ABSTRACT: **Purpose:** This review focuses on children's learning of language and literacy skills in the context of society's changing means of communication, which is increasingly mediated by technology. Children's use of technology has dramatically increased over the past decade. Mobile telephones and computers are a popular medium of electronic communication—the nature of which represents a subtly different form of language, as electronic discourse is a combination of speech and writing. Currently, there are many conflicting opinions regarding the impact that increased use of technology may be having on children's language development, and there is a need for greater clarity and research evidence.

**Method:** This review explores the language and literacy skills children use for communicating via computer technology and considers existing literature on the proposed benefits and negative effects of such technology on these skills.

**Results:** The existing evidence suggests that communication technology has mainly beneficial effects on language and literacy skills and may even be encouraging the development of new media literacy skills, provided that children are supported in accessing developmentally appropriate language and content.

**Conclusions:** More detailed research is needed to separate the effects of specific aspects of computer use and to elaborate on how differing levels and types of computer usage may influence outcomes. In an age of very rapid and pervasive technological advances, there is a need for timely research to investigate the potential consequences of changing trends. Education professionals need up-to-date and fully informed evidence to support parents and caregivers in ensuring that children make the best use of communication technology to promote their language and literacy development.

**KEY WORDS:** language, development, computer, technology, children, literacy
technology on children’s language and literacy development and evaluate the extent to which technology may be having a positive or negative impact on these skills.

Communication technology is composed of many forms of electronic communication. Those associated with the Internet, now accessible through both computers and mobile phones, include e-mail, instant messaging services, chat rooms, forums, social networking sites, interactive online gaming networks, and Web-logs (blogs). In addition, mobile phones enable their users to make telephone calls and send text messages.

Children’s access to this technology is higher than ever before and is still increasing. According to a 2007 survey carried out by the U.K. Government Department for Children, Schools and Families (DCSF), more than 4 in 5 children ages 5–15 have access to a home computer, and levels of Internet use are at 46% for 5- to 7-year-olds and 75% for 12- to 15-year-olds. Furthermore, children in the 12–15 age group reported that use of the Internet was “the most important technology in their lives—more important than television” (DCSF, 2007).

The DCSF (2007) report also found that 87% of 12- to 15-year-olds owned a mobile phone, and nearly three quarters of them used it every day. Similar trends have been reported in the most recent audit of U.K. Children’s Media Literacy carried out by Ofcom, which is an independent organization that regulates the United Kingdom’s broadcasting, telecommunications, and wireless communications sectors. Ofcom (2008) reported that the “use of some key media, including the television, games consoles, and the internet, are well established by the age of five.” Communication was found to be a key driver of Internet use, particularly among older girls (Ofcom, 2008), who are significantly more likely than boys to use the Internet for communication. Specifically, 84% of girls compared to 75% of boys used the Internet at least once a week for instant messaging (Ofcom, 2008). Because of the pervasive and complex nature of this communication technology use, there is a clear need to understand its possible implications for children’s language development.

A report published by the American Alliance for Childhood (Cordes & Miller, 2000) argued that technology is physically, socially, and intellectually detrimental for children (McCarrick & Xiaoming, 2007). The report also argued that computers pose a serious health risk, as the reduction of human interaction can impact children’s social, emotional, and language development. Concerns over the implications of technology are reflected by the popularity of books such as Toxic Childhood (Palmer, 2006). Palmer (2006) speculated many ways in which modern technology has contributed to a rise in developmental disorders among young people. If the research evidence supports these claims that technology is damaging, it would suggest that some children’s language skills may become impaired and literacy levels may fall. At a clinical level, the impact of impaired language is widely known: Language difficulties affect social and emotional development and functioning and have important implications for long-term outcomes and general well-being (Botting & Conti-Ramsden, 2008).

Many of the widely reported concerns regarding the effects of communication technology are very broad and are based on anecdotal evidence. The introduction and proliferation of new technologies is often accompanied by general skepticism and sometimes panic about the prospective negative consequences, particularly when children are involved (Johnson, 2006). The invention of the telephone and later the television were both met with concern regarding the implications for individuals and society as a whole. Early research on the impact and social integration of technology is often heavily affected by general myths and pessimism (Johnson, 2006), which are often perpetuated by the media. Research has also shown a “digital generation gap” (Livingstone, 2003; Livingstone & Bober, 2004). Hence, different views are likely to be expressed by older and younger generations, who in some cases may differ in their perceptions of technology and its relative merit. It is important to consider whether the specific concerns are supported by research findings.

