

South Africa's Adolescents in a Wired World

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Abstract: New technology, like the internet and cellphones, play a significant role in adolescents' lives today, and this role is rapidly growing, transforming adolescents' everyday lives in profound ways. Adolescents all over the world use new technology and their numbers are still rising. Some adolescents, particularly in South Africa, have, however, hardly been touched by new technology. This could be ascribed to a lack of interest, understanding or opportunity. It is important to understand the digital divide in South Africa before one can begin to understand the role of interactive media (e.g. computers, video games, educational software, the internet and cellphones) in adolescents' lives. The article provides a review and theoretical background of matters such as how many adolescents have access to the internet, where they are likely to get it, and what effects exposure to digital media have. The research was conducted with the objective to investigate the relationship between the digital divide and digital technologies (including the internet and cellphones) and their use by South African adolescents. The article also attempts to investigate the extent to which South African adolescents engage in online activities that can involve risks, awareness of (parents and secondary schools) and competencies to address the challenges adolescents face online. The method used in this study was content analysis of previously published material, and evaluation of this material provides an understanding of the progress of research in clarifying the current problem of digital divide. An historical overview is relevant to consider in implementing programmes in digital and media literacy. Findings indicate that new forms of digital media are well positioned to play a constructive role in advancing powerful solutions to national educational challenges. Schools must determine what they want learners to experience and learn from their use of new technology so that they are empowered to take control of this powerful new tool in their lives. This article highlights the need for digital media literacy programmes in South African schools that adequately prepare learners for the complex and dynamic life of the 21st century.

Keywords: South Africa adolescents, new electronic media, digital divide, frequency of internet access, new generation cellphones, electronic violence.

1. INTRODUCTION

To critically evaluate the progress of research in clarifying adolescents' access and use of new digital media it is important to look at the broader context of the South African digital media user market. The literature reflected the changing emphasis and conceptions of how technologies can and are being used by adolescents.

South Africa is considered part of the technologically advanced First World, West, yet it is also part of the developing Third World and often referred to as a digitally divided country (Saner, 2003). The term "digital divide" is usually used to refer to differences in access to the different types of digital media, particularly the newer forms of digital media, such as computers, and especially the internet and cellphones (Langa, Conradie, & Roberts, 2005). The internet does indeed give its users great power, but with great power comes great responsibility. It is becoming increasingly difficult to separate the world of computers and the internet (Langa *et al.*, 2005). Because the cost of communication is predicted to decrease, connecting to the internet will become a

negligible cost. Everyone who uses a computer will therefore also be able to have internet access, which will blur the line between the world of computers and the internet even more.

Firstly, in this article, the nature of the digital divide in South Africa will be examined. More specifically, the existence of different types of digital divides (geographical and biographical) will be investigated, focusing in particular on imbalances in access to computers and the internet, as well as on actual internet use. The notion of the digital divide in the context of this article is therefore somewhat broader than the norm as it includes use in addition to the standard focus of access to digital media.

Livingstone (2002) points out that policies designed to ensure access will not necessarily result in increased use. For this reason, detailed data about adolescents' media access and use are needed. What is interesting in the data that Livingstone presents is the discrepancy between access and use: Some adolescents do not use the media they have access to, and others use the media they do not have access to, for example, by frequenting the more media-rich houses of their friends.

A profile of each of the different types of digital divides will be constructed, addressing the extent to which unequal access to and use of new media is

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based on geographical and biographical variables, such as living standard, household income, gender, age, race and educational attainment. This will be followed by an attempt to address the question whether relative disparities in computer and internet access and use represent new inequalities or are a reflection of existing divisions in the spread of other, generally older information and communication media and technologies. This is achieved, firstly, by outlining the nature of divides regarding television, radio and newspaper use, landline and cellphone access as well as cellphone use, and, secondly, by comparing and contrasting these disparities with those identified in relation to computers and the internet.

The concluding section of this article presents and initiates investigation of the relation between new media use and psychosocial problems.

2. RESEARCH METHODS

Literature survey was conducted as basis for the study. An American Psychological Association (APA) citation was used (American Psychological Association, 2010). The research reported involves a quantitative study of characteristics of South African adolescents in a wired world. The nature of the digital divide in South Africa were examined, in the sense that it provides insights about different types of digital divides and the level of interaction with adolescents and their access and use of digital media. While this study also focuses on the psychosocial risks of adolescent learners using digital media, it is important to firstly consider the extent of internet use in South Africa.

3. FINDINGS AND DISCUSSIONS

Descriptive statistics were generated and used in the analysis and description of the research variables. Findings are present as follows:

3.1. Proportion of South African Households that have Access to a Computer/the Internet

According to the leading South African technology research organisation, World Wide Worx, internet use in South Africa between 2000 and 2009 is estimated as follows:

Data in the *Internet Access in South Africa 2012* study conducted by World Wide Worx revealed that South African internet user base had grown from 6,8-million in 2010 to 8,5-million at the end of 2011 – no less than 25% growth (World Wide Worx, 2012).

