration and experimentation, intimacy and belonging, separation from parents and family, venting frustrations, and learning about the world. In the same vein, a survey of college students' email use by Kelly *et al.* (2001) is just one example of a growing body of research concerned also with pedagogical applications of communication technologies. In this instance, however, Kelly and her colleagues also discovered how beneficial email was for 'reticent' young people in communicating with their teachers. This finding ties in well with other CMC research which in fact points to some of the obvious advantages in certain modes of communication technology for ameliorating *offline* risk factors such as people who feel intimidated by conventional face-to-face interaction (see, for example, Utz, 2000).

New media are of course also having an impact on families, with the emergence of cellular phones and computer technologies in particular. Not only are parents now choosing to stay in touch with their children by mobile phone, but they are also reshaping spaces in their homes in significant ways to include computer and other types of emergent media (Facer & Furlong, 2001; Holloway & Valentine, 2001). Computer and internet access are increasingly to be found in young people's own bedrooms. Based on interviews with 245 US participants aged 8 to 17, for example, figures suggest that 61 percent of young people have a television, 17 percent have a computer and 9 percent have internet access in their bedrooms (Weblink 20). The organization Knowledge Networks also found that nearly half (46 percent) of the young people with a TV in their rooms do all their watching on that set. The study also found that 35 percent have a video game system in their room, and 14 percent have their own DVD player.

This chapter has outlined some of what is already known about young people's ongoing relationship with emergent communication technologies; to a

large extent, however, it remains unclear how they will continue to shape and be shaped by these technologies. Not only are the social demographics of users of new technologies constantly changing and evolving, but so too are the technologies themselves. A more recent trend, for example, reveals the effect that broadband (i.e., high speed) internet access is having on usership patterns, whereby young people are able to spend much more time online, using streaming video and playing internet games (Weblink 14). Another popular scenario is to be found in the way young women especially are turning to webcams as a source/resource for entertainment, identification and, indeed, commercial gain. (Emmett, 2001, offers a nonacademic account of this trend.) Although the technical affordances of any media will necessarily have an impact on how they are used, young people inevitably bring to technology their usual needs for information, entertainment and socializing. Notwithstanding the unpredictability of the uses and impacts of emerging technologies, the issues that arise in the research we identify here are likely to be key frameworks for understanding the interplay of interactional and technological changes in young people's lives.

Notes

1. This paper is based in part on a colloquy report for the *Journal of Language and Social Psychology* on language and communication in adolescence—see Thurlow & McKay (2003).
2. Examples of the kind of commercial data sources we have used are *CyberAtlas* and *Nua Internet Surveys*, which merged in 2003 to form *ClickZ Stats*. In too much writing about the internet, little explicit distinction is drawn between academic, research-based writing and journalistic commentary, making it hard sometimes to separate empirical evidence from opinion. It is also always important to recognize both the methodological variability underpinning indicative internet statistics, and also the difficulty in attaining reliable figures—not least because users and usership patterns are constantly and rapidly shifting.
3. Helpfully, the 'webmetric' organization *Nua* <www.nua.com/surveys/> has previously offered a separate section relating specifically to teenagers.
4. For information on online content creation (using interview data from over 18s) see <http://www.pewinternet.org/pdfs/PIP_Content_Creation_Report.pdf>.
5. Anecdotaly, online reports indicate how this is true also of Australia (e.g., <<http://www.itouch.com.au/news/news5.html>>) and Singapore (e.g., <http://www.inq7.net/inf/2002/jan/27/inf_10-1.htm>), amongst others.
6. For a discussion of what is now sometimes termed *Pathological Internet Use*, see Griffiths (2000).
7. Adults too recognize the potential of text-messaging. British examples of this include the Department of Health, which launched a 2001 antismoking cam-

paign directed at young people using SMS (see <www.mobileyouth.org/view_item.php/188>), and the University of Bradford, which has used SMS to promote itself to prospective students (see <www.brad.ac.uk/admin/pr/September/text.htm>).

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