If evidence suggests that there are negative developmental implications for children using technology, it is all the more important that these are highlighted and publicized to ensure that guidance is available to support parents in safeguarding and promoting their children’s development. The recent Ofcom report (2008) also highlighted that since 2005, there has been a decrease in the proportion of parents who have rules for their children using the Internet, and at the same time, the number of children using the computer unsupervised has increased. As the development of new communication technology progresses at an increasing rate, there is the inevitable effect that children’s competency and awareness of such technology begins to overtake that of their parents, resulting in a digital generation gap (Livingstone, 2003). This suggests that parents have less control over how children use technology, and are perhaps less aware of what their children are able to do on the computer and any implications this may have.

In contrast, if the evidence suggests that communication technology has a positive impact on language and literacy development, there may be a need for government policies to ensure equality in providing this educational resource to all. Evidence from both the United States and the United Kingdom has highlighted a “digital divide” (Espinosa, Laffey, Whittaker, & Sheng, 2006; Livingstone, 2003; Livingstone & Bober, 2004) whereby families of lower socio-economic status have greatly reduced access to technology. This research highlighted that in places where access to technology is improved, young people from these households derived the greatest benefit in terms of improved educational achievement (Espinosa et al., 2006).

Children’s increasing use of modern communication technology has implications for educational practice because it is now a prevalent environmental factor in children’s lives. There is a need for professionals working with young people and their families to have a fully informed evidence base as to the possible benefits and drawbacks of communication technology. These professionals can then support families in safeguarding their children’s language learning and literacy development and help ensure that the equality of educational provision and resources benefits all
socioeconomic groups within society and lessens the digital divide.

As technology is constantly adapted and upgraded, so the current trends for online communication continually change. It may become very difficult to find published research that remains timely and is able to highlight which aspects of communication technology seem beneficial and which seem harmful. Before considering the available research, it is helpful to first explore how communication technology may be changing the way in which children communicate.

The Language of Modern Communication Technology

Communicating via technology occupies a unique middle ground between using spoken and written language for communication. Electronic discourse, such as that used in e-mails, text messages, or Internet chat rooms, often resembles writing that reads as if it were being spoken. Some researchers have termed this form of language “written speech” or “spoken writing” (Crystal, 2006). It has been suggested that this form of “netspeak” may represent an entirely new language register (Greenfield & Subrahmanyan, 2003). If children are increasingly communicating in an alternative language form, this may have implications for their communication and literacy skills, as it may be encouraging the development of new skills or leading to the loss of others.

In his book *Language and the Internet*, Crystal (2006) outlined some key distinctions between speech and writing that are relevant when considering the use of written speech and its impact on a person’s language and literacy skills. Speech is time bound and dynamic and forms part of an interaction, whereas writing is space bound, permanent, and static. In speech, there is no time lag between the expression and reception of information, and speech exchanges are usually spontaneous and rapid. Writing does have a time lag, allowing the writer to edit and rephrase information, considering expressions and the needs of the reader. In speech, sentence boundaries are often unclear, and speech interactions contain loose grammatical constructions, such as natural pauses, repetitions, rephrasing, interruptions, and overlap. Informal speech contains many vague expressions, slang terms, and nonsense vocabulary (e.g., watchamacallit). A great deal of spoken communication is also nonverbal; facial expression and gestures convey a great deal of meaning. The nuances and prosody of speech such as tempo, loudness, and tone of voice also convey a great deal of meaning. In writing, however, sentences are carefully and concisely structured with punctuation. Written expressions are usually unambiguous because the vocabulary needs to convey the intended meaning without reference to contextual nonverbal cues, although some orthographic cues, such as capitalization and line and letter spacing, can be used.

With mobile telephones and some computer software, it is possible to use spoken language to communicate a conversation in real time, as if one is face-to-face with another person. However, it is currently more common to use written communication as the primary means of computer-mediated communication (Ofcom, 2008), although it is also possible to switch between these two forms or use both simultaneously. This form of electronic discourse can be “synchronous” (i.e., taking place in real time, as in an online chat room) or “asynchronous” (i.e., taking place with a time delay, as in e-mail; Johnson, 2008). The nature of language in this written communication is heavily dependent on the service being used and the recipient of the information. For example, e-mails may resemble a traditional letter or they may more closely resemble written speech, similar to that used in a real-time online chat room (Baron 1998; Crystal, 2006). It is therefore interesting to consider whether different language and literacy skills are required for this alternative communication method, or whether existing skills can simply be adapted.