The South African Census 2011 document shows there were 51 770 560 people in the country at midnight on 9 October 2011, the date of the 2011 Census. The results further showed that 64.8% of households in South Africa had no access to the internet. Of those households that had access to the internet, 16.3% accessed it *via* cellphone, 8.6% from home, 5.6% from elsewhere and 4.7% from work (Moneyweb, 2013).

3.2. Social Inequalities in Access to Computers and the Internet

South Africa is still a country with a huge gap between the rich and the poor. The internet is largely a domain of those who can afford it, although there is a large movement towards getting more people online who cannot afford it (Saner, 2003). Social development projects are pioneering and accelerating this change, and the government is actively supporting it. Gauteng, the Department of Education and the Provincial Government have set up GautengOnline, an initiative to provide every learner and educator in every public school in Gauteng with free internet access, a free email address, and electronic curriculum delivery (Gautengonline.gov.za, 2006).

Table 1: Internet Use in South Africa 2000-2009 (Miniwatts Marketing Group, 2009, p. 1)

YEAR	USERS	POPULATION	% PENETRATION
2000	2 400 000	43 690 000	5,5%
2001	2 750 000	44 409 700	6,2%
2002	3 100 000	45 129 400	6,8%
2003	3 283 000	45 919 200	7,1%
2004	3 523 000	47 556 900	7,4%
2005	3 600 000	48 861 805	7,4%
2008	4 590 000	43 786 115	10,5%
2009	5 300 000	49 052 489	10,8%

Jensen (2002) and Goldstuck (2002) have found that internet users are predominantly white city dwellers who are relatively affluent and well educated. Rural areas unfortunately lag behind not only with regard to internet access, but also with regard to factors that could contribute to bridging the divide, such as literacy, computer skills and higher incomes.

South Africa is therefore a deeply divided society, and these structural inequalities are reflected in the lives of adolescent learners. Van Zyl Slabbert, Malan, Marais, Olivier, and Riordan (as cited in Drotner & Livingston, 2008) have noticed that social dynamics have placed most white South African adolescents in middle-class urban areas, quite distinct from the world of black adolescents. While Van Zyl Slabbert, Malan, Marais, Olivier, and Riordan (1994) distinguish between poor rural and urban middle-class Africans, they feel that, on the whole, theirs is a world of unemployment, poverty, a high population growth rate, inadequate schooling, and largely unavailable basic social amenities. Coloured and Indian adolescents in South Africa appear to be positioned between black and white adolescents (Saner, 2003). Given the rapid changes in class composition that have occurred since the 1994 elections, it is no longer possible to identify clear "racial" identities (Strelitz & Boshoff, 2008). According to these authors (2008), in many instances, black middle-class adolescents have more in common with white middle-class adolescents in some areas of their identities than with black working-class or peasant adolescents.

3.3. Types of Digital Media Divide

The representations of the types of digital media divide is of particular interest for this research study since it indicates in detail the media use in South African households and provides interesting insights in the lives of adolescent learners in South Africa. In this section, the nature of the digital divide in South Africa will be examined. A profile of each of the different types of digital divides will be constructed, addressing the extent to which unequal access to and use of new media is based on geographical and biographical variables, such as household income, gender, age, race and educational attainment.

Household Income

There is a noticeable correlation between household income and internet use. Living standard refers to the level of wealth and includes factors such

as income. South Africa is still a country with a huge gap between the rich and the poor. The standard of living is closely related to internet use. The Living Standard Measurement (LSM), of which one measurement is income per household, is used to divide the population of South Africa into high and low 7–10 categories (South African Advertising Research Foundation, 2009).

Type of Community

Access to computers and the internet, and the use of cellphones are not evenly spread throughout the country (Langa *et al.*, 2005). Sizeable differences between urban and rural environments are apparent. This means that there is a significant urban-rural digital divide in the country regarding accessing and using these technologies.

Race

Race features prominently in all types of digital divides: Coloured and black South Africans have significantly lower computer access, internet access and internet use than their white or Indian counterparts (South African Advertising Research Foundation, 2009).

Age

Age also plays a role: Those 50 years and older display significantly lower computer access, internet access and internet use than younger South Africans. Adolescents are able to embrace technology more easily than the older generation. Age rather than education appears to be the most important factor, since youth under 20, at all levels of education, are more likely to be able to use a computer compared to older respondents with the same level of education (South African Advertising Research Foundation, 2009).

Education

However, education has a pronounced effect, especially the matric and tertiary education levels. Half of the youth who had a post-matric education were able to use the internet. This percentage dropped drastically through the other education levels (matric, secondary education, primary education/none), until almost none of the people who only had a primary education said they were able to use the internet. The impact of the internet will therefore be tilted towards the younger of South African young people (South African Advertising Research Foundation, 2009).

Gender

Women were found to have lower levels of computer access, internet access and internet use than men (Langa *et al.*, 2005). According to the Community Agency for Social Enquiry (2000), young boys seem to have better access to and understanding of technology than girls.

The significant predictor variables for internet access were found to be gender, age and education (Langa *et al.*, 2005).

3.4. What do Adolescents Mainly Use Computers for?

During the early 1990s, game playing was the dominant use of computers among 13- to 17-year-olds (Singer & Singer, 2001). The introduction of the internet, however, has dramatically changed the picture. Recent data suggest that 75% of households in America with computers have internet access, and the dominant use of the internet is for electronic mail (Singer & Singer, 2001). Although game playing is the most frequent online activity among children aged eight to 12, schoolwork has surpassed games as the most frequent online activity for adolescents aged 13 to 17 (Singer & Singer, 2001).