Development of Children’s Communication Skills

To provide a framework for considering the potential impact of technology on children’s communication skills, it is helpful to consider the normal course of language and literacy development as currently understood and the succession of skills that children acquire.

*Language.* Spoken language is characterized as a code in which spoken sounds are used to convey meaning (Barrett, 1999). Barrett (1999) made the distinction between three levels of spoken language—sounds, meaning, and context—and highlighted the skills required within each level. At the “sound” level are phonological processing skills, which include recognizing and producing phonetic speech sounds (phonemes). At the level of “meaning” are semantic skills: combining sounds to express and recognize the structures of word units and whole words (morphemes); recognizing and remembering these words forms knowledge of vocabulary (lexicon); and assigning and associating meanings to words forms comprehension skills (semantics). Combining words into meaningful sentences and phrases requires knowledge of rules such as word order, sequence, and grammar (syntax). At the level of “context” are pragmatic skills, which involve understanding the relationship between language and the context in which it is being used (e.g., communicative function, conversational rules, discourse).

*Literacy.* To contrast this with literacy, we could characterize written language as a code in which graphic representations are used to convey meaning. Similarly, we can highlight three levels of literacy skills: orthography, meaning, and context. To understand written text requires knowledge of the representations of letters and sounds (orthography) and the ability to assign these representations to known phonemes and then to combine and blend these phonemes to form words, using decoding skills and existing knowledge of vocabulary. As with spoken language, to understand written text requires semantic and pragmatic skills. Semantic skills include associating meanings with words; pragmatic skills include using context and other written cues such as punctuation and grammar to fully access the meaning of written language.
Environmental Influences

To investigate the influence of computer-mediated communication, or written speech, on language and literacy skills, we can use the earlier framework to highlight research that details any effects on the specific skills outlined. We can also consider research that looks at the impact of computer use on more general cognitive skills as the precursors to literacy.

It is important to bear in mind that language development in children begins at birth. Children have already acquired a great deal of their language skills before the age of 5 years, with many communication skills being in place before the age of 2 years (Bishop, 2001; Dewart, 1995). If 5 years is the earliest age at which children begin to use communication technology (Ofcom, 2008), then we can speculate that it may be those skills that develop later that may be affected by environmental factors such as usage and sociocultural norms. For this reason, higher order language and literacy skills are a useful focus for considering developmental implications. Research into the development of pragmatic language skills suggests that the comprehension of nonliteral language such as idioms, hints, and sarcasm takes place at various points between the age of 6 and 10 years (Bernicot, Laval, & Chaminiaux, 2007; Dewart, 1995). This is the age at which children are also learning literacy skills and beginning to engage in the use of communication technology. Recent models of language acquisition have also highlighted usage-based theories of language learning (Tomasello, 2005), whereby language is dependent on its sociocultural uses, and language skills are accumulated through its use. This model would also suggest that environmental influences on the nature and use of language, such as communication technology, may have an impact on these later developing language and literacy skills.

Impacts of Communication Technologies on Language and Literacy Skills

We can now consider the possible effects that communication technology may have on a child’s language and literacy skills. A key assumption of many concerns is that the time spent using technology may be displacing other activities of greater developmental value (Johnson, 2006), such as sports and social activities. It is therefore important to consider whether evidence-based research findings show that there is developmental value in computer-mediated communication.

Proposed effects on language. Models of language acquisition stress the importance of human interactions in developing language skills. Children raised in very deprived language environments can struggle, particularly with the development of social communication (Bishop, 2001). A major concern regarding communication technology is that it potentially encourages social isolation and that this may have a negative impact on language skills, particularly on social communication skills in that children spend less time interacting face-to-face with their family and peers (McCarrick & Xiaoming, 2007). The lack of face-to-face interaction means that many contextual and nonverbal language cues may be lost, and it is questionable whether conversational maxims such as turn-taking, response, appropriateness, relevance, formality level, and continuation are still adhered to in electronic communication.

Families do report that in households with many media devices, there is a reduction in the number of social interactions that take place (Palfrey & Gasser, 2008). There is also an increasing trend for children to use technology without adult supervision and often in their own room (Ofcom, 2008). Children ages between 8 and 11 years have an average of four media devices (e.g., television, stereo, mobile phone, computer games console) in their bedroom, and children ages 12 to 15 years have an average of six (Ofcom, 2008). Many family members perceive that they are spending less time together and more time independently using technology than was the case a decade ago (Palfrey & Gasser, 2008). Some research has linked the presence of a computer at home with a decline in children’s social relationships, but in the short term, this was found to be due to the novelty effect of having a computer (Subrahmanyan et al., 2000).

The evidence from studies of electronic discourse is that conversational language rules are still adhered to (Baron, 1998; Crystal, 2006; Greenfield & Subrahmanyam, 2003). There appears to be no research to date that has found conversational language skills to be adversely affected by using communication technology. If anything, the limited research in this area would suggest that electronic communication encourages users to be more aware of the need to provide contextual information, and may in fact enhance pragmatic language skills. In a study by Greenfield and Subrahmanyam (2003), teenage chat room users were found to adapt to features of the chat room environment by developing new communication strategies and creating a new communicative register. There is evidence that computer-mediated communication has encouraged new microcommunication behaviors (Walther, 2007) and modified communication strategies (Greenfield & Subrahmanyam, 2003). Users appear to be highly aware of social context (Mesch, 2009) and adapt their relational tone, personal language, sentence complexity, and message composition time depending on their target recipient (Walther, 2007), which suggests a high level of cognitive awareness in terms of pragmatic skills.

There is also evidence that chat groups and online forums develop dialects (Crystal, 2006). Users accommodate their own language to take into account the language environment; this again suggests that language and social communication skills are promoted by using communication technology and are not adversely affected.

Despite concerns that technology reduces human interactions, the use of computer technology for communication purposes has in fact been found to promote social interactions, albeit electronically mediated ones. Children and young people are still communicating as much as ever, but simply via their electronic devices. The overall influence on social interaction depends on whether the social uses of the computer supplement or substitute other sources of social contact that young people have (Subrahmanyan et al., 2000).
Research on very young children has investigated another common concern, whether a lack of adult–child interaction while children use the computer alone affects early learning by inhibiting early spoken language use (Klerfelt, 2007; McCarrick & Xiaoming, 2007; Palfrey & Gasser, 2008). McCarrick and Xiaoming (2007) found that computer use with preschool children did not significantly inhibit or encourage language use, and that computers provided an equally rich environment for language development. However, adult presence with small children has been found to have significant effects on the way the computer is perceived (Klerfelt, 2007). Some researchers have stressed that the computer should be seen as a tool and that adult mediation is vital to promote learning through interactive discussions (Espinosa et al., 2006). Use of nonverbal communication such as gesture has also been highlighted to promote quality interactions between an adult and child using a computer together; this in turn has shown positive effects on learning in literacy (Klerfelt, 2007).

Computers are increasingly being used to promote early language learning (McCarrick & Xiaoming, 2007). Programs are available that develop pragmatic language skills in children with impaired language and autism (Bosser & Massaro, 2003). Computer-mediated communication is also widely encouraged for second-language learning. Computer-aided language learning programs have shown positive effects on disadvantaged children’s language development and are now widely used in preschool Head Start centers across America (McCarrick & Xiaoming, 2007; Subrahmanyam, Greenfield, Kraut, & Gross, 2001).

The Klerfelt (2007) and McCarrick and Xiaoming (2007) studies took place in school settings, but the concerns over adult supervision are perhaps even more important when children use computers at home. There is evidence that children are much less able than adults to assess the credibility and appropriateness of the content and language they are able to access via computer technology (Palfrey & Gasser, 2008). There is a wealth of information accessible via the Internet, but to be able to judge the credibility of information obtained requires a high level of cognitive skill as well as prior knowledge on which to base judgments. From the point of view of social communication, there have also been concerns regarding children’s ability to judge what information is appropriate to share when communicating via the Internet and with whom to share this information (Palfrey & Gasser, 2008). Children have the low-level skills to access information but lack the higher order skills to evaluate it (Johnson, 2007). Research suggests that when using computer-mediated communication, many people are selective in their self-presentation (Walther, 2007). In electronic discourse, the recipient of messages may be known or unknown (Baron, 1998). The lack of nonverbal cues available when communicating with this technology makes it much more difficult to make judgements about what is conversationally appropriate for known or unknown recipients.

It would seem that computer-mediated communication does not appear to have negative effects on specific language skills and may indeed have beneficial effects, particularly for children from disadvantaged backgrounds or second-language learners. However, it would seem that there are valid concerns over the language content accessible to children via computers and their ability to make judgments about what is conversationally appropriate on such an open forum. There is a need for parents and caregivers to safeguard their children’s interests in ensuring they are accessing developmentally appropriate language.