However, electronic games are not limited to PCs. Games are also played on other popular computerised platforms, such as the PlayStation and Xbox game systems. It is important to note that games are a category of content and the internet a delivery system or communication medium. An important quality of modern information technology, however, is the complex relationship between content, delivery system and platforms (Singer & Singer, 2001).

Electronic games can therefore be played *via* many different computerised platforms and delivery systems, including stand-alone game sets, arcade consoles and PCs. Even within a PC, games can be delivered through stand-alone software or through the internet. Not only can games be downloaded from the internet, but they can also be played interactively with other live players over the internet.

Having and using a PC is not enough – the internet appears to be an essential adjunct. In fact, it seems that a symbiotic connection has developed between computer use and the internet – that one without the other leaves the user lacking (Hobbs & Bristow, 2007).

As indicated, even though socio-economic status influences access to the internet, the increasing number of access points significantly increases the likelihood of children having access. Basson (2009) presumes that the main reason for concern is that the increasing number of access points makes it increasingly difficult to control and monitor the content to which adolescents are exposed. Hobbs and Bristow are of the opinion that internet cafes are fronts for drug dealers, and that people using these cafes are responsible for email scams and fraud (Hobbs & Bristow, 2007).

According to Youth Dynamix's YouthTrax, 2009 study, 45,7% of all urban adolescents worldwide use the internet regularly. In South Africa, 33% of adolescents use the internet (Dynamix's YouthTrax, 2009).

Cellphone penetration is higher than internet penetration within this age group. About 61% of urban adolescents in South Africa own a cellphone, and 26% of them list instant messaging as one of the primary uses of their cellphones (Youth Dynamix's YouthTrax, 2009). Instant messaging (IM) is a type of online chat which offers real-time text transmission over the internet. This illustrates the importance of social networking among this age group and indicates a need to be constantly engaged with one another and the world around them.

3.5. Variables Influencing Access

The existence of social inequalities in access to computers and the internet in South Africa is relatively unsurprising. An interesting question, however, is the extent to which these disparities reflect existing patterns of access to more traditional forms of mass media, such as television, cinemas, magazines, newspapers and radios, and other technologies such as cellphones.

From the preceding analysis it is clear that access to digital media such as the computer and the internet in South Africa is informed by similar socio-economic, demographic and geographical cleavages to those characteristic of many other, older information and communication media and technologies.

The foregoing discussion is in line with the (2009) South African Government Communication and Information System census, which showed that ownership of media technology is skewed towards urban areas.

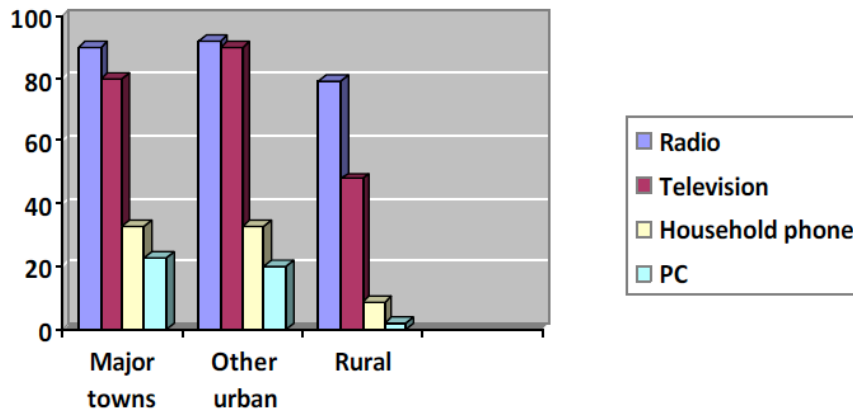


Figure 1: Penetration of various forms of communication. (South African Government Communication and Information System, 2009, p. 349).

Race-based and, to a lesser extent, gender-based inequalities are notable biographical variables influencing access. Since access to computers and the internet generally requires financial resources, as well as basic literacy and technical skills, it is understandable that there would be a particularly sharp divide in terms of educational attainment and income. The barriers also emerge in relation to the other media, since many consumer durables such as televisions, radios, hi-fis and cellphones are likely to be owned by those with a higher social status. Such assets are dependent on having disposable income, which in turn is influenced by one’s education and occupation. The graphs clearly show that those with computer and internet access are more predisposed than the general public towards having access to a television, hi-fi and radio. Reflecting the aforementioned disparities in socio-economic status, geography also plays a role, with poorer, less urbanised provinces generally worse off with regard to digital and other media divides.