Much of the research that has been mentioned has referred to language skills. We will now consider literacy skills and some of the more general cognitive skills that support literacy development.

Proposed effects on literacy. There is research that shows that computer use may encourage the development of general cognitive skills that, in turn, should support the development of higher order language and literacy skills. Comparisons have been made between computer use and television viewing (Subrahmanyam et al., 2001). Research from the national “HomeNet” study carried out in America found that parents perceive the use of communication technology to be preferable and more beneficial than time spent watching television (Subrahmanyam et al., 2001). Evidence does support this view, although it is the content of media, and not the media itself, that has been found to have a positive or negative influence (Schmidt & Vendewater, 2008). Schmidt and Vendewater (2008) reported that both computer and television use for educational purposes have positive effects on children’s cognitive skills and school achievement.

This study also investigated a common concern that computer use may be linked to attention problems in children and adolescents, which in turn may have a negative impact on learning (Espinosa et al., 2006). The same study reported a small link between mild attention problems and heavy use of electronic media (although this study included television use), but there were no significant links between attention deficit hyperactivity disorder diagnosis and media use. Similar concerns have arisen over the impact of media multitasking, which computer use promotes, whereby children use the computer to carry out several tasks simultaneously while also using other media, such as listening to music or watching television (Roberts & Foehr, 2008). There is some limited evidence that this multitasking approach has negative effects on learning, as children engage with tasks at a more superficial level (Palfrey & Gasser, 2008).

Although these would appear to be valid concerns, they are somewhat outweighed by the numerous studies that have found computer use to have positive effects on cognitive and metacognitive skills (Baron, 1998; Johnson, 2006, 2007; McCarrick & Xiaoming, 2007; Subrahmanyam et al., 2000, 2001). In particular, positive effects on visual intelligence and cognition have been reported (Subrahmanyam et al., 2000, 2001), and these form the precursors to computer literacy development. Availability of computer technology at home has been linked to positive academic achievements in reading and math (Espinosa et al., 2006), with households from lower socioeconomic status groups deriving the greatest benefit. There is a need for more research in this area to tease apart the benefits of computer-mediated communication relative to more passive information gathering, such as Internet browsing or game playing, because much
research simply refers to nonspecific “computer use.” Similarly, there is a need to define the point at which electronic media use is considered “heavy,” and benefits to cognitive skills become outweighed by increased likelihood of attention difficulties.

There is relatively little research that details specific literacy skills and the direct effects of communication technology on these. Most concerns refer to the unique nature of electronic communication as netspeak or written speech (Crystal, 2006). A widely publicized concern has been that children are using this language register of net speak or shortened “text speak” (i.e., abbreviations as used in mobile phone communication, such as b4 = before) in inappropriate contexts, such as written examinations. John Sutherland (2002), an eminent and recently retired professor of English from University College, London, has spoken out in the media about the damage that this communication style is having on children’s literacy skills and attainment. In actual fact, the limited research that has been carried out in this area has found a beneficial effect of text speak on literacy skills, where children who used abbreviated text speak were shown to have better phonological processing skills (Plest- ter, Wood, & Joshi, 2006).

A similar concern is that computer spell-checking devices are de-skilling for children, and that the speed of some electronic communication encourages spelling and typing mistakes to be overlooked (Crystal, 2006). The informal language register of net speak has also been proposed to encourage poor written English. For example, the text of many Web pages is considerably shorter than printed text, using short sentences and paragraphs for ease of reading due to the constraints of screen size (Crystal, 2006). Punctuation is often used in net speak to convey meanings that cannot be provided by nonverbal cues, as would be used in face-to-face discourse (e.g., the use of “emoticons” such as :) to indicate smiling). There has also been concern that this may transfer to children’s written English and encourage grammatical and syntactic rules to be overlooked (Crystal, 2006). Despite the apparent validity of these concerns, there is no evidence as yet to support them, and no research exists that has linked net speak with poor language and literacy skills in these areas.

Several large-scale research studies have highlighted the positive effects of computer use on literacy learning in general, and in particular for young children from disadvantaged backgrounds (McCarrick & Xiaoming, 2007). Computers have been shown to have positive effects on learning by improving self-esteem and motivation, as well as encouraging more effective thinking and problem-solving skills (McCarrick & Xiaoming 2007).