3.6. Internet Use at Home

In order to research and define South African internet users, it is important to understand how the

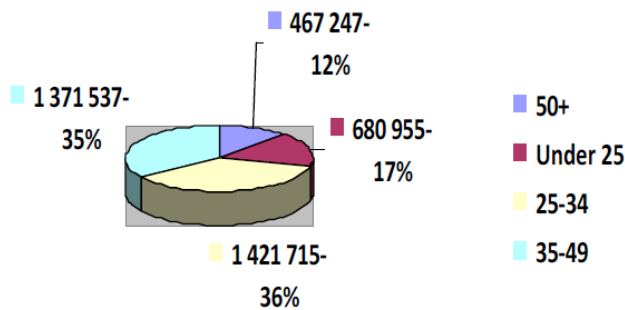


Figure 2: Composition of South African internet population by age. (South Africa Yearbook 2008/09: Communication, 2009, p. 243).

South African population uses the internet by age, how often the internet is accessed, and how much time is spent on it.

An analysis of the frequency of internet access from home shows that more than 60% of users access the internet at least daily. A further 29% make use of the internet two to three times per week, and 2% access the internet monthly (Information Society Statistical Profiles, 2009).

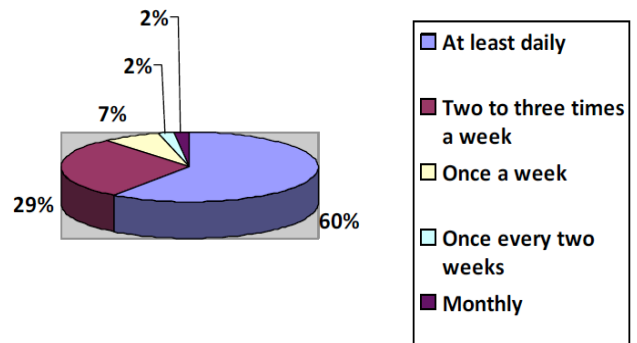


Figure 3: Frequency of internet access at home. (Information Society Statistical Profiles, 2009, p. 68).

In addition to replicating this economic gradient of internet access, Roberts Foehr, Rideout and Brodie, (1999) also found that the average daily computer use among children and adolescents increased as a function of parental education.

Only focusing on how often the internet is accessed could provide misleading information. It is important to also consider the time spent online by users at home. Parents reported that children (aged 2 to 17) in homes with computers spent approximately 1 hour 37 minutes per day on computers, including playing video games (Stanger & Gridina, 1999).

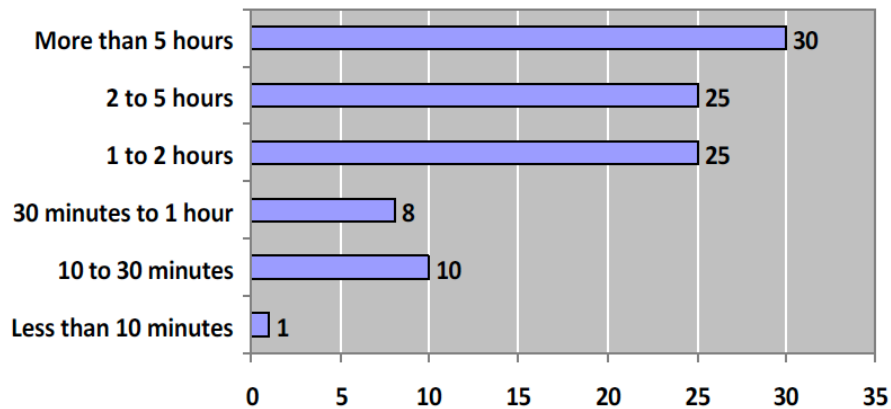


Figure 4: Hours spent per week on the internet at home. (Information Society Statistical Profiles, 2009, p. 71).

Figure 4 shows the distribution of hours spent per week on the internet at home by South African internet users.

From the information provided by Figure 4 it can be concluded that using the internet is becoming an integral part of South African home routines in homes accessing the internet. Very little information is available on how many of the current users are adolescents, although they are taking on this form of new media with great enthusiasm. The most recent international opinion on adolescents and new media is that they are the defining users of the internet: Adolescents not only chat and spend more time online than adults do, but also use online technologies such as instant messaging more often than adults (Lenhart, Madden, & Hilton, 2005).

3.7. The Nature of other Media

In today's "new media environment" many "old" media coexist with "new" media. As such, this discussion will also involve how each new medium has affected the role played by the existing media.

Television provided the same entertainment function that movies did, but with the added convenience of delivering it directly to homes. To survive this threat, the movie industry had to cooperate with television by providing material for broadcasting. As for radio, it had to reinvent itself to survive the television challenge. Radio was forced to move from being a staple at the centre of the living room to becoming portable and physically going to where television could not. The television industry, in an effort to survive with multimedia, introduced high-definition television, a breakthrough towards the computerisation of home television sets. This digital technology is expected to provide multimedia internet services for the

television networks and local stations. Radio, too, has taken the step towards digital broadcasting, which is referred to as digital audio broadcasting (Singer & Singer, 2001).

The internet offers an environment in which all of these media can coexist. With high-speed internet connections provided by either telephone wire, a cable television line or a satellite link, new entertainment options such as movies on-demand, radio, television and "live" online games against many players scattered around the globe have become a reality (Singer & Singer, 2001).

Wartella and Jennings (2000) are of the opinion that the amount of time and the types of activities children engage in while using new media have positive or negative effects on their development. These authors have found that adolescents who spend more time online, communicating with strangers in multi-user domains and chat rooms, experience greater declines in social involvement and an increase in their feelings of loneliness and depression.

Table 2 indicates the time spent per week by South African internet users on different media.

Internet users spend almost as much time surfing the web as they do listening to the radio.

3.8. The Effects of Exposure to the Internet

One question that arises is the same one that has been visited every time a new medium has emerged, namely that of the effect on children. For example, the interactive and distributed (less centralised) nature of the internet makes it difficult to monitor children's use thereof (Singer & Singer, 2001). The notion of monitoring children's patterns of media use is not new,

Table 2: Time Spent Per Week by South African Internet Users on Different Media (Information Society Statistical Profiles, 2009, 73)

Medium	Hours per week
Watching television	13,6
Listening to the radio	9,3
Surfing the web	9,2
Reading books	6,7
Reading newspapers	4,1
Watching videos	3,3
Reading magazines	3,2
Going to the cinema	2,5

but what is new is the significantly larger amount of information to be monitored. What exacerbates the problem is that almost all of this information is available to children, and free of charge. Of course, the internet can serve both pro- and antisocial functions, but it is disconcerting that only 6% of the internet contains educational content. That number is more meaningful when compared to the 1,5% of the internet containing pornographic material (Lawrence & Giles, 1999).

There is a common belief that cyberspace cannot be regulated; that it is, in its very essence, immune from the government's (or anyone else's) control. Lessig (2000) takes seriously the proposition that, in cyberspace, cyber ethics is the law, and it is up to especially digital citizens to decide what values that cyber ethics embodies.

The Film and Publication Board conducted an exploratory research study on new media use among adolescents aged 13 to 18 years. The diffusion and adoption of different forms of new media, such as the internet and cellphones, were investigated, and the nature and extent of their internet use explored. More than 85% of the participants reported that they had access to the internet during April 2009 (Basson, 2009). It was found that the most popular activities on the internet were accessing information (68,7%), downloading content like music and ringtones (50,2%), and obtaining information for school assignments (39,8%). The internet for communication was also very popular: chatting (36,1%), receiving and sending emails (34,6%), using Facebook (28,8%) and instant messaging (19,5%) (Basson, 2009).

The explosion of Facebook in South Africa has the potential for opening up a new access point to South African children for sexual predators. In 2010, South

Africa was rocked by the news of the 17-year-old schoolgirl Anika Smit who was found murdered in the privacy of her home. The teenager's father believed that the murderer was someone she had met on Facebook (Fourie, 2010).

Social networks can also be linked to the countless reports of runaway adolescents in South Africa who had met someone on a social networking site on the internet, never to be seen again. In April 2008, Chantelynn Janse van Rensburg (15) failed to return to her father's home after visiting her mother for the school holidays near Mookgophong (Naboomspruit). Investigators believed that social networking played a key role in her disappearance (Bega & Visagie, 2008).

These true stories bring home the shocking reality of what criminals are looking and waiting for on social networks (Facebook, MySpace, Twitter, FriendFeed, etc.) – that all-trusting person.

Social networking can be seen as the "Pied Piper" of today's youth. It has become a prominent force that lures adolescents into conversations and situations in a virtual arena (Moatshe, 2009). The number of users on these social networking sites is on the rise, with some 41% of 16- to 24-year-olds regularly interacting on the social networking site MXit (Youth Dynamix's YouthTrax, 2009). The most incredible rise in popularity of an instant messaging software application called MXit, which came from nowhere, with no above-the-line advertising, and that has, purely by word of mouth, created a new breed of "chat junkies" in primary and secondary schools (Van den Berg, 2007).

3.9. The Influence of Media on Adolescent Behaviour

Other effects of digital media on adolescents include the instigation of aggressive and violent behaviour, which has become more prominent among South African schoolchildren over the past five years. In 2008, the country was also rocked by the Krugersdorp sword murder: a Krugersdorp matriculant killed a fellow schoolboy with a sword (Grobler, 2008). The incident was blamed on Satanism and the music the boy was exposed to on the internet.

There has also been an increase in bullying in schools that can be associated with the influence of media and interactive gaming technology (Youth Dynamix's YouthTrax, 2009). Cyberbullying has affected almost a third of 11- to 16-year-olds at least once (Common Sense Media, 2010).

Media can, however, also be seen as a secondary educational tool for adolescents, since much behaviour is learned from what they see in television programmes, videos and electronic games, which are some of the stronger influences upon which the youth model their behaviour (MacArthur & McArthur, 2006).

Another effect of media on adolescents is the desire to be part of a global youth culture. They are influenced to consume more products, wear more brands and speak like their international counterparts (Youth Dynamix's YouthTrax, 2009). Adolescents today want to be individuals, not confined to uniformity and structures.

The culture bred by MTV, the internet, pop culture entertainment channels, international TV shows and magazines has seen new recreational interests, such as the growth of hip hop as a music genre in South Africa (Youth Dynamix's YouthTrax, 2009).

The influence of media is reshaping adolescents into a new breed of future adults that socialise, interact and behave differently from previous generations (Moatshe, 2009).