**DISCUSSION AND CONCLUSIONS**

A common theme running through much of the research on communication technology is that computer use is redefining what we mean by literacy and its associated skills (Johnson, 2006; Leu, Kinzer, Coiro, & Cammack, 2004; Livingstone, 2003; Livingstone & Bober, 2004; Rassool, 1999; Schmidt & Vendewater, 2008; Subrahmanyam et al., 2000, 2001). Knowledge is now represented in a very different manner compared to the traditional book format (Livingstone, 2003). Information content on the computer is displayed and accessed in an interactive and dynamic manner; decoding text information for comprehension involves decoding the uses of color, visual cues, and static and moving images and media, as well as following “hyperlinks” to other content (Leu et al., 2004). These processes require additional cognitive skills to access, comprehend, and process the visual input of text and images, and to then manipulate peripheral devices such as the computer mouse and keyboard accordingly (Johnson, 2006). Evaluating the impact of communication technology on language and literacy skills in the traditional sense is perhaps not the best approach. If computer use has redefined and expanded what we understand as literacy skills, then this is a positive effect of that technology. It is important, however, for the research field to reassess the skills that are being considered when assessing the impact of technology, and to move away from using the traditional definition of literacy to encompass this wider skill set.

It would seem from the published research literature that modern communication technology may have an impact on a person’s language and literacy skills. However, the extent to which these effects are detrimental, beneficial, or even specific is still relatively unclear. “Heavy” usage has been associated with negative outcomes such as attention problems that may impact literacy development; however, it remains unclear at which point usage is regarded as heavy, and these negative outcomes outweigh the more general benefits to cognitive skills and literacy. There is a great deal of speculation in the popular media containing anecdotal evidence of the negative impact that modern communication technology has on the communication skills of children and young people. Relatively little research evidence, however, appears to support these concerns, and on the contrary, there is evidence to support many positive effects of technology.

Perhaps the most valid concern is with regard to children’s ability to access such a wide range of language content that may not be developmentally appropriate. The media has speculated about the implications of inappropriate and unregulated content available to children and young people through communication technology (“Children Work,” 2009), and the rising incidents of phenomena such as cyber-bullying that have been linked to cases of teenage suicide, depression, and self-harming behavior. There is mounting concern among the popular media regarding the impact of communication technology on children’s social and emotional health and well-being—an area that has been beyond the remit of this review but is a priority for future research.

The research field focusing specifically on language and communication technology is surprisingly sparse. What research there is also comes from a wide range of disciplines, encompassing sociological, technological, educational, and psychological perspectives. When trying to focus primarily on the psychology of language development associated with technology, it has been very difficult to find an in-depth research base. Much research has investigated computer use...
in very general terms, and only more recent studies have begun to investigate the different uses of computers and the relative benefits and problems associated with different computer activities. With early research into the impact of television viewing, it was found that the content of the activity (e.g., the television program itself) was the most important factor, not simply the technology itself (Roberts & Foehr, 2008; Schmidt & Vendewater 2008). A similar approach needs to be taken with reference to computer use and the merits of different activities, such as e-mail and the content of Internet sites, through the comparison of games with social networks, educational reference Web sites, and so forth. In addition, it appears that future research should be more focused toward specific age groups, as it seems that the activities children engage in on the computer vary greatly depending on their age and developmental level (Nielson Media Research, 2008; Ofcom, 2008). There is also a need for more research into the effects of communication technology with specific reference to children’s language and literacy development and skills as well as their social and emotional development as there may be contrasting findings in these areas that require separate consideration.

With regard to language development, perhaps there is also a new question to consider: To what extent can we evaluate the effects of technology on language and literacy development when we are still using traditional concepts of “communication,” “language,” and “literacy”? The traditional concepts of communication and language may no longer be applicable in this new era of written speech and spoken writing, where people are able to communicate instantly using written language, yet not be face to face. Similarly, the traditional concept of literacy may no longer be appropriate in this new age of “media literacy,” when information is now presented in a dynamic network of links between written content, pictures, and video. Future research needs to take these considerations into account when assessing the impact of this technology on specific language skill areas.

The current rate of technological developments is exceptionally rapid, and trends in children’s use of technology are constantly changing. It is therefore extremely difficult for the research field to remain up to date, and there is almost a need to anticipate potential developments before they occur. The fact remains, however, that this type of technology is becoming an integral part of everyday life and it is therefore hugely important to keep track of its potential implications for developing children.

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