3.10. The Role of Digital Media in the Adolescent Consumer Market

The adolescent market has an interesting relationship with media, and especially new media, which have provided them with the opportunity to use these types of media as a form of self-expression and socialisation. Due to this, new media have three main functions in the lives of adolescent consumers. It provides: (Kraushaar, 2008):

➤ Entertainment

- 75% of 7- to 9-year-olds use the internet for playing games.
- 40% of 13- to 15-year-olds use the internet to listen to and download music.
- The majority of adolescents download contents to their cellphones, as downloads provide added value. Added value is the difference between the price of the download content and the cost of buying the product. 63% of 7- to 15-year-olds and 55% of 16- to 24-year-olds download to their phones.

➤ Information

- Between 60% and 75% of children between the ages of 7 and 15 use the internet for research.

➤ Two-Way Communication

- 19% of 13- to 15-year-olds use the internet to chat.
- Conversations *via* instant messaging is gaining in popularity: One in three 13- to 15-year-olds list Mxit as one of their primary reasons for using a cellphone (Kraushaar, 2008).

According to Kraushaar (2008), it is two-way communication that differentiates new media from old media. The relationship between consumers and media used to be a one-way street, with the medium being the active provider and the consumer the passive receiver of information. While adults are also embracing the new two-way nature of these media, today's adolescent consumers have a different outlook on communication *via* media than today's adults (Kraushaar, 2008). One of the expectations that has been created is that "media" is about two-way communication, and the media that do not provide this engagement become less relevant to these consumers.

Communication in the mind of the adolescent consumer means social networking, having a say and being heard. This translates into interactive empowerment – a new facet of the role of media (Kraushaar, 2008). Communication to the adolescent consumer must engage as much as it must inform and entertain.

This does not mean that traditional media will fall away, or have become irrelevant. The reality in South Africa is that television, radio and the print media still have relevance to adolescents, especially in that these are currently more accessible to more adolescents than new digital media.

The case for change should not be overstated. Each decade may see dramatic technological change, but in many respects children's lives are as they were ten or even 40 years ago (Livingstone & Bovill, 2001). Children grow up with television, ride their bikes, argue with their parents, study hard or become disaffected with school, just as they always did. When significant changes are discernable, these are often only indirectly connected with new media technologies (Livingstone & Bovill, 2001). They rather concern the transformation of time, space and social relations. For example, children no longer walk to school or play in the streets as freely as they used to, and yet they are becoming global citizens, increasingly in touch with other places and

people in the world. Bigger changes are occurring in the family too; families have diversified.

The trick in communicating with adolescent consumers is reaching them through a combined approach *via* a mix of media that can get a message across, as well as being aware of the roles of old and new media to this generation of consumers (Kraushaar, 2010).

3.11. Cellphones and their Effects on Adolescents

New-generation cellphones can be said to comprise two components: the computer component, which makes use of features such as the portable minicomputer, GPS and an MP3 player, and the calling component, which also incorporates SMS sending. Adolescents have adopted cellphones with great enthusiasm, often considering them an integral part of their lives.

The Newsclip research and marketing team states that in South Africa, cellphone ownership is at nearly 90% penetration (Andrews, 2010). This is a far higher number than that of people with access to a television or the internet. Cellphones have also evolved from simple voice and SMSing devices to handsets offering many features and now impact on how people go about their daily activities and interact and communicate with others. While standard handsets can receive cellphone marketing messages, smartphones are at the heart of the cellphone revolution.

The Film and Publication Board study also explored cellphone exposure and use among adolescents aged 13 to 18 years. Nearly all (95,3%) of the participating adolescents owned a private cellphone (Basson, 2009). The exploratory study suggested that technology was the domain of adolescents. The Youth Research Unit (YRU) of the Bureau for Market Research (BMR) at the University of South Africa (Unisa), in collaboration with the Film and Publication Board (FPB) and Vodacom, released another report regarding *new media usage and behaviour of adolescents in selected schools in Gauteng* in November 2009 (Tustin, Van Aardt & Shai, 2009). The research revealed that adolescents' perception of technology was broader than its functionality – that is, that the status associated with having the latest cellphone technology was more important than it being a communication tool. According to Tustin, Van Aardt and Shai (2009) having the right brand of cellphone was more important than having the right brand of clothing or computer.

Generally, adolescents are interested in and knowledgeable about cellphones. Cellphone networks offer much more than just talking and texting – a wide range of multimedia content and services is available, from picture messaging, video clips and games to internet access. Adolescents use a number of the features available on their cellphones (Basson, 2009). The use of these features is presented in Figure 5.

From the features identified in the study it is clear that adolescents own cellphones with advanced

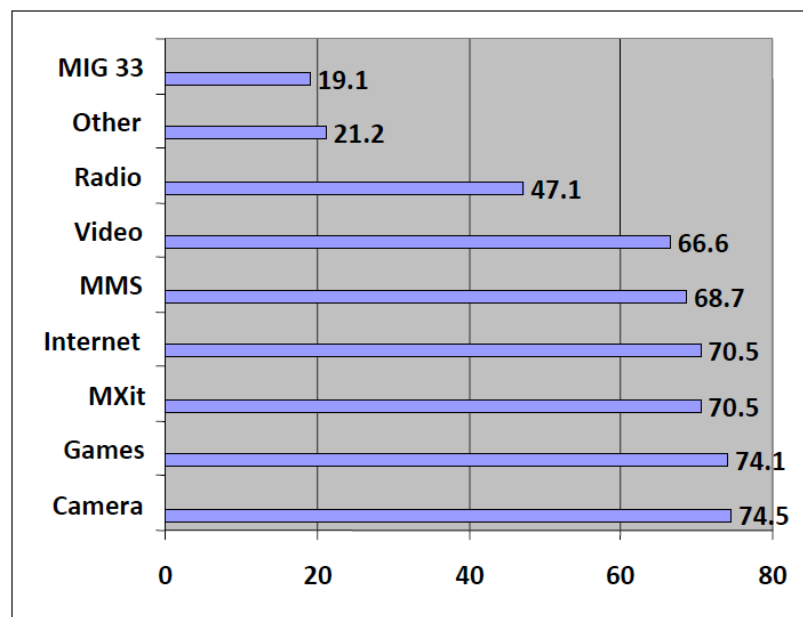


Figure 5: Adolescents' use of features on cellphones. (Youth Dynamix's YouthTrax 2008/9 research study, 2009, p. 8).

features and do not only use cellphones as a basic communication tool (Basson, 2009). All this may seem a bit bewildering to many parents and teachers, especially when children seem to be at ease with the new technology.

As indicated in 3.1, the computer era has never really surfaced in the homes of nearly half of the adolescents in South Africa. However, with cellphones being able to go online, internet access will increase dramatically, and we can assume that this online lifestyle will forever change the face of South Africa's online potential.

We have already seen that adolescents are starting to rediscover the importance of connecting with people to get information and skills (Basson, 2009; Youth Dynamix's YouthTrax, 2009). Being connected has become a 24/7 desire because of the huge popularity of networking. In reality this shift empowers adolescents to identify what people think, what they do and where they are. The difference is, today, in most cases the context is now, current, immediate, and not historical (Van den Berg, 2007).

For many years, cellphones were regarded as luxury technology items of the rich, but since network operators and phone manufacturers started meeting the demand of the world's phoneless majority, cellphones have become a social phenomenon the world over. However, especially in Africa, home to the majority of the so-called Least Developed Countries, the widespread access to this communication device has sparked keen debate about the impact and possibilities thereof for social and economic development (Kreutzer, 2008).

In his research on cellphone use among low-income South African adolescents, Kreutzer (2008) found that despite the near-universal use of cellphones among all respondents, a significant minority (25%) of the sample did not own their own personal handset. Although not owning a cellphone correlated strongly with a sense of economic deprivation, there was no significant difference in cellphone use patterns between this apparently more impoverished group, who used and borrowed other people's cellphones, and the possibly more well-to-do group of cellphone owners (Kreutzer, 2008).

Playing games on a cellphone and listening to music *via* a cellphone are among the top ten daily cellphone activities (Francke & Weideman, 2007). The

most common users of the internet are adolescents, particularly for music (Gillwald, Esselaar, Burton, & Stavrou, 2005).

While the impact of exposure to images of smoking and alcohol in films has been well documented, less is known about the effect of games and music on childhood behaviours. Parker-Pope (2008) stated that, although music lacks the visual element of film, adolescent exposure to music is much more frequent, accounting for an average of 16 hours each week, compared to about six hours each week for movie images.

According to Parker-Pope (2008), frequency of exposure is not the only factor. Unlike visual media, music is a powerful social force that also taps into an individual's personal identity, memories and mood. Music is well-known to connect deeply with adolescents and to influence identity development; possibly more than any other entertainment medium.

As was mentioned, playing games on cellphones is currently very popular, especially among adolescents. Games can be divided into two types: "passive" and "active" games (Waverman, Meschi, & Fuss, 2005, p.7). "Passive" games, which include arcade games, are played on the cellphone without being connected to a network. "Active" games require being connected to the cellular network or the internet. This allows several people to play together and instructions about the next move to be issued, or they can chat to each other about the game. Playing "active" games may involve communication with strangers while playing, therefore it is important to ensure that adolescents are familiar with safe chatting rules.

The connection between electronic games and real-world violence gets more attention every year (Strasburger & Wilson, 2002). The question is not whether the games are to blame, but whether they contribute significantly to the violence. Adolescents kill themselves or other people "because of a game". These deaths do not occur in reality, and no physical pain is endured. According to Green, Reid, and Bigum (1998, p.14), these are "electronic deaths", occurring vicariously on the screens of home computers and cellphones. Anderson and Gentile (2008) are of the opinion that it can create more positive attitudes, beliefs and expectations regarding aggressive solutions to interpersonal problems. In other words, adolescents could come to believe that aggression is normal, appropriate and likely to succeed (Valkenburg, 2004).

Games are an often-cited resource for electronic learning (DiPietro, Ferdig, Boyer, & Black, 2007). The importance of gaming has been the main argument in a paper by Jenkins (2006), in which he argued that important skills learned by game-playing children (e.g. through simulation, educational games, role play, or the playful creation of new content) were becoming increasingly crucial for their future work perspectives. Green *et al.* (1998) are of the opinion that computer games have already become a part of how a new generation is growing up.

Kreutzer (2008) found startling differences between the genders. Video recording and picture taking were predominantly male areas, with an 18 -21% point lead by male respondents. Taking pictures was by far the most popular use among the boys, with 68% doing so on a typical day. By contrast, game playing was found to be more popular among girls: 100% of the girls had played a game before, and 61% did so on a typical day, making games the most used application by girls, closely followed by phone calls.

Unfortunately, bullies are now using cellphones to harass and intimidate others by means of abusive calls, SMSs and images (Waverman *et al.*, 2005). Any form of communication on a cellphone, including voice, text and pictures, could be used for malicious purposes, and it is crucial to take this seriously.

There has been growing concern about the “online grooming” of children by paedophiles who exploit technologies such as chat rooms to make contact with a child and try and arrange a meeting with them. It is very difficult to spot “grooming”, because a child is manipulated and drawn into trusting an individual and often encouraged to keep the relationship secret (Waverman *et al.*, 2005).

Adolescent learners are therefore in an environment that builds an online collaboration. Adolescence, those ranging from 13 to 15 are ready to tackle the kinds of research for which access to the tremendous resources of the internet would be useful (Common Sense Media, 2011). At secondary school level, it makes sense to offer learners opportunities to master a range of high-technology skills. But again, the greater challenge will be to prepare them for the personal and social responsibilities the powerful new media pose (Common Sense Media, 2011). The purpose of digital media literacy education is to help learners develop the habits of inquiry and skills of expression they need to be

critical thinkers, effective communicators, and active citizens in the modern world.

4. RECOMMENDATIONS HIGHLIGHTED IN THIS STUDY

- There is a particular need for research on approaches to assess the effectiveness of digital media literacy education in influencing digital media use outside the classroom. Current media literacy education creates a split between school and home spaces, but adolescents’ digital technology practices flow across both. This should be acknowledged. The success of a digital media literacy programme is strongly anchored in the belief that educational practices should reach learners where they are, which means consistent with learners’ everyday culture and life out of school.
- Teaching digital media literacy is one way of ensuring that all learners, not just the more privileged, are able to use new media meaningfully and can be fully included in digital cultures. It is an important component of tackling the digital divide in South Africa (Kraushaar, 2010). When talking about closing the digital divide in the South African context, it is also important not to leave the issue of literacy out of the picture. It stands to reason that adolescent learners should have the basic skills to use new digital media.
- A better understanding of exactly what adolescent learners’ online lives look like to mediate psychosocial risks would be of great benefit to secondary education in general, as well as to those who in future will design both the school curriculum and intervention programmes for secondary school learners. Further research on the impact of new media on adolescents from different cultural groups is proposed.

5. CONCLUSION

It is clear from the evidence provided in this study that for the most part, those who have adopted new technology and the internet are typically from groups with a higher socio-economic status. It was established that the internet is not a common medium in lower-income households in South Africa.

This study has also shown that the patterns of, among other things, living standard, income and

educational inequalities observed in relation to access to and use of digital media are relatively similar to those observed in relation to older forms of media. This implies that deeply entrenched patterns of social stratification in the country explain the disparities in access to and use of the newer media. Respondents with computer and internet access were shown to be more likely to live in households that possess multiple consumer durables for entertainment and communication purposes, such as televisions and cellphones.

South Africans choose the type of communication technology to be used based on their ability to afford it at a particular point in time. For example, if an internet connection cannot be afforded, then an internet cafe would be a possibility to get connected.

The final part of this article centred on how cellphones introduced a range of new possibilities for social networking, communication media use and production, as well as education. Adolescents in South Africa have adopted many an innovative communicating practice, notably those adolescents that exploit low-cost cellphone applications. Since the development of Wireless Application Protocol technology it has been possible to access the internet *via* some cellphones. Adolescents can reach most of the internet content they have access to on their home computer on their cellphone too.

The internet has huge potential to have a positive impact on South Africa in many different spheres. Although not too many adolescents currently have internet access, this will change over time, until there are computers and an internet connection in most schools in South Africa. As most South African adolescents attend school, the impact of the internet can become considerable if each and every school has access to it.

Out of all the age demographics, adolescents will have the most to gain and will be those most affected by increasing internet access. They adapt quickly to new technology and will integrate it into their lives. It stands to reason that this will affect them, which means they will be different from adolescents who have not had those opportunities. Being "always online" has become a crucial way of life, especially for adolescents. They will be impacted in areas of communication, education and exposure, which also concerns adolescent violence.

Cyberbullying and violent behaviour are problems associated with increased internet connectivity. It was revealed that new digital media are not merely about communication, but also have emotional dimensions. Although these media brought about ease of communication, it has also brought about complex issues, a significant one being that of cyberbullying among school-age children and adolescents.

Technology is especially interesting in terms of its effects on adolescents. Adolescents love change and embracing new technology, but are also most vulnerable to this very technology. They are exposed to increasingly more media options, which afford them increasingly greater choices. As a result, today's adolescents have more media savvy than any generation before them.

Tackling digital inclusion and ensuring equal digital participation opportunities for all young people in South Africa require not only access to new media, but also the digital media literacy skills and knowledge that allow people to create and communicate using these media.